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BELLSOUTH TELECOMMUNICATIONS, INC.

DIRECT TESTIMONY OF JERRY D. HENDRIX

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 001305-TP

JULY 27, 2001

Q. PLEASE STATE YOUR NAME, ADDRESS, AND POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC. (HEREINAFTER REFERRED TO AS "BELLSOUTH").

A. My name is Jerry D. Hendrix. I am employed by BellSouth Telecommunications, Inc. as Executive Director – Customer Markets Wholesale Pricing Operations. My business address is 2180 Lake Boulevard, Atlanta, Georgia 30319.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.

A. I graduated from Morehouse College in Atlanta, Georgia, in 1975 with a Bachelor of Arts Degree. I began employment with Southern Bell in 1979 and have held various positions in the Network Distribution Department before joining the BellSouth Headquarters Regulatory organization in 1985. On January 1, 1996, my responsibilities moved to Interconnection Services Pricing in the Interconnection Customer Business Unit. In my current position as Executive Director, I oversee

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the negotiation of interconnection agreements between BellSouth and Alternative Local Exchange Carriers ("ALECs") in BellSouth's nine-state region

Q. HAVE YOU TESTIFIED PREVIOUSLY?

A. Yes. I have testified in proceedings before the Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina Public Service Commissions, the North Carolina Utilities Commission, and the Tennessee Regulatory Authority.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address Issue A that the Commission raised in its Supplemental Order Establishing Procedure regarding the Petition by BellSouth Telecommunications, Inc. ("BellSouth") arbitration of certain issues in interconnection agreement with Supra Telecommunications and Information Systems, Inc. ("Supra"). This issue was added by this Commission in order to address the conduct of Parties in complying with Commission Order No. PSC-01-1180-FOF-TI.

Q. HOW DID THE COMMISSION STATE ISSUE A?

A. The Commission stated the issue as follows:

Has BellSouth or Supra violated the requirement to Commission Order PSC-01-1180-FOF-TI to negotiate in good faith pursuant to Section 252(b)(5) of the Act? If so, should BellSouth or Supra be fined $25,000 for each violation of Commission Order PSC-01-1180-FOF-TI, for each day of the period May 29, 2001 through June 6, 2001?

Q. WHAT DID ORDER NO. PSC-01-1180-FOF-TI REQUIRE OF THE PARTIES?

A. The Commission's Order denied Supra's Motion to Dismiss but specifically required the Parties to comply with the terms of the existing Interconnection Agreement calling for the convening of an Inter-Company Review Board meeting within 14 days of issuance of the Order to discuss any and all disputed issues. The Order also required that within 10 days of the completion of the Inter-Company Review Board Meeting, the Parties were to notify the Commission of any outstanding issues.

Q. HAS BELLSOUTH VIOLATED THE REQUIREMENTS TO THE COMMISSION'S ORDER PSC-01-1180-FOF-TI TO NEGOTIATE IN GOOD FAITH PURSUANT TO SECTION 252(B)(5) OF THE ACT?

A. Absolutely not. The only party in violation of the Florida Public Service Commission's Order is Supra. BellSouth has never raised any issues with this Commission regarding Supra's negotiation tactics, as we have been more interested in doing everything possible to complete the negotiation and arbitration process and execute a new interconnection agreement with Supra. However, in light of Supra's meritless allegations, which clearly are intended to do nothing more than delay this arbitration process even further, BellSouth has no choice but to describe Supra's deliberate attempts to avoid negotiations and execution of a new agreement. As I will set forth further in my testimony, it has been Supra that has acted in bad faith in its dealings with BellSouth. However, before going into specific details on the results of the Inter-Company Review Board Meeting. I think it would be best to provide a brief history of the negotiation process that has occurred between BellSouth and Supra.

History of Negotiation

Q WOULD YOU PLEASE PROVIDE A BRIEF SUMMARY OF HOW THE NEGOTIATION PROCESS BEGAN?

A. Certainly. On October 5, 1999 Supra adopted the Florida BellSouth/AT&T Interconnection Agreement (the "AT&T Agreement"). While the AT&T Agreement expired by its terms on June 9, 2000, Section 2.3 of the General Terms and Conditions of the AT&T

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Agreement provides that "[U]ntil the Follow-On Agreement becomes effective, BellSouth shall provide Services and Elements pursuant to the terms, conditions and prices of this Agreement *that are then in effect.*" (emphasis added) Thus, the parties are continuing to operate under the terms of the AT&T Agreement until such time as a new agreement is executed. Section 2.2 of the General Terms and Conditions of the AT&T Agreement provides that the parties will commence negotiations of a "Follow-On" agreement 180 days prior to expiration of the AT&T Agreement. Pursuant to such provision, on March 29, 2000, Mr. Finlen, an ALEC contract negotiator reporting to me, notified Supra that BellSouth desired to commence renegotiations of the parties' interconnection agreement. (Exhibit JDH-1)

Q. WHAT WAS SUPRA'S RESPONSE TO THE MARCH 29, 2000 LETTER FROM BELLSOUTH REQUESTING NEGOTIATION OF A "FOLLOW-ON AGREEMENT" AS CALLED FOR IN THE AT&T AGREEMENT?

A. Although never specifically acknowledging the March 29, 2000 correspondence from BellSouth, Supra finally sent a letter regarding the Parties current Interconnection Agreement on April 26, 2000 (JDH-2) In its April 26, 2000 letter Mr. Olukayode Ramos, Chairman and CEO of Supra, stated that BellSouth should permit Supra to utilize the AT&T Agreement, which was a Florida agreement with less than two months remaining on the term, for all nine states. Of course, Supra

was not certified in all such states, nor was the AT&T Agreement filed and approved in any state other than Florida as BellSouth pointed out in Mr. Finlen's response of May 3, 2000. (JDH-3) As can be seen in Mr. Ramos's April 26, 2000, letter he did not mention renegotiation of the soon-to-expire AT&T Agreement.

Q. WHEN WAS THE NEXT COMMUNICATION MADE BETWEEN THE PARTIES REGARDING THE NEGOTIATION OF THE "FOLLOW-ON AGREEMENT?"

A. On June 5, 2000, (JDH-4) Mr. Finlen again requested that Supra negotiate a new Interconnection Agreement with BellSouth. The purpose of this correspondence was to notify Supra that sixty-eight days had passed and that Supra had failed to respond to BellSouth's request for negotiations.

On June 7, 2000, Mr. Mark Buechele, Supra's counsel, claimed that BellSouth had verbally agreed to allow Supra to maintain the AT&T Agreement. (JDH-5) This is simply not true. In fact, BellSouth's first correspondence of May 29, 2000 clearly indicates that BellSouth, pursuant to the AT&T Agreement, intended to negotiate a new interconnection agreement with Supra. Mr. Finlen responded to Mr. Buechele on June 8, 2000, once again stating BellSouth's intent to negotiate a new interconnection agreement. (JDH-6) In correspondence dated June 9, 2000, and June 12, 2000, and June 19,

2000, Mr. Buechele indicated Supra's willingness to negotiate with BellSouth, but requested to use the AT&T Agreement as a starting point for negotiations for an Interconnection Agreement not only in Florida, but also for Georgia and Louisiana. (JDH-7)

Q. WHAT WAS BELLSOUTH'S RESPONSE TO MR. BUECHELE CORRESPONDENCE?

A. On July 3, 2000 BellSouth advised Supra that in light of the substantial changes in the telecommunications industry that had taken place since the negotiation of the original AT&T Agreement in 1996, BellSouth believed that using the AT&T Agreement as the base agreement or template would be difficult at best. (JDH-8)

Therefore, on July 20, 2000, BellSouth forwarded to Mr. Buechele and Mr. Olukayode Ramos the draft agreement that AT&T and BellSouth were currently negotiating as a replacement for the AT&T Agreement. (JDH-9)

Q. WHAT HAPPENED AFTER FORWARDING THE NEW TEMPLATE FOR SUPRA'S REVIEW?

A. Shortly after sending the new template to Supra, Mr. Finlen of BellSouth contacted Ms. Kelly Kester, an attorney with Supra, to set up

a face-to-face meeting so that substantive negotiations could take place.

On August 7 and 8, 2000, Pat Finlen and Parkey Jordan of BellSouth traveled to Miami to meet with Supra regarding the new interconnection agreement. On the first day of such meetings, Mark Buechele, Supra's counsel discussed some general issues of concern to Supra. Supra did not propose any contract language or comment on BellSouth's proposed contract language, but simply raised a few issues that Supra wanted to address. The parties then began going through the proposed interconnection agreement that Mr. Finlen had forwarded to Supra on July 20, 2000, starting with General Terms. It was clear that Mr. Buechele had not read the proposed agreement and was not prepared to discuss it. Mr. Finlen suggested that Mr. Buechele read the proposed agreement and that the parties reconvene the following day to discuss his comments. The meeting continued with Kelly Kester, and the parties reviewed Ms. Kester's comments to the General Terms and Conditions portions of the proposed agreement. During the two-day meeting, the parties covered no contract language other than General Terms and Conditions.

Q. AFTER THE FACE-TO-FACE MEETING IN MIAMI, WERE THERE ANY ADDITIONAL NEGOTIATION SESSIONS HELD REGARDING THE "FOLLOW-ON AGREEMENT?"

A. Yes. Because the window for filing for arbitration with Supra concerning a new agreement was fast approaching, BellSouth set up additional conference calls with Supra to negotiate the "Follow-On Agreement." The first such session was to occur on August 15, 2000 but Supra called before the meeting and canceled the conference call. The next two conference calls took place on August 18, 2000 and August 25, 2000. During these sessions the parties reviewed the resale attachment to the contract and identified issues that would need to be presented to the Commission for resolution based upon the issues raised in negotiations.

Q. WERE ANY OF THE NEGOTIATION SESSIONS INITIATED BY SUPRA?

A. No. Supra did not initiate any negotiation meetings, nor did Supra ever offer any contract language for the new Agreement.

Q. WHAT TOOK PLACE AFTER THE LAST NEGOTIATION SESSION OF AUGUST 25, 2000?

A. On September 1, 2000 BellSouth filed a petition for arbitration of the new interconnection agreement with Supra. BellSouth raised 15 issues that had been discussed during the negotiations. On October 18, 2000, Supra filed its untimely response to BellSouth's petition, raising an additional 51 issues that had never been discussed or even

mentioned during the Parties' negotiations. The majority of these issues were copied verbatim from arbitration petitions filed previously with the Commission by AT&T and MCIWorldCom.

Q. HAVE THE PARTIES DISCUSSED THE ARBITRATION ISSUES SINCE THE PETITION AND RESPONSE HAVE BEEN FILED?

A. Yes, briefly. In January the parties met with the Commission Staff for Issue Identification. The parties, with the assistance of the Staff, modified the statement of the issues, but little negotiation occurred. In fact, when BellSouth stated that most of Supra's issues had been copied verbatim from the AT&T and MCIWorldCom arbitrations and asked Supra what it's intent was in raising the issue, Supra stated that it intended exactly what AT&T and MCIWorldCom intended in raising the issue, but Supra offered no further explanation of its position.

Q. DID SUPRA RAISE THE ISSUES OF THE INTER-COMPANY REVIEW BOARD MEETING OR ITS NEED FOR INFORMATION FROM BELLSOUTH AT THE ISSUE IDENTIFICATION MEETINGS?

A. No. However, at the meeting, the Staff instructed both parties to file any proposed language for the unresolved issues by January 31, 2001. Supra stated that it planned to file a motion to dismiss the arbitration based upon the fact that Supra believes BellSouth has no right to file

for arbitration of the agreement with the Commission. Supra did not raise any other grounds for dismissal of the petition.

Inter-Company Review Board

Q. WHEN DID THE ISSUE REGARDING THE FAILURE TO CONDUCT AN INTER-COMPANY REVIEW BOARD MEETING COME TO LIGHT?

A. The first time Supra raised the issue that BellSouth failed to request the Inter-Company Review Board meeting prior to filing the arbitration petition was in its motion to dismiss the arbitration filed on January 29, 2001 with the Commission. This was after Supra filed its response to the BellSouth's petition and raised an additional 51 issues. In addition, on January 8, 2001 and January 23, 2001, BellSouth and Supra participated in issue identification with the Commission Staff. At these meetings, Supra never mentioned that the parties had not held an Inter-Company Review Board meeting pursuant to the Agreement.

However, after Supra pointed out the parties' oversight regarding the Inter-Company Review Board meeting in its Motion to Dismiss, BellSouth began attempting to schedule such a meeting. BellSouth sent its first such request to Supra on April 5, 2001. (JDH-10) Until June 5, 2001, Supra refused to participate in such a meeting.

Q. WHAT WAS SUPRA'S BASIS FOR REFUSING TO HOLD AN INTER-COMPANY REVIEW BOARD MEETING?

A. Supra's basis for refusing to hold an Inter-Company Review Board meeting to discuss the Parties arbitration issues was that BellSouth had purportedly refused to provide Supra with certain BellSouth network information that Supra had previously requested. However, BellSouth was unaware of Supra's position that it could not negotiate the new interconnection agreement until BellSouth provided it with certain network information until BellSouth received a letter dated April 4, 2001. (JDH-11) Although this letter from Mr. Medacier, an attorney for Supra, is dated April 4, 2001, it was clearly dated incorrectly, as it claimed to be in response to Ms. Jordan's April 5, 2001 letter to Supra requesting that the parties schedule an Inter-Company Review Board meeting.

Q. WHEN DID BELLSOUTH REALIZE THAT SUPRA WAS REQUESTING INFORMATION REGARDING ITS NETWORK?

A. BellSouth's negotiating team first learned that Supra was requesting information regarding its network in Mr. Medacier's misdated correspondence of April 4, 2001. Attached to this correspondence was a letter dated April 26, 2000 from Mr. Ramos of Supra to BellSouth. In his letter of April 26, 2000, Mr. Ramos alleges that a telephone conversation had occurred between the parties and that Supra was requesting "all the information attached as Exhibit 'A' to this letter." Notwithstanding Mr. Medacier's and Mr. Ramos' representations,

BellSouth had not previously been advise of Supra's position on this issue or provided a copy of the template.

Q. WHAT WAS BELLSOUTH'S RESPONSE TO SUPRA'S MISDATED APRIL 4, 2001 CORRESPONDENCE?

A. On April 9, 2001 BellSouth sent correspondence (JDH-12) to Supra requesting clarification of the specific information Supra was requesting. In this correspondence BellSouth stated that it did not recall Supra having made a request for network information at the meeting to discuss the "Follow-On Agreement" that took place in Miami during the August 8, 2000 timeframe. BellSouth further advised Supra that it was willing to discuss any network or other issues relating to the new interconnection agreement as has been proposed by the Florida Public Service Commission Staff.

Q. BESIDES ITS REQUEST OF APRIL 5, 2000 FOR AN INTER-COMPANY REVIEW BOARD MEETING, DID BELLSOUTH ATTEMPT TO SCHEDULE THE INTER-COMPANY REVIEW BOARD MEETING AT OTHER TIMES?

A. Yes. On April 13, 2001, BellSouth sent correspondence (JDH-13) asking Supra to participate in an Inter-Company Review Board Meeting as soon as possible. On May 1, 2000 Supra refused again to meet with BellSouth (JDH-14) stating that its position was that it could not

"engage in fruitful meetings regarding the follow-on agreement until Supra is in receipt of the responsive documents to its letter of April 26, 2000." In a letter dated May 9, 2001 (JDH-15), BellSouth once again advised Supra that it was willing to meet via the Inter-Company Review Board process to discuss any issues relevant to the "Follow-On Agreement" between BellSouth and Supra.

Network Information

Q. WHAT WAS THE NETWORK INFORMATION THAT SUPRA WAS REQUESTING IN ITS ALLEGED LETTER OF APRIL 26, 2000?

A. Exhibit A to the alleged letter of April 26, 2000 was a template that was a portion of a report that had been prepared by the Increased Interconnection Task Group II in January of 1996, a month before the Telecommunications Act of 1996 became law, for the Network Reliability Council. The part of the report that Supra sent was intended to be a no more than a guide to carriers that were planning to establish an interface between their networks.

Initially, BellSouth's negotiating team was unfamiliar with the template, which Supra merely sent with no explanation. However, when Supra finally provided BellSouth the entire Report from which the template was copied, BellSouth learned that the Increased Interconnection Task Group II was formed to look at network reliability issues within the public switched telephone network as a result of the increasing number of service providers, including wireless and cable providers, requiring

interconnected networks that were then forming the national telecommunications network infrastructure. The introduction to the template clearly states that the template should be used as a guide for discussion of specific types of interconnection interfaces. It states, "The following worksheet should be used during the joint planning sessions between interconnecting service providers. This is an outline of the minimum set of topics that need to be addressed in bilateral agreements for critical interconnections."

Thus, for these templates to have any rational meaning, Supra would have had to first identify the types of interconnection interfaces that it planned on implementing in its network. Based on these types of interconnection interfaces, BellSouth and Supra could potentially use the template as a guide to ensure that they have covered all issues that might arise when actually implementing the agreed-to forms of interconnection.

Q. WAS THE NETWORK INFORMATION THAT SUPRA WAS REQUESTING IN ITS ALLEGED LETTER OF APRIL 26, 2000 Reasonable?

A. No. As can be seen in the attached copy of the Increased Interconnection Task Group II Report (JDH-16) provision of all possible information on all topics listed in the template is impossible, and Supra's request that BellSouth do so is unreasonable. In fact, as is

evident in BellSouth's correspondence, BellSouth stated time and time again that it was impossible to determine what information Supra needed just be reviewing the template, and BellSouth repeatedly asked that Supra provide more details regarding the network information it was hoping to receive.

Supra simply used its nonsensical request for network information as a tactic to delay having to meet with BellSouth in an Inter-Company Review Board meeting.

Q. IS BELLSOUTH WILLING TO PROVIDE REASONABLE AND NECESSARY NETWORK INFORMATION TO SUPRA?

A. Yes. If Supra had provided BellSouth with specific information about the type of interconnection interfaces it planned to implement in its network and exactly what information it needed to interconnect with BellSouth, then BellSouth could have provided information on how the Parties needed to interconnect their respective networks. However, Supra chose not to do so, but instead simply sent BellSouth the template demanding that BellSouth produce all information that related to over 100 vaguely defined topics, such as "tariff identification," "Interface specifications," and "network design."

Q. WHEN WAS THE NEXT INTER-COMPANY REVIEW BOARD MEETING HELD AND WAS THE "FOLLOW-ON AGREEMENT WAS DISCUSSED?

A. On May 29, 2001, BellSouth and Supra held an Inter-Company Review Board meeting, at Supra's request, to discuss issues *unrelated* to the negotiations of the new interconnection agreement. Although the agenda Supra provided for the meeting referenced a discussion of the "Follow-On Agreement", Supra once again stated that it would not discuss the issues raised by either party in the arbitration until BellSouth provided it with network information. BellSouth's representatives were surprised that Supra continued to refuse to discuss the issues raised in the arbitration, as on May 23, 2001, the Commission released its Order requiring that the parties convene an Inter-Company Review Board meeting to discuss "any and all" arbitration issues.

However, Supra stated that it had prepared a more detailed request for network information and that it would fax the information to BellSouth. (JDH-17) BellSouth agreed to review the fax and to endeavor to obtain the information requested by Supra to the extent the request was clear. At the conclusion of the May 29 meeting, the parties agreed to meet again on June 4, 2001, to continue discussions regarding issues *unrelated* to the arbitration for the "Follow-On Agreement."

Q. WHAT TOOK PLACE AT THE JUNE 4, 2001 INTER-COMPANY REVIEW BOARD MEETING?

A. The parties met via conference call as scheduled on June 4, 2001. BellSouth had reviewed Supra's fax, purportedly detailing Supra's information requests. While the faxed request for information was a bit clearer than the previously provided template, it still contained vague and ambiguous requests. Nonetheless, BellSouth agreed to pull together for Supra as much of the information as it reasonably could, and to provide it to Supra as soon as possible. During this meeting BellSouth stated that per the Commission's Order No. PSC-01-1180-FOF-TI, the Parties were required to hold an Inter-Company Review Board meeting to discuss the negotiations and the issues raised by the Parties in the arbitration, and that such requirement was not conditioned on any information exchange. Supra again refused, stating that it would not discuss ANY issues prior to its receipt of network information from BellSouth.

Q. HAS BELLSOUTH RESPONDED TO SUPRA'S REQUEST FOR INFORMATION THAT IT FAXED TO BELLSOUTH ON MAY 29, 2000?

A. Yes. While the requested information was vague and ambiguous, BellSouth responded to Supra on July 9, 2001. Attached is the information that BellSouth provided to Supra. (JDH-18)

Q. HAS SUPRA RESPONDED TO BELLSOUTH REGARDING THE NETWORK INFORMATION BELLSOUTH PROVIDED?

A. No. Supra has not mentioned the information, nor has Supra offered to discuss any of the arbitration issues that it previously claimed could not be discussed prior to receipt of such information.

Q. DID SUPRA EVER AGREE TO AN INTER-COMPANY REVIEW BOARD MEETING TO DISCUSS THE ARBITRATION ISSUE?

A. Late in the afternoon on June 5, 2001, Supra, via e-mail, (JDH-19) requested that the parties reconvene on June 6, 2001, the last day before the Parties would have been in non-compliance with the Commission's Order No. PSC-01-1180-FOF-TI, to discuss a *limited* number of the arbitration issues. Supra also submitted a list of the issues that it would agree to discuss. (JDH-20) Even though Supra agreed to discuss a limited number of Issues, 24 to be exact, the Parties were able to resolve 3 issues. These were issues 2, 3, and 39. In addition, of the 24 issues that were discussed at the June 6, 2001 Inter-Company Review Board Meeting, one of those issues, issue 64, had been withdrawn at the issue Identification meetings in January of 2001. This left 52 issues that have not been resolved, 32 which Supra refused to discuss at the June 6, 2001 Inter-Company Review Board Meeting.

Q. WHAT HAS TAKEN PLACE SINCE THE JUNE 6, 2000 INTER-COMPANY REVIEW BOARD MEETING?

A. On June 15, 2001 Supra sent BellSouth a redline of the General Terms and Conditions of its existing interconnection agreement (rather than a redline of the document that had been negotiated by the parties in August and filed with this Commission along with the arbitration petition). Although the parties resolved issue 2 on June 6, 2001, by agreeing to include in the new interconnection agreement the same confidentiality language that appeared in the AT&T Agreement, Supra's redline adds language to the confidentiality section. BellSouth cannot agree to these additions. Thus, as BellSouth cannot be certain whether Supra is willing to accept the language to which the parties agreed during the June 6 meeting, Mr. Ruscilli is filing testimony regarding this issue. In addition, Supra included language in the redline that is unrelated to issues in this arbitration, leading BellSouth to believe that Supra has no intention of ultimately accepting language from BellSouth's proposed agreement that was not disputed by either party.

Q. HOW DO THE FOREGOING FACTS CONSTITUTE BAD FAITH NEGOTIATIONS ON SUPRA'S PART?

A. It is clear from the chronology of events described above that Supra has engaged in delay tactics and has at every turn failed to act in good faith in negotiating a new interconnection agreement with BellSouth. Supra's Motion to Dismiss, which was filed with this Commission on January 29, 2001, nearly five months after BellSouth's petition for arbitration was filed, and over three months after Supra filed its response, was based on its claim that BellSouth failed to hold an Inter-Company Review Board meeting prior to filing the arbitration petition. BellSouth admits that it overlooked the provision in the AT&T Agreement requiring that such a meeting be held. However, Supra never requested an Inter-Company Review Board meeting during negotiations, although it was fully aware of the deadline for filing the arbitration petition and knew full well that BellSouth was going to file a petition. Furthermore, Supra filed it's response to the petition, *adding 51 issues*, without requiring an Inter-Company Review Board meeting. Supra and BellSouth spent two full days with the Florida Commission Staff in issue identification, and never once did Supra claim that the parties had not held an Inter-Company Review Board meeting. When ordered to file contract language and testimony with the Commission, Supra instead ignored the Commission's instructions and chose to file a Motion to Dismiss, seeking to avoid progression of the arbitration proceeding and making claims that should have been made, if at all, months previously. Further, when BellSouth attempted to cooperate with Supra and convene and Inter-Company Review Board meeting to discuss the unresolved issues, Supra imposed yet another delay tactic

by claiming that it could not possibly negotiate the agreement without first obtaining information from BellSouth.

Once again, Supra's claim is disingenuous. The parties met several times, both in person and via telephone conference, to discuss the proposed agreement. Supra filed a response to the arbitration petition raising issues for the Commission to resolve, and the parties met for two days with the Commission Staff to frame the issues of the parties. Again, not once did Supra ever claim to BellSouth or to the Commission that it could not negotiate a new interconnection agreement without first receiving information from BellSouth. Only after BellSouth offered to hold the Inter-Company Review Board meeting did Supra make this implausible claim.

Finally, and most importantly, this Commission ordered the parties to convene an Inter-Company Review Board meeting to discuss the arbitration issues. Neither the parties' interconnection agreement nor the Order conditioned the meeting on exchange of information. As the correspondence attached to my testimony clearly reflects, BellSouth made numerous requests to hold such a meeting, and Supra consistently refused. Only after BellSouth reminded Supra during an unrelated meeting on June 4, 2001, that refusing to meet to discuss the issues would result in a violation of the Commission's Order did Supra agree to meet to discuss a *limited number* of the issues. **Supra to date has continued to refuse to discuss 32 of the arbitration issues,**

despite BellSouth's requests, in direct violation of the Commission's Order. Moreover, nearly every issue (27 of 32) Supra has refused to discuss is an issue that Supra itself raised in its response to BellSouth's petition. Thus, eleven (11) months after the arbitration petition was timely filed, the parties are just filing testimony in this proceeding due to Supra's bad faith negotiations and delay tactics.

Q. PLEASE SUMMARIZE YOUR TESTIMONY?

A. In my position, I am responsible for negotiations with hundreds of ALECs. While I often encounter ALECs that are not interested in devoting time to renegotiations of existing agreements, Supra is the only ALEC with whom I have dealt that has failed to file timely pleadings, testimony and other documentation required by the Commission and that has failed to comply with an express Commission order requiring the parties to act. Supra's intentional delaying tactics and bad faith should not have to be tolerated by BellSouth, and certainly should not be tolerated by this Commission.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-1

Transmittal Cover Sheet for Hendrix Exhibit JDH-1

Which consists of 1 page

BELLSOUTH

BellSouth Interconnection Services

March 29, 2000

Olukayde Ramos
Supra Telecommunications & Information Systems, Inc.
2620 SW 27th Avenue
Miami, FL 33133

Dear Mr. Ramos:

On October 5, 1999, BellSouth Telecommunications, Inc. ("BellSouth") and Supra Telecommunications & Information Systems, Inc. ("Supra") entered into an Interconnection Agreement in the state of Florida (the "Agreement"). The expiration date for that Agreement is June 9, 2000. Please be advised that this correspondence serves as notification that BellSouth chooses to negotiate a new Interconnection Agreement rather than to extend the term of Supra's existing Agreement.

As such, pursuant to Section 2 of the General Terms and Conditions of the Agreement and in compliance with Section 251(c)(1) of the Communications Act of 1934, as amended ("Act"), BellSouth is hereby requesting that Supra commence good-faith negotiations with BellSouth to enter into a new Agreement.

In an effort to move the negotiation process along, an electronic copy of the BellSouth proposed Interconnection Agreement is enclosed for your review. Once you have had an opportunity to review the proposed agreement, please contact me with questions. If need be, we can begin scheduling meetings between the companies to address issues raised during your review.

Should you have questions regarding this, please do not hesitate to call me at 404-927-8389.

Sincerely,

Pat

Pat Finlen
Manager – Interconnection Services

Cc: Parkey Jordan, Esq.
Nancy White, Esq.

Enclosure

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-2

Transmittal Cover Sheet for Hendrix Exhibit JDH-2

Which consists of 1 page

Supra Telecom

2620 S.W. 27th Avenue Miami, FL 33133

Olukayode A. Ramos
[illegible]
Telephone [illegible]
Fax [illegible]

April 26, 2000

VIA FACSIMILE/OVERNIGHT MAIL
Mr. Pat Finlen
Room 34S91 BellSouth Center
BellSouth Telecommunications, Inc.
675 West Peachtree Street, NE
Atlanta, Georgia 30375

Re: ADOPTION OF INTERCONNECTION AGREEMENT

Dear Mr. Finlen:

In reviewing the interconnection agreement between our two companies, I have discovered that your refusal to allow Supra Telecom to utilize and adopt the interconnection agreement between BellSouth and AT&T for the entire BellSouth service area is in error. Section 1 of the General Terms and Conditions states in part that:

> "Unless otherwise provided in this Agreement, BellSouth will perform all of its obligations hereunder throughout its entire service area."

The purpose of this letter is to give you an opportunity to correct this error by making immediate arrangements to allow Supra Telecom to utilize and adopt the BellSouth\AT&T interconnection agreement throughout BellSouth's entire service area. Because the BellSouth\AT&T interconnection agreement obviously applies to BellSouth's multi-state region, any refusal to utilize and adopt that agreement for states other than Florida is a direct violation of the agreement and the 1996 Telecommunications Act. If you have any questions or comments, please feel free to contact me immediately.

Regards,

Olukayode A. Ramos
Chairman & CEO

Cc: Mark Buechele, Wayne Stavanja, David Nilson, Carol Bentley and Victor Miriki (Supra Telecom)
Parkey Jordan (Esq.), Marcus Cathey and Scott Kunze (BellSouth)

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-3

Transmittal Cover Sheet for Hendrix Exhibit JDH-3

Which consists of 2 pages

BELLSOUTH

BellSouth Interconnection Services

May 3, 2000

Mr. Olukayode Ramos
President
Supra Telecommunications & Information Systems, Inc.
2620 S. W. 27th Avenue
Miami, FL 33133

Dear Mr. Ramos.

This is response to your April 26, 2000 letter regarding Supra's adoption of the BellSouth/AT&T Interconnection Agreement. If I understand your letter correctly, you believe the agreement between Supra Telecommunications and Information Systems, Inc. ("Supra"), in which Supra adopted the Florida BellSouth/AT&T Interconnection Agreement, should not only apply for services and products offered by BellSouth within the state of Florida, but should be utilized for all other states in the BellSouth region. You base your position on Section 1 of the General Terms and Conditions of the Florida BellSouth/AT&T Interconnection Agreement, which states:

> "...Unless otherwise provided in this Agreement, BellSouth will perform all of its obligations hereunder throughout its entire service area."

The agreement is Florida specific and this statement means that BellSouth will perform in its service area within the state of Florida, not in the service areas where BellSouth is not the ILEC.

You are incorrect in your belief that the Florida BellSouth/AT&T Interconnection Agreement should apply to the remaining states in the BellSouth region. AT&T and BellSouth have executed separate agreements for the remaining states. Each has a separate termination date and varying terms, conditions and prices. Also the Florida BellSouth/AT&T Interconnection Agreement has only been approved by the Florida Public Service Commission. It has not been approved in any other state.

However, if by your letter your intention is to simply adopt each state specific BellSouth/AT&T Interconnection Agreement, that request poses a different set of circumstances. With the exception of Florida, which Supra has already adopted, the following table shows by state the expiration date of each state specific BellSouth/AT&T Interconnection Agreement.

State	Expiration Date
Alabama	December 7, 2000
Georgia	February 2, 2000
Kentucky	August 12, 2000
Louisiana	July 20, 2000
Mississippi	April 6, 2000
North Carolina	April 27, 2000
South Carolina	June 1, 2000
Tennessee	February 23, 2000

In accordance with C.F.R. 51.809(c), BellSouth's policy is that an agreement is not available for adoption if that agreement has less than six months remaining on its term. Based on this policy the only BellSouth/AT&T Interconnection Agreement within the window is the Alabama agreement. Unfortunately, the Alabama agreement was rejected by the state Commission and therefore does not meet the criteria on 47 U.S.C. Section 252(i) Therefore, Supra will need to identify other state specific agreements to adopt, or begin negotiations for a stand alone Interconnection Agreement for all states except Florida.

If you have any questions or comments, please feel free to contact me immediately. I can be reached at (404) 927-8389.

Sincerely,

Pat

Pat Finlen
Manager - Interconnection Services

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-4

Transmittal Cover Sheet for Hendrix Exhibit JDH-4

Which consists of 1 page

BELLSOUTH

BellSouth Interconnection Services
34S91 BellSouth Center
675 West Peachtree Street, N.E.
Atlanta, Georgia 30375

June 5, 2000

Olukayde Ramos
Supra Telecommunications & Information Systems, Inc.
2620 SW 27th Avenue
Miami, FL 33133

Dear Mr. Ramos:

Your Interconnection Agreement with BellSouth, in the state of Florida, expires by its terms on June 9, 2000. By letter dated March 29, 2000, BellSouth formally initiated its request to negotiate a new Agreement and sent to you BellSouth's standard interconnection agreement to be used as the starting point of our negotiations (see attached letter). Sixty-eight days have now passed and Supra Telecommunications & Information Systems, Inc. ("Supra") has failed to respond and enter into negotiations.

Please call Julia Hand to schedule a meeting to discuss a new Agreement. She can be reached at (404) 927-7806.

Sincerely,

Julia Hand for Pat Finlen

Pat Finlen
Manager – Interconnection Services

cc: Parkey Jordan, Esq.
Nancy White, Esq.

Enclosure

002040

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-5

Transmittal Cover Sheet for Hendrix Exhibit JDH-5

Which consists of 2 pages

MARK E. BUECHELE
ATTORNEY AT LAW
P.O. BOX 398555
MIAMI BEACH, FLORIDA
33239-8555

TELEPHONE
(305)531-5286
FACSIMILE
(305)531-5287

June 7, 2000

VIA U.S. MAIL AND FACSIMILE
[(404) 614-4054 & (404) 658-9022]
PARKEY JORDAN
General Attorney
BellSouth Telecommunications, Inc.
BellSouth Center, Suite 4300
675 West Peachtree Street, N.E.
Atlanta, GA 30375

Re: Supra-BellSouth Interconnection Agreement

Dear Parkey:

I am in receipt of your letter of yesterday afternoon. Although I intend to respond to your letter in considerable detail, this letter is intended to address the current status of the interconnection agreement between our companies. Additionally, this letter follows-up on Pat Finlen's letter of June 5, 2000 (which was signed by Julia Hand).

First, I wish to memorialize the status of our contract negotiations as understood by Supra Telecom. On March 29, 2000, Pat Finlen apparently sent Mr. Ramos a letter regarding the impending expiration of the current AT&T\BellSouth Agreement which had been adopted by Supra Telecom. After receipt of that letter Mr. Ramos spoke to Mr. Finlen and advised him that it was the intention of Supra Telecom to keep the terms of the current agreement until such time as the current re-negotiations between BellSouth and AT&T were concluded. At that point, Supra Telecom would opt into the new AT&T\BellSouth Agreement. At that time, Pat Finlen advised Mr. Ramos that this request would be fine. Therefore the letter of June 5th (signed by Ms. Hand) was somewhat of a surprise since we were expecting documentation that would memorialize the discussion between Mr. Ramos and Mr. Finlen.

As stated above, Supra Telecom wishes to execute an agreement which, except for expiration date, would retain the exact same terms as our current Interconnection Agreement. The time period for this new agreement can be three years. However, after negotiations between AT&T and BellSouth have concluded, Supra Telecom may then choose to opt into that agreement. We do not see why this request should create any problems for BellSouth since the current agreement was obviously acceptable to BellSouth when originally negotiated with AT&T. Moreover, the current Agreement has already "passed muster" with the Florida Public Service

Commission ("FPSC") and has been the subject of various FPSC rulings that clarify various provisions and memorialize current Florida law on the various subject. Moreover, incorporating the terms of the prior agreement into a new agreement, will make negotiation of a new agreement quick and simple; thereby creating a "win-win" situation for everyone. Although Supra Telecom would prefer entering into the same agreement again, if you believe that there are some terms in the current agreement which require modification or updating to bring the agreement in line with recent regulatory and industry changes, we would be happy to consider any proposed revisions. In any event, to avoid any delay, we can agree to negotiate such revisions by way of an amendment at a later date.

I have addressed this letter to you because you are the attorney handing Supra Telecom's contractual matters. Since drafting the proposal agreed to by Mr. Ramos and Mr. Finlen should be a simple, I will be happy to deal directly with Ms. Hand if you provide me written permission to do the same. Otherwise we can handled this matter directly between ourselves. Moreover, if you wish, I will be happy to draft a proposed agreement which adopts in full the current agreement, but which only changes the relevant dates. Please let me know as soon as possible how you wish to handle this matter so that we can have a new agreement in place by June 9th.

Thank you in advance for your prompt attention to this matter. If you have any questions or comments, please feel free to contact me at your convenience at (305) 531-5286. I look forward to hearing from you soon regarding this matter.

Sincerely,

Mark E. Buechele

cc: Supra Telecom

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-6

Transmittal Cover Sheet for Hendrix Exhibit JDH-6

Which consists of 1 page

Parkey D. Jordan
General Attorney

BellSouth Telecommunications, Inc.
Legal Department - Suite 4300
675 West Peachtree Street
Atlanta, Georgia 30375-0001
Telephone: 404-335-0794
Facsimile: 404-658-9022

June 8, 2000

VIA FACSIMILE and FEDERAL EXPRESS

Mark E. Buechele, Esq.
Attorney at Law
P.O. Box 398555
2620 SW 27th Avenue
Miami, FL 33133

Re: Supra Telecommunications & Information Systems, Inc. ("Supra") Interconnection Agreement

Dear Mr. Buechele:

This is in response to your letter of June 7, 2000. You are incorrect in your understanding of the status of contract negotiations between Supra and BellSouth. Pat Finlen has not agreed to extend the current interconnection agreement between the parties. Supra is certainly entitled to adopt the new BellSouth/AT&T interconnection agreement when it is filed and approved by the Florida Public Service Commission (the "Commission"). However, until that agreement becomes available for adoption, Supra must either negotiate a new agreement with BellSouth, sign BellSouth's standard interconnection agreement, or adopt an agreement which has already been filed and approved by the Commission and which has a remaining term of six months or more.

The agreement under which Supra is operating was originally negotiated more than three (3) years ago. Many changes have taken place during the term of the agreement, and BellSouth does not wish to continue to operate under that agreement. Every telecommunications carrier has a legal obligation to negotiate in good faith, and pursuant to the current interconnection agreement, BellSouth has properly requested negotiations via Mr. Finlen's letter of March 29, 2000. BellSouth has proposed the agreement that it would like to execute and expects Supra to meet its obligation to negotiate with BellSouth.

Please have Mr. Ramos contact Mr. Finlen as soon as possible to schedule a meeting to begin negotiations, as 70 days of the 160 day negotiation period have already passed.

Sincerely,

Parkey D. Jordan

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-7

Transmittal Cover Sheet for Hendrix Exhibit JDH-7

Which consists of 3 pages

MARK E. BUECHELE
ATTORNEY AT LAW
P.O. BOX 398556
MIAMI BEACH, FLORIDA
33239-8555

TELEPHONE (305) 531-5286
FACSIMILE (305) 531-5287

June 9, 2000

VIA U.S. MAIL & FAX [(404) 658-9022]
PARKEY JORDAN
General Attorney
BellSouth Telecommunications, Inc.
BellSouth Center, Suite 4300
675 West Peachtree Street, N.E.
Atlanta, GA 30375

Re: Supra-BellSouth Interconnection Agreement Negotiations

Dear Parkey:

I am in receipt of your letter of June 8, 2000. I am sorry to hear that there was a misunderstanding between Mr. Ramos and Mr. Finlen regarding how the parties were going to handle the contract matter. In any event, to expedite negotiations and to avoid any future misunderstandings, I will be handling all negotiations on a new contract. Therefore, please let me know if I will be negotiating with you, Pat Finlen or anyone else at BellSouth.

In your last letter, you state that both Supra Telecom and BellSouth have an obligation to negotiate in good faith and that BellSouth has already proposed its standard interconnection agreement. In my last letter, I proposed the current AT&T\BellSouth agreement and advised that if you wished to change specific sections, Supra Telecom would be open to discussing and negotiating those changes in good faith. I have not heard back from you regarding this proposal. As a general matter, it is much easier to work from the current agreement in place because the parties will only be negotiating changes to the existing relationship; rather than starting anew on every issue. Therefore, may I suggest that whoever will be negotiating on behalf of BellSouth, that they contact me with any proposed changes and/or additions to the existing agreement.

If you have any questions or comments, please feel free to contact me at your convenience at (305) 531-5286. I look forward to hearing from you soon regarding this matter.

Sincerely,

Mark E. Buechele

cc: Supra Telecom

MARK E. BUECHELE
ATTORNEY AT LAW
P.O. BOX 398555
MIAMI BEACH, FLORIDA
33239-8555

TELEPHONE
(305) 531-5286
FACSIMILE
(305) 531-5287

June 12, 2000

VIA U.S. MAIL & FAX [(404) 658-9022]
PARKEY JORDAN
General Attorney
BellSouth Telecommunications, Inc.
BellSouth Center, Suite 4300
675 West Peachtree Street, N.E.
Atlanta, GA 30375

Re: Supra-BellSouth Interconnection Agreement Negotiations - Louisiana

Dear Parkey:

I am in receipt of Pat Finlen's letter of June 6, 2000 to Olukayode Ramos (which was signed by Julia Hand) regarding negotiations for a new interconnection agreement in Louisiana. Once again it appears there was a misunderstanding between Mr. Ramos and Mr. Finlen regarding how the parties were going to proceed after expiration of the current interconnection agreements. In any event, as stated in my letter of June 9, 2000, I will be handling all negotiations for any new interconnection agreements with BellSouth. Therefore, please advise the appropriate individuals at BellSouth and let me know if I will be negotiating with you, Pat Finlen or anyone else.

As a practical matter, Supra Telecom would prefer that any new agreements be consistent throughout the entire BellSouth service area, with state specific items attached as addendums. Therefore, as with my June 9th letter, I proposed the current AT&T\BellSouth agreement and advise that if you wish to change specific sections, Supra Telecom is open to discussing and negotiating those changes in good faith. As mentioned previously, it is much easier to work from the current agreement rather than starting anew on every issue.

If you have any questions or comments, please feel free to contact me at your convenience at (305) 531-5286 or at (305) 476-4206. I look forward to hearing from you soon regarding this matter.

Sincerely,

Mark E. Buechele

cc: Supra Telecom

MARK E. BUECHELE
ATTORNEY AT LAW
P.O. BOX 398565
MIAMI BEACH, FLORIDA
33239-8555

TELEPHONE
(305) 531-5286
FACSIMILE
(305) 531-5287

June 19, 2000

VIA FAX [(404) 658-9022]
PARKEY JORDAN
General Attorney
BellSouth Telecommunications, Inc.
BellSouth Center, Suite 4300
675 West Peachtree Street, N.E.
Atlanta, GA 30375

Re: Supra-BellSouth Interconnection Agreement Negotiations

Dear Parkey:

As a follow-up on your letter of June 13, 2000, a new attorney with Supra Telecom named Kelly Kester will be assisting me in the negotiations process and will act as the primary point of contact. Her telephone number at Supra Telecom is (305) 476-4240, and her e-mail address is KKESTER@STIS.COM. I will have Kelly contact Pat Finlen at (404) 927-8389. Regarding our negotiations, I still await any proposed revisions to the Current Interconnection agreement. You may e-mail any proposal to either myself (at MBUECHELE@STIS.COM) or directly to Kelly Kester.

In addition to the above, I understand that Olukayode Ramos had many months ago sought to adopt the BellSouth/AT&T agreement in Georgia and then later sought to confirm that the current Interconnection Agreement also applied to the state of Georgia. On both occasions BellSouth refused to adopt or acknowledge the agreement. Accordingly, in addition to Florida and Louisiana, please consider these negotiations applicable to Georgia as well. If you have any questions or comments, please feel free to contact me at your convenience at (305) 531-5286 or at (305) 476-4206.

Sincerely,

Mark E. Buechele

cc: Kelly Kester (Supra Telecom)
Pat Finlen (BellSouth)
(via fax - (404) 529-7839)

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-8

Transmittal Cover Sheet for Hendrix Exhibit JDH-8

Which consists of 1 page

Parkey D. Jordan
General Attorney

BellSouth Telecommunications, Inc.
Legal Department - Suite 4300
675 West Peachtree Street
Atlanta, Georgia 30375-0001
Telephone: 404-335-0794
Facsimile: 404-658-9022

July 3, 2000

VIA FACSIMILE and U.S. Mail

Mark E. Buechele, Esq.
Attorney at Law
P.O. Box 398555
2620 SW 27th Avenue
Miami, FL 33133

Re: Supra-BellSouth Interconnection Agreement Negotiations

Dear Mr. Buechele:

This is in response to your letter of June 19, 2000. We look forward to hearing from Kelly Kester and working with her during negotiations.

You are correct that Supra Telecom has contacted Mr. Finlen and requested that Supra Telecom be permitted to adopt the AT&T agreement in Georgia. However, as Mr. Finlen explained at that time, the AT&T agreement was not available for adoption as less than one month remained on the term of that agreement at the time of the adoption request. The new AT&T agreement is currently being arbitrated but will not be finalized and approved for quite some time. Mr. Finlen informed Mr. Ramos of these facts at the time of the request.

Further, you are also correct that Mr. Ramos has asked that Supra Telecom's Florida agreement be applicable in Georgia as well. However, the agreement that Supra Telecom adopted in Florida is an arbitrated agreement specific to the state of Florida and cannot be utilized to order services in Georgia.

BellSouth will be happy to negotiate an agreement with Supra Telecom for Georgia as well as for Florida and Louisiana. We will consider your letter of June 19, 2000, Supra Telecom's official request to commence negotiations for the state of Georgia.

Sincerely,

Parkey D. Jordan

Cc: Pat Finlen

#218979

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-9

Transmittal Cover Sheet for Hendrix Exhibit JDH-9

Which consists of 1 page

BELLSOUTH

BellSouth Interconnection Services
[illegible] Center
[illegible] Peachtree Street, N.E.
[illegible]

July 20, 2000

Olukayde Ramos
Supra Telecommunications & Information Systems, Inc.
2620 SW 27th Avenue
Miami, FL 33133

Re: Interconnection Agreement between BellSouth Telecommunications, Inc. ("BellSouth") and Supra Telecommunications and Information Systems, Inc. ("Supra") in Florida

Dear Mr. Ramos:

In response to Mark Buechele's request, and in an effort to move forward with re-negotiation of the above-referenced Agreement, I am enclosing a redlined version of the most current Interconnection Agreement being negotiated by BellSouth and AT&T ("Negotiated Agreement").

To offer clarification about the enclosed, we compared the existing BellSouth/AT&T Florida Agreement with the Negotiated Agreement to create the redline of General Terms and Conditions, Attachment 1 and Attachment 2.

The remaining attachments were basically rewritten by BellSouth and AT&T to comply with recent changes in law (e.g. the 706 Order and UNE Remand Order) and Commission Orders.

Please contact me as soon as possible so we can begin scheduling meetings to begin negotiations. We are now more than 100 days into the 160 day negotiation period.

Sincerely,

Pat Finlen
Manager – Interconnection Services

cc: Mark E. Buechele, Esq. (w/ encl)
Parkey Jordan, Esq.
Nancy White, Esq.

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-10

Transmittal Cover Sheet for Hendrix Exhibit JDH-10

Which consists of 2 pages

Parsey D. Jordan
General Attorney

BellSouth Telecommunications, Inc.
Legal Department - Suite 4300
675 West Peachtree Street
Atlanta, Georgia 30375-0001
Telephone: 404-335-0794
Facsimile: 404-658-9022

April 5, 2001

Via FACSIMILE (305-443-1078)
and
FEDERAL EXPRESS

Adenet Medacier, Esq.
Supra Telecom
2620 S.W. 27th Avenue
Miami, Florida 33133

RE: Intercompany Review Board Meetings

Dear Mr. Medacier:

Jerry Hendrix' assistant has provided me information regarding Mr. Hendrix' calendar to ascertain his availability for an Intercompany Review Board Meeting regarding the issue raised in your letter of March 27, 2001. We are available at the following times:

Tuesday,	April 10 –	Morning - Any hours 1:00 P.M. - 2:30 P.M. (EDT) 4:00 P.M. - 5:00 P.M. (EDT)
Wednesday,	April 11 –	11:00 A.M. -12:00 P.M. (EDT)

As we feel we need some additional information from Supra in order to address your concerns adequately, I would appreciate your sending us the following information: (1) how would Supra propose SMDI be ordered and provisioned other than through resale; (2) what should be the rates for the services to be provisioned; and (3) what provisions of the Interconnection agreement support Supra's position.

In addition to the Intercompany Review Board Meeting regarding the issues raised in your letter of March 27, BellSouth would also like to schedule such a meeting to discuss the new Florida interconnection agreement currently in arbitration. I understand that Supra has now claimed that an official Intercompany Review Board Meeting was not held with respect to the new agreement.

Please let me know on which of the above dates you will be available for a meeting regarding the issues in the new interconnection agreement. Of course, you may propose other dates in addition to those listed above.

I look forward to hearing from you.

Sincerely,

Parkey D. Jordan
Senior Counsel

PDJ/jdd

cc: Jerry Hendrix (via mail)
Pat Finlen (via mail)

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-11

Transmittal Cover Sheet for Hendrix Exhibit JDH-11

Which consists of 6 pages

Supra Telecom

Adenet Medacier
Assistant General Counsel
2620 SW 27th Avenue
Miami, FL 33133-3001
Phone: (305) 476-4240
Fax: (305) 443-9516
Email: amedacier@stis.com

April 4, 2001

Parkey Jordan, Esq.
General Attorney
675 West Peachtree Street
Atlanta, GA 30375-0001

Re: Inter-Company Review Board Meeting for the Purpose of Negotiating a Follow-On Agreement Pursuant to FPSC Order in CC Docket No. 001305

Dear Ms. Jordan:

I received your message regarding BellSouth's intent to request an Inter-Company Review Board meeting regarding above subject matter. As Supra has previously indicated to BellSouth, in order to be able to commence negotiations of a follow-on agreement on equal footing, Supra requires the information responsive to its letter dated April 26, 2000. See attached **Exhibit A**. On or about August 8, 2000, Ms. Kester handed you a copy of the same document request. It is almost a year that Supra made the first request without receiving any response from BellSouth.

In addition to the documents responsive to **Exhibit A**, Supra demands any and all cost studies and supporting documentation that have been conducted on any costs associated with all services and network elements, bundled or unbundled, that BellSouth provides to itself, its customers, its affiliates, subsidiaries and any other party.

Be reassured you that Supra will be able to proceed with negotiations as soon as it receives the necessary documents. Please let me know when said documents will be forwarded to our office.

Truly,

Adenet Medacier

Adenet Medacier

Cc: Olukayode Ramos
Brian Chaiken

Supra Telecom
2620 S.W. 27th Avenue Miami, FL 33133

Olukayode A. Ramos
Chairman & CEO
Email: kayramos@stis.com
Telephone: (305) 476-4220
Fax: (305) 476-4282

April 26, 2000

VIA FACSIMILE
Mr. Pat Finlen
Manager – Interconnection Services
BellSouth Telecommunications, Inc.
Room 34S91 BellSouth Center
675 West Peachtree Street, N.E.
Atlanta, GA 30375

Re: Request for Information Regarding Negotiations of Interconnection Agreement

Dear Mr. Finlen:

Pursuant to our telephone conversation and the FCC's First Report and Order, §155, Supra Telecom hereby requests for all the information attached as Exhibit "A" to this letter. The information so provided must cover the entire BellSouth territory. I am counting on your promise to provide the information requested in a speedy manner.

Regards,

Olukayode A. Ramos
Chairman & CEO

Cc: Mark Buechele, Wayne Stavanja and Victor Miriki (Supra Telecom)
Parkey Jordan (Esq.) (BellSouth)

Exhibit H

Many of the recommendations contained in this report are directed toward developing standards, defining and approving industry specifications and actually interconnecting different service provider networks. Two templates are offered in this section that summarize and list activities to accomplish these goals. The first, titled "Network Interconnection Bilateral Agreement Template," is for use whenever two service providers are implementing a specification and will actually interconnect their networks. The second is titled "Network Interface Specification Template" and is proposed for use in developing standards and in defining and approving industry interconnection specifications. When used in standards, it is expected that some of the items may have options or ranges, but the important point is that a standard not be developed without consciously addressing the entire list. When used by industry fora to define and approve detailed interconnection specifications, the possible options would be narrowed to ensure reliability and network integrity of the specific interconnection type.

Custodial responsibilities are indicated on each template page to define ongoing ownership, although other industry groups may want to adopt them also.

5.6.1 *NETWORK INTERCONNECTION BILATERAL AGREEMENT TEMPLATE*

The following worksheet should be used during the joint planning sessions between interconnecting service providers. This is an outline of the minimum set of topics that need to be addressed in bilateral agreements for critical interconnections. These worksheets should be used as follows:

- The types of interconnections to be established are agreed upon.
- Each Service Provider develops a version of this worksheet for each interconnection type.
- Specific references, including citations, relating to industry documentation, standards and references are identified.
- Individual company practices, policies and procedures are also identified and provided to the other party.
- All significant differences in practices, policies or procedures should be reviewed and resolved in joint planning sessions. Changes in individual practices, policies or procedures may or may not be required. Procedural symmetry is not required if differing policies produce a compatible, agreed-to outcome.

The Network Operations Forum is the recommended custodian of this template. Other organizations may also find the processes that evolve from this template useful and are encouraged to make use of and enhance it.

RELIABILITY CRITERIA	CHECK OFF
Interconnection Provisioning information and guidelines	
- Tariff Identification	✓
- NOF References	✓
- Interface Specifications	✓
- Network Design	✓
- Service Interworking Requirements	✓
SS7 and Other Critical Interface Inter-network Compatibility Testing	✓
- Service Protocols/ Message Sets	✓
- Testing Plans	✓
- CCS Interconnection Questionnaires	✓
Protocol Implementation Agreements	
- Timer Values	✓

• Route set congestion messages	✓
• Optional Parameters	✓
• Switch parameters	✓
• TR246, T1.114, T1.116, GR 317, GR 394	✓
• Gateway screening	✓
Diversity Requirements	
• Route identifications	✓
• Diversity definition	✓
• SS7 Diversity Verification and Validation	✓
• Committee T1 Report No. 24 on Network Survivability Performance	✓
Installation, provisioning, maintenance guidelines and responsibilities	
• NOF Reference Document	✓
Network Admin/Ops Security requirements	
• Access methodology	✓
• Functional partitioning	✓
• Applicable tariffs on confidential information	✓
• Password and encryption control	✓
Performance service level agreements	
• Interface specifications	✓
• MTBF/MTTR • Contact / Escalation procedures • Performance Thresholds	✓
Specific versions of protocol and/or interface specifications	
• Network interface standards, version control, mandatory and optional categorizations	✓
Maintenance procedures, including trouble and status reporting, etc.	
• NOF Reference Document	✓
• Contact lists	✓
Inter-network trouble resolution and escalation procedures	
• NOF Reference Document	✓
• Contact lists	✓
In-depth root cause analysis of significant failures	
• Failure analysis procedures	✓
• FCC Outage Reporting Criteria	✓
• Service configuration	✓
• Protocol tests	✓
• Compatibility testing	✓
Network Traffic Management	
• NOF Reference Document, Section VI	✓
Synchronization Design and Company-wide coordination contacts	
• Establish conformance	✓
• Identify contacts	✓

002061

Calling Party Number Privacy management	✓
Tones and Announcements for unsuccessful call attempts	
- Network interface specification	✓
- NOF Reference Document	✓
Billing Records Data Exchange	
- EMR standards	✓
- Ordering and Billing Forum documentation	✓
Pre-cutover Inter-network Connectivity testing	
- Network Interface specification	✓
- NOF Reference Document	✓
Documentation Requirements	
- Network configuration	✓
- Contact numbers	✓
- Service Level Agreements	✓
- Implementation plan/milestones	✓
- Interoperability test results	✓

####

002062

Ensure that forward and backward compatibility of the protocol is addressed for transition management.	✓
Provide local and remote network management notification and control capabilities.	✓
Develop a network impact statement to predict/specify the backward compatibility and purpose of the standard.	✓
Develop demonstrable performance criteria at agreed stages of specification development.	✓
Define and conduct acceptance testing to validate the defined stages of specification development.	✓

###

002063

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-12

Transmittal Cover Sheet for Hendrix Exhibit JDH-12

Which consists of 2 pages

Parkey D. Jordan
General Attorney

BellSouth Telecommunications, Inc.
Legal Department - Suite 4300
675 West Peachtree Street
Atlanta, Georgia 30375-0001
Telephone: 404-335-0794
Facsimile: 404-658-9022

April 9, 2001

Via FACSIMILE (305-443-1078)
and
FEDERAL EXPRESS

Adenet Medacier, Esq.
Supra Telecom
2620 S.W. 27th Avenue
Miami, Florida 33133

Re: Intercompany Review Board Meeting

Dear Mr. Medacier:

I have received your letter dated April 4, 2001[1], regarding the Intercompany Review Board meeting for the purpose of discussing the interconnection agreement that is currently in arbitration before the Florida Public Service Commission. First, you are mistaken that Ms. Kester provided me with a copy of Exhibit A attached to your letter when Mr. Finlen and I were in Miami to negotiate the new interconnection agreement with Supra. In any event, after reviewing Exhibit A to your letter, I am not certain what information you are asking BellSouth to provide. Your Exhibit A appears to be a suggested template for carriers to utilize when negotiating to interconnect their networks. The document specifically states that it should be used in joint planning sessions, and it merely provides topics that should be considered and discussed. Certainly, we are happy to discuss with you any issues relating to the new interconnection agreement. In fact, the purpose of our negotiation meetings was to discuss the issues related to the proposed agreement. However, the Florida Staff has specifically asked that we hold an Intercompany Review Board meeting to discuss the issues that are currently in arbitration. Further, in reviewing Exhibit A attached to your letter, I cannot ascertain what information you are asking BellSouth to provide.

As for your request for cost studies, BellSouth will provide cost studies for the unbundled network elements set forth in your agreement. We will need Supra to execute a confidentiality agreement with respect to such cost studies, but we will then make them available for your review. Cost studies relating to all services BellSouth may offer, regardless of whether those services are made available under the interconnection agreement, are neither available nor relevant to the new interconnection agreement.

[1] Although Supra's letter was dated April 4, 2001, it clearly should have been dated April 5, 2001. The fax cover sheet was dated April 5, 2001, and your letter was in response to a letter from BellSouth dated April 5, 2001.

Notwithstanding any of the foregoing, there is no reason to delay the Intercompany Review Board meeting. We will cooperate with Supra in providing specific requested information that is relevant to the new interconnection agreement, and we can discuss the information you would like to receive when the parties meet. Again, please review the dates and times I suggested for a meeting in my letter of April 5, 2001, and let me know when Supra is available to meet with regard to this topic.

Sincerely,

Parkey D. Jordan

cc: Nancy White, Esq.
Phil Carver, Esq.
Jerry Hendrix
Pat Finlen

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-13

Transmittal Cover Sheet for Hendrix Exhibit JDH-13

Which consists of 2 pages

Parkey D. Jordan
General Attorney

BellSouth Telecommunications, Inc.
Legal Department - Suite 4300
675 West Peachtree Street
Atlanta, Georgia 30375-0001
Telephone: 404-335-0794
Facsimile: 404-658-9022

April 13, 2001

Via FACSIMILE (305-443-1078)
and
FEDERAL EXPRESS

Adenet Medacier, Esq.
Supra Telecom
2620 S.W. 27th Avenue
Miami, Florida 33133

Re: Intercompany Review Board Meeting – New Interconnection Agreement

Dear Mr. Medacier:

In response to your letter of April 11, 2001, I am aware that Supra signed a confidentiality agreement in connection with the pending commercial arbitration between our companies. However, that agreement was covers only information provided to Supra pursuant to the commercial arbitration. As the cost studies are not provided for purposes of the commercial arbitration, that agreement is not relevant. We are simply asking that Supra execute another similar agreement covering the cost studies to be provided. A nondisclosure agreement is attached for your review.

Mr. Medacier, I was unable to locate in my files the document you label in your April 11, 2001 letter as the report "Increased Interconnection Task Group II Report Network Reliability Council." This report, which you provided in full to me yesterday via overnight courier, is not something with which BellSouth is familiar, nor was BellSouth a party to the task force. More specifically, the pages that you reference as containing requests for information are simply suggested checklists to be used in joint planning with interconnecting carriers. You indicated in your April 11 letter, however, that you are seeking BellSouth's interconnection policies and practices. BellSouth posts a wide variety of information on its web site, including information about network interconnection. At www.interconnection.bellsouth.com, you can find such information. From the home page, click on "Local," "Guides and Technical References," and "Activation." From the final screen you can access the BellSouth Start-Up Guide, which has information concerning interconnection with BellSouth. This document, as well as other documents on the web site, contains information regarding interconnection with BellSouth, as you have requested.

I trust that Supra will no longer refuse to participate in an Intercompany Review Board meeting with BellSouth. Please let me know your availability for a meeting as soon as possible.

Sincerely,

Parkey D. Jordan

PDJ/jdd

Attachment

cc: Jerry Hendrix (via inter-department mail w/Attachment)
Pat Finlen (via inter-department mail w/Attachment)
Nancy White (via e-mail and interoffice delivery w/Attachment)
Phil Carver (via inter-department mail w/Attachment)

#242111

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-14

Transmittal Cover Sheet for Hendrix Exhibit JDH-14

Which consists of 2 pages

Supra Telecom

Adenet Medacier
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Fax: (305) 443-9516
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May 1, 2001

VIA FACSIMILE (404) 658-9022 and FEDERAL EXPRESS
Parkey D. Jordan, Esq.
General Attorney
BellSouth Telecommunications, Inc.
Legal Department – Suite 4300
675 W. Peachtree St.
Atlanta, Georgia 30375

Re: Inter-Company Review Board Meeting Regarding Follow-On Agreement

Dear Ms. Jordan:

This is in response to your letter dated April 13, 2001. First, your allegation that Supra has refused to participate at inter-company review board meetings with BellSouth is completely false. You are aware of Supra's position regarding this matter – Supra cannot engage in fruitful meetings regarding the follow-on agreement until Supra is in receipt of the responsive documents to its letter of **April 26, 2000**. That position was articulated to all the BellSouth representatives present at the inter-company review board meeting conference call of April 11, 2001 conducted as a result of BellSouth's refusal to provide SMDI and Megalink services to Supra in order for Supra to provide its branded voice mail service. On the conference call held on April 24, 2001 between BellSouth, FCC and Supra, you stated Supra's position correctly. Your blatant mischaracterization of Supra's position in your letter dated April 13, 2001 is disingenuous and an obvious attempt at legal positioning. BellSouth is yet to provide any information (including cost studies) to Supra necessary for the parties to begin negotiations of a follow-on agreement.

Second, your claim that the "Increased Interconnection Task Group II" report "is not something with which BellSouth is familiar, nor was BellSouth a party to the task force" is disingenuous to say the least. BellSouth's Neale Hightower was a member of the 15-member task force. The information Supra is seeking is about BellSouth's network capabilities and functions. Supra uses UNE combinations provided from BellSouth's network that must be interconnected with BellSouth's network. The follow-on agreement is between interconnecting carriers: Supra and BellSouth. Supra needs information regarding BellSouth's network, in order for Supra to be able to negotiate on equal footing with BellSouth. Absent that information, Supra will not be able to negotiate with BellSouth. If you can point to a specific website/page wherein BellSouth provides information regarding its own network, such

would be useful. Pointing Supra to a website/page which speaks to what BellSouth provides CLECs, however, is not fruitful. Supra would greatly appreciate it if BellSouth can either produce the information or confirm its refusal to produce the information. Supra, at no point, has or will refuse to hold an inter-company review meeting with BellSouth. Unfortunately, as has been proven numerous times in the past, as a result of BellSouth's refusal to move even a fraction from its indefensible positions, these meetings end with bitter words. We wish to avoid these results.

Very truly yours,

Adenet Medacier
Assistant General Counsel

cc: Olukayode A. Ramos and Brian Chaiken, Esq. (Supra)
Jerry Hendrix (BellSouth)

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-15

Transmittal Cover Sheet for Hendrix Exhibit JDH-15

Which consists of 2 pages

Parkey D. Jordan
General Attorney

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May 9, 2001

Adenet Medacier, Esq.
Supra Telecom
2620 S.W. 27th Avenue
Miami, Florida 33133

Re: Intercompany Review Board Meeting Regarding Follow-On Agreement

Dear Mr. Medacier:

I have received your letter of May 1, 2001. My representation of Supra's position, both to the FCC during the April 24, 2001 conference call and in my correspondence to you, remains consistent. BellSouth is ready, willing and able to discuss with Supra any issues relevant to the new interconnection agreement between Supra and BellSouth. We would welcome such an opportunity. Your statement that BellSouth has not provided to Supra any information "necessary for the parties to begin negotiations of a follow-on agreement" is clearly untrue. In fact, the parties have met face-to-face and through telephone conferences to negotiate the new agreement. Supra has raised numerous issues for resolution by the Florida Public Service Commission in connection with the pending arbitration proceeding. The parties spent two full days in Tallahassee with the Commission Staff identifying issues for the arbitration. Negotiations for the new interconnection agreement commenced long ago, and BellSouth has attempted in good faith to complete the negotiations, arbitrate the unresolved issues and execute a new interconnection agreement.

More than six months after the arbitration petition was filed, Supra raised for the first time the issue that the parties did not engage in an official Intercompany Review Board meeting regarding the new agreement. BellSouth has attempted to schedule such a meeting. There is nothing in the parties' current interconnection agreement that requires either party to provide information to the other prior to such a meeting. Nevertheless, although Supra is the party demanding that the arbitration cannot move forward without the meeting, Supra has placed conditions on its obligation to participate in such a meeting. Despite that Supra's conditions to the meeting do not comply with the interconnection agreement, BellSouth has attempted to cooperate with Supra's requests. BellSouth has never refused to provide the cost study data Supra recently requested. To the contrary, Supra and BellSouth have executed a Nondisclosure Agreement, and the data was forwarded to you via overnight courier on May 3, 2001. Further, BellSouth is not opposed to providing Supra with information about its network to the extent such information is relevant to the interconnection agreement. However, Supra continues to

demand that BellSouth provide information contained in the template that is included in the Increased Interconnection Task Group II Report. I correctly stated to the FCC and to Supra that BellSouth Telecommunications, Inc. was not a party to this document. BellSouth Mobile Data, signatory to the document, does not have an interconnection agreement with Supra and is not an ILEC. We know nothing about the document or its contents. Notwithstanding that fact, I have explained time and time again that BellSouth does not know what Supra wants. Pat Finlen and I are more than willing to discuss network issues with Supra and to include subject matter experts in such discussions if necessary. BellSouth has asked Supra to clarify its request for information and to be more specific as to what questions Supra has regarding BellSouth's network. Supra responds only by providing the same template to BellSouth.

In sum, Supra has complained to the Florida Public Service Commission that there should be no arbitration of the new interconnection agreement because the parties did not hold an Intercompany Review Board meeting. BellSouth has made every effort to schedule such a meeting with Supra. There is no requirement in the agreement that conditions the parties' participation in the meeting on any provision of information. BellSouth has provided information to Supra in the earlier negotiations, and desires to continue working with Supra toward finalizing an agreement, including providing relevant information to Supra. BellSouth has explained to Supra that it does not understand what questions Supra has about the BellSouth network and has no idea what Supra wants it to provide. I see no point in continuing to send letters back and forth on this issue. If Supra would like to schedule an Intercompany Review Board meeting with BellSouth, to discuss the issues relevant to the arbitration, we welcome hearing from you. If not, it will be up to the Florida Public Service Commission to decide the issue.

Sincerely,

Parkey D. Jordan
Senior Counsel

PDJ/rb

326254.1

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-16

Transmittal Cover Sheet for Hendrix Exhibit JDH-16

Which consists of 143 pages

Increased Interconnection Task Group II Report

Network Reliability Council

January 14, 1996

Terry J. Yake, Task Group Chair

Ross K. Ireland, Group Mentor

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Art Reilly
ATIS Committee T1

Clyde Miller
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Lee Wollgast
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Pete Shelus
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Terry J. Yake
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Task Group Leader

Ross K. Ireland
Pacific Bell
Task Group Mentor

Increased Interconnection Task Group

NRC Task Group II

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Increased Interconnection
Task Group Report
Network Reliability Council
December 1, 1995

1. EXECUTIVE SUMMARY

Interconnections of service providers in the evolving Public Switched Telecommunications Network (PSTN) are increasing rapidly due to technology and competitive business factors. The responsibilities for telecommunications network integrity and reliability are integral to the continuing success of this industry. The real time two-way interoperable nature of the network requires close cooperation among all the service element providers, even while many of them are competing for the business of the same customer set. This task group was chartered to identify and propose solutions to the issues of network reliability resulting from an increasing number of interconnected service providers that make up the national telecommunications network, e.g., local service, inter-exchange service, wireless "cellular" service, satellite mobile service and competitive variations of these types. In the context of this report, reliability is defined as measures of the network's resiliency to failures, ability to restore a failed service and apply preventative fault migration techniques. The fifteen (15) participants on the task group team selected to complete this study were from companies that represent the interests of current and future service providers.

The study was limited to switched voice service networks and the reliability issues to be expected within 3-5 years. Understandably, data networking will continue to influence the composition of the network fabric and will become increasingly important as the National Information Infrastructure capability evolves. However, the more urgent nature of inter-connected voice networks was the assigned scope of the task group's efforts. Most of the processes described and the recommendations made are believed to be applicable to data networks, as well. However, this group did not focus specifically on the growing Internet-like services, e.g., e-mail, or enhanced database services that span multiple carriers. New technologies, e.g., ATM(Asynchronous Transfer Mode), are covered by Task Group III of this Network Reliability Council.

This report presents an analysis of critical network reliability issues, currently highlighted by the increasing number of service providers requiring interconnected networks that are now forming the national telecommunications network infrastructure. Recommendations are suggested to maintain or enhance network reliability (Appendix 3). Two associated issues are addressed: standards development process assessment and funding the coordination of national inter-network interoperability testing.

In the body of this report, analyses of current processes and techniques applicable to points of interconnection between networks yield recommendations to maintain and enhance reliability. Some companies are already very knowledgeable in the areas of interoperability, as a result of operational experience with their own diverse networks. Others are in the beginning stages of awareness, as they enter the telecommunications business and the maturing process is problematic. Recognizing that new service providers have a set of business priorities in front of them, issues of interconnection reliability are not considered critical at this time. However, for those companies able to sense and appreciate the multi-faceted scopes-of-work and efforts needed to achieve network interconnection and meet network reliability expectations, this report can be of value to provide a guide to suggest places to start and methods/processes to implement. Specifically, Section 5.6 provides two sets of procedural templates that may be used as "how to" guides to assist in developing reliable interconnections. The overriding recommendation is for

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all businesses comprising the national network of networks to get involved with each other in industry fora, in addition to one-to-one relationships necessary to interconnect.

Data were collected by an industry survey sent to manufacturers and service providers, as well as from presentations by recognized industry experts. It is important to note there was limited data from the cable TV industry to formulate a thorough understanding of the issues they will face during interconnections to the PSTN.

Throughout this report various industry documents are referenced. There was no evaluation of these documents that imply they are what has become known in the previous NRC work efforts as "Best Practices". The definition of "Best Practices" or "Recommended Practices" as used in this report is as follows:

> The terms "Best Practices", "recommended Practices" or "Recommendation" are those countermeasures (but not the only countermeasures) which go furthest in eliminating the root cause(s) of outages. None of the practices or recommendations are to be construed as mandatory.
>
> Service providers and equipment suppliers are strongly encouraged to study and assess the applicability of all countermeasures for implementation in their company products. It is understood that all countermeasures, including those designated as "recommended", may not be applied universally.

1.1 GENERAL FINDINGS, CONCLUSIONS, KEY MESSAGES

The NRC survey was distributed to a large number of wireline, wireless , satellite, cable and alternate access companies. Most of the responses received came from the wireline and cellular telecommunications industries, which are more experienced at interconnection than satellite and cable TV industries at this time.

(A list of acronyms can be found in the Glossary, Section 11.2.)

1.1.2 *Wireline Carriers*

The wireline industry is mature, but it has undergone tremendous changes since the breakup of the Bell System. These carriers have had to develop processes to accommodate connections among local exchange, interexchange and cellular carriers.

The wireline industry has pioneered many of the standards for interconnection and installation/turn-up testing. The industry's planning, testing and monitoring/surveillance systems are generally the most mature of all of the industries surveyed and can, in many cases, be used as a model by other parts of the industry.

The wireline carriers have developed a system of "firewalls" to minimize the possibility of problem propagation across network boundaries. While such systems are always being enhanced, we believe future connections at current network interconnection points can be accommodated within this framework and that radical changes to the present system are not needed.

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1.1.3 *Wireless "Cellular" Carriers*

The wireless "cellular" industry generally consists of two groups of carriers. The first is the 800 MHz cellular business which is both expanding and maturing. Many wireless "cellular" carriers already operate complex regional or national voice networks. Over time, they have developed standards and testing procedures for interconnection. The importance of standards, interoperability testing --some of which are best performed on a nationally coordinated basis -- and bilateral agreements is highlighted with specific recommendations to ensure continued reliability of interconnections between wireless and other types of networks.

The second group, emerging PCS and wireless data businesses, is much less mature. While it is expected that many of the PCS carriers will adopt procedures similar to the cellular (800 MHz) industry, these carriers are only now formulating their plans and completing the design of their networks. These carriers are encouraged to participate in these standards, interoperability testing and bilateral agreement processes.

1.1.4 *Satellite*

The domestic satellite industry has matured as the provider of dedicated transmission capacity for video, voice and data services to the community of private user networks. The user community includes major television networks, cable TV operators, private Very Small Aperture Terminal (VSAT) networks carrying data/voice/video and direct to home (DTH) entertainment providers. These satellite-based services often interface with the transport segments of the PSTN, but do not provide switching as part of it and therefore are not viewed as a risk to network reliability.

This model is expected to change with the introduction of satellite-based mobile telecommunications services. There are several architectural concepts under development that differ primarily in the space segment, e.g., number of satellites, orbital planes and altitudes above the earth. A satellite-based mobile service will provide voice, data and facsimile communications through interfaces with the PSTN and cellular networks. The interface will be through a ground-based mobile switching center (MSC) that meets existing PSTN and wireless interface standards.

1.1.5 *Cable TV*

The cable companies are emerging voice telecommunications service providers. They will have the same level of responsibility as other service providers to ensure the reliability of the National network. The focus of this study was to examine the differences and similarities of cable operators to other types of service providers to determine if their needs for interconnection require special requirements. As a result of this investigation, it appears that there will be many similarities and few differences between cable companies and other wireline providers in the telecommunications environment.

The NRC Task Group on Interconnection lacked direct participation by the cable industry, even though efforts were made to encourage participation. Moreover, since the cable operators will play a large role in telecommunications in the near future, it would have been desirable for the cable networks to have been represented in this study. Contact was made with a cable industry representative to gather data. Some information was provided to the task group by the NCTA. Also, information from the non-cable companies who did respond to the questionnaire was used to help reach these conclusions, although they answered the questions from the perspective of entities who will be interconnecting with cable companies.

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When reviewing the material and studying the proposed architectures for the cable companies to enter into the telecommunications service provider scenario, it became apparent that cable companies begin to look like other wireline carriers. They will be using similar technologies from the same equipment vendors and have the same requirements for interconnection to complete calls across multiple networks. For these reasons, it is recommended that the cable operators' responsibility for critical reliability issues fall under the same guidelines and requirements as other wireline network providers. To the extent they offer wireline network services, they should follow the same recommendations made to other wireline service providers.

Through interviews with knowledgeable cable industry people, we concluded that cable companies would agree with the respondents to the industry survey that service providers are primarily responsible for developing, planning and ensuring inter-network reliability and interoperability between their networks.

1.1.6 *Standards Development Process Assessment*

Telecommunications standards development in the United States is driven by the ANSI accredited democratic procedures of consensus and open participation by interested volunteer subject matter experts who submit and work issues/contributions through the process. (See note below.) No major weaknesses in the processes as they relate to network reliability issues were identified. Recommendations to further enhance the standards development process include:

- Earlier identification of standards needs
- Increased liaison with associated groups
- Developing performance requirements for complex network elements, as well as element interfaces
- Extension of existing standards groups work efforts relating to interconnection of cable television and satellite industry systems

A general concern was also expressed relative to the future role of Bellcore and its influence on industry standards. Results from the industry survey indicate a high reliance on Bellcore TRs/GRs. Since the RBOCs announced their intention to sell Bellcore, the task group noted potential concern regarding the future management of generic requirements. This subject is presented further in Section 6.

> Note: A general criticism of standards is the time it takes to develop them. For the specific interests of network reliability, standards revisions are more quickly paced and were rated as acceptable. However, as stated in the lead-in paragraph, the ANSI-accredited process is consensus based, democratic and dependent on volunteered technical contributions and volunteered industry resources to accomplish the work. The North American competitive telecommunications standards development process is viewed by other countries, e.g., Japan-TTC and European-ETSI, as positive process examples for their systems. North American standards groups maintain close working level contact with these international organizations to ensure continual improvements are applied to the standards development processes.

1.1.7 *Interoperability Testing/ Funding and Management*

The goal of the task group's work was extended beyond the specific charge to recommend an IITP (Inter-network Interoperability Test Plan) funding method. This report not only offers funding methods, but it also outlines a functional management structure that will continue present inter-network-interoperability test requirements development and stress testing and also allow evolution to address future network interconnection reliability issues.

In the NRC I Report, "Network Reliability: A Report to the Nation", dated June, 1993, the activities of the IITP were recommended "to continue on an ongoing basis." The IITP-type testing methodology and industry functional cooperation have proven to be successful in improving the nation's telecommunications network reliability. This task group reaffirms the NRC I recommendation to continue these cooperative industry relationships. The interconnection management processes should be institutionalized to permit continual evolution based on the following phased organizational approach.

Phase 1
The current process, with seven RBOCs funding Bellcore as the overall IITP coordinator and with industry-wide resource participation, should continue until a replacement system is operational.

Phase 2
The Alliance for Telecommunications Industry Solutions (ATIS) is recommended to sponsor a new, financially self-supporting, industry function to be called the IITC (Inter-network Interoperability Test Coordination). Mandatory fees for supporting the IITC function and the associated testing would be assessed to all telecommunications service providers and manufacturers who sell telecommunications services or equipment. Mandatory financial support of the IITC by service providers and equipment manufacturers is seen as beneficial to increase awareness and uphold network reliability objectives and thus improve the increasing and technologically evolving network interconnections. The task group developed a number of funding principles that resulted in an illustrative fee structure. However, an exact fee structure was impossible to determine because of the number of unknown parameters. These details are best handled by the IITC. Beyond the industry's work, the FCC should consider alternative long-term funding methods in the context of other emerging funding requirements, e.g., NANPA administration, that will surface from increased network interconnection, if the recommended methods do not provide adequate funding.

Phase 3
Once the IITC is operational, manufacturers and service providers will participate in the management and conduct of ongoing nationally coordinated interconnection testing.

2. Background

2.1. Several driving forces are at the root of this study effort: deregulation, competition and technology changes. These dynamic changes will result in increased complexity and numbers of interconnected networks which need to be considered to ensure the continued stability of the national telecommunications infrastructure. The Network Reliability Council (NRC) was chartered by the Federal Communications Commission (FCC) in 1994 to study and recommend policy changes that will ensure the continuation of the high quality of telecommunications service offered as competition and technology evolve.

The NRC's NOREST II Steering Committee identified five areas for study. This area of focus for this report is titled "Increased Interconnection" and the group was charged by the NOREST II Issue Statement found in Appendix 5.

The detailed contributions of this report are presented in three sections:

Section 5. Study Results by Type of Network Service Provider
Section 6. Technical Standards Development Process Assessment, Analysis and Recommendations
Section 7. Analysis and Recommendations for Network Interoperability Testing and Funding

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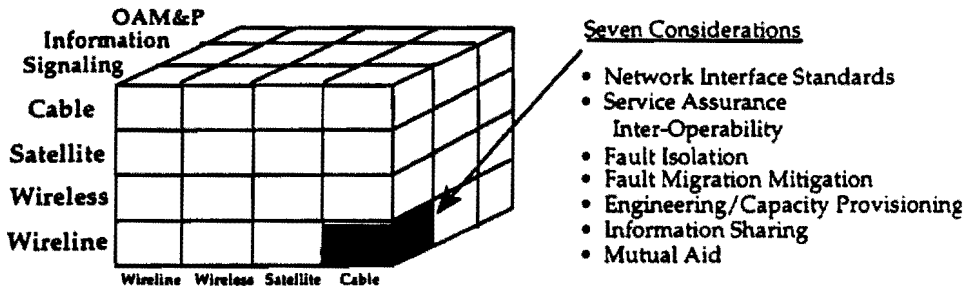
The task group divided the analysis function into three basic types of interconnections where interoperability/reliability issues materialize: information channel, signaling channel, OAM&P channel, all contained in a physical channel that carries the three aforementioned logical channels. Then, the industry was segmented into wireline, wireless , satellite and cable TV providers. This defined all possible points of inter-connection and compartmentalized the work efforts into a number of subject specific boxes for study.

Chart 2.1
Work Breakdown Structure



As shown above in Chart 2.1, there were seven areas of consideration for each interconnection possibility identified in the Issue Statement charge from the NRC. Applied to the matrix shown above, that yielded 336 possible areas to study. However, many of the segments are duplicated and were combined by the task group.

The 15-member task group met each month, January to November 1995, to conduct research, analyze and identify strengths and weaknesses in the present system of managing interconnected networks. (The mission statement and milestone chart in Appendix 5 describes the work initiatives and project goals.) The intent of the report is to create a reference that critiques present processes, presents recommendations for improvement and provides new network service providers with a prescription for technical success as a reliable service provider in the national telecommunications infrastructure.

A summary of the recommendations is presented in the form of templates (see Section 5.6). In addition, sections 6 and 7 address issues of Technical Standards Development Process Adequacy and recommendations for Inter-network Interoperability Testing and Funding.

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3. Team Membership

A team representing the present and future businesses in the telecommunications industry was selected to conduct this study. Representatives from competitive access providers, local exchange carriers, inter-exchange carriers, telecom equipment manufacturers, satellite, cable TV and certain key industry associations were asked to participate in the task group. The following list of people were the primary contributors to the task group effort.

Industry Segment	Name	Company
Satellite Carriers	Floyd Stuart*	Hughes Communications, Inc.
Wireless Carriers	Dick Gove* Neale Hightower	Ameritech Cellular BellSouth Mobile Data
Local Exchange Carriers	Christine Butler* Christine Cairns Mike Billings	U S WEST Communications, Inc. Pacific Bell GTE
Competitive Access Providers	Lee Wollgast	ICG Access Services, Representing ALTS
Inter-Exchange Carriers	Peter Guggina Dennis Schnack Pete Shelus*	MCI Sprint AT&T
Associations & Telecom Consultants	Barry Lewin* Art Reilly Rick Harrison	Bellcore ATIS Committee T1 ATIS Network Operations Forum
Equipment Manufacturers	Clyde Miller	NORTEL
Task Group Chair	Terry Yake	Sprint

Note: An asterisk indicates this team member also served as a subgroup leader.

Each of the five task groups within the NRC was assigned a mentor to help guide the group through the study effort and meet the intended goals. Ross K. Ireland from Pacific Bell was this group's champion and mentor.

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4. DATA COLLECTION AND ANALYSIS METHODOLOGY

In order to adequately study the current and future national network reliability issues that derive from the increasing number of communications service providers, the Network Interconnectivity task group determined that it required an industry-wide view of these issues. Such a view would necessarily recognize the diverse nature of the various industry segments (e.g., traditional wireline telcos, wireless providers, cable TV companies, satellite service providers, equipment manufacturers, etc.). Accordingly, the group developed a questionnaire to survey representatives of these industry segments and solicit their opinions about the importance of various network interconnection reliability issues, the efficacy of several proposed solutions and additional suggestions for future procedures.

The remainder of this section describes the questionnaire and the process used to administer it and summarizes the response rates from the industry.

4.1 *Questionnaire Description*

The questionnaire had three parts. The first part requested background information on the responding company's role in the telecommunications industry. It included questions concerning the industry segment of the company, the size of the company and the extent of the company's participation in various industry fora. The industry segments included:

1. Cable networks
2. Satellite networks
3. Wireless networks
4. Wireline networks
5. Others (equipment manufacturers)

If a company was involved in more than one of these segments, it was asked to complete one copy of the questionnaire for each of the segments in which it was active.

The second part of the questionnaire involved an assessment of the current and future situation concerning inter-network connectivity. Included were questions concerning the criticality of inter-network connections between the responding company's network and networks of the various types listed above, the risk associated with various interface types (i.e., physical, signaling channel, user interface channel and OAM&P), reliability and performance requirements for network interconnections and methods for coordinating inter-company OAM&P.

The third part was focused on processes and practices designed to mitigate potential future interconnection problems and ensure end-to-end network reliability as more service providers interconnect and increase the complexity of national and international communications networks. The questions in this part addressed the allocation of responsibility for inter-network reliability and interoperability; the processes used to ensure such reliability and interoperability; methods such as firewalls used to protect against fault migration, intrusion on control channels and negative performance impacts; methods to be used for establishing new interconnection interfaces; and the extent of existing disaster recovery plans.

While numerous types of interconnections may be available now and in the future, the scope of the questionnaire was limited to those interconnections that result in the provision of switched voice telecommunications services. A complete copy of the questionnaire is provided in Appendix 2.

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4.2. *Data Collection and Analysis Process*

The NRC designated Bellcore as the central point for requesting, collecting, compiling and aggregating data for all task groups. All data provided to Bellcore was protected under a non-disclosure agreement. The data were treated as proprietary information and specific references to individual respondents were removed during the aggregation process.

The NRC was directed to obtain a view of all segments of the industry. The NRC asked each company to identify a Single Point of Contact (SPOC). In total, 6 inter-exchange carriers, 12 local exchange carriers, 18 wireless companies (including the 10 largest), 9 cable TV companies, 9 satellite (or mobile satellite) companies and 14 manufacturers identified SPOCs. Only three (3) companies who were asked to provide a SPOC refused. Bellcore sent all data requests to the SPOC in each company. All the largest companies in the industry were asked to participate. The companies represented over 90 percent of the subscribers in each industry segment.

The questionnaires were sent to the SPOCs on April 12 (the companies that were late in identifying their SPOCs received their questionnaires within one day of receiving the necessary information). The original cutoff date for responses was April 30, 1995. However, this date was extended to July 12, 1995, to include as many responses as possible. An additional three (3) companies sent in responses after the due date and were not included. The final tally of responses was as follows:

Industry Segment	Number of Responses
Cable network	1*
Satellite network	5
Wireless network	11
Wireline network	18
Manufacturer	9
Total	44

* This response was represented as the cable industry's consensus.

The responses were aggregated and summarized in various tables and graphs on both an overall basis and by industry segment. These results were then analyzed by industry segment-specific subgroups by the Increased Interconnection Task Group. Selected results, taken from the industry questionnaire results, follow which support Section 5. The findings and recommendations appear in the following sections of the report.

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Figure 4-1. Standards Bodies Participation (Chart 7)

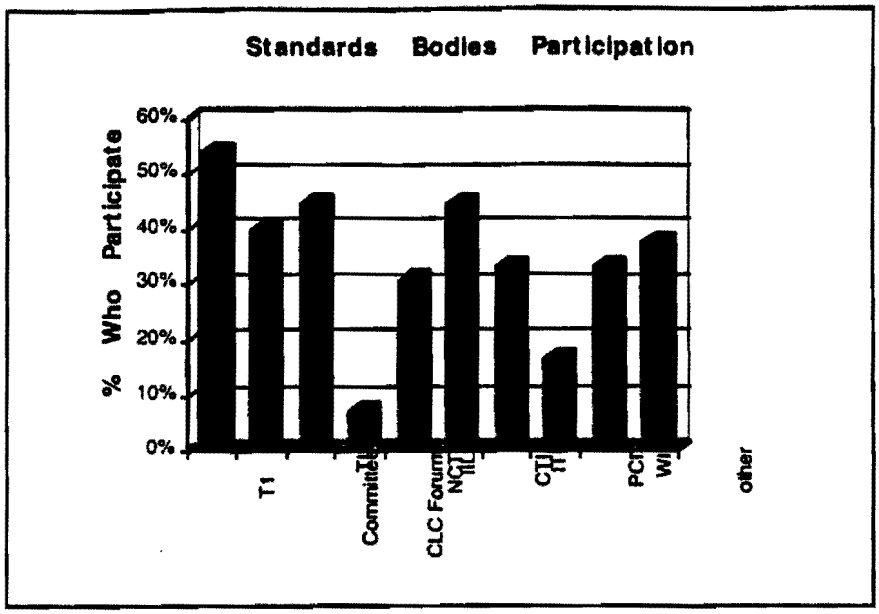
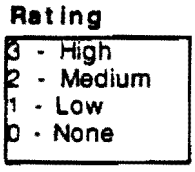


Figure 4-2. Critical Inter-network Connections (Chart 9)



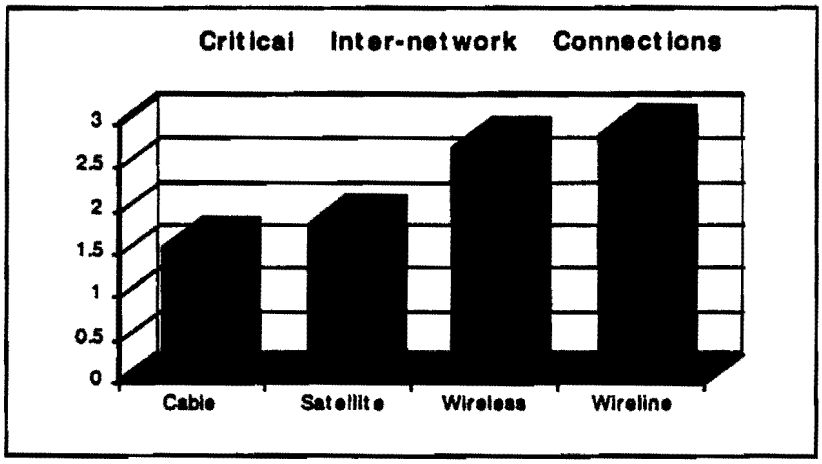


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Figure 4-3. Key Interfaces That Show the Survey Results (Chart 10)

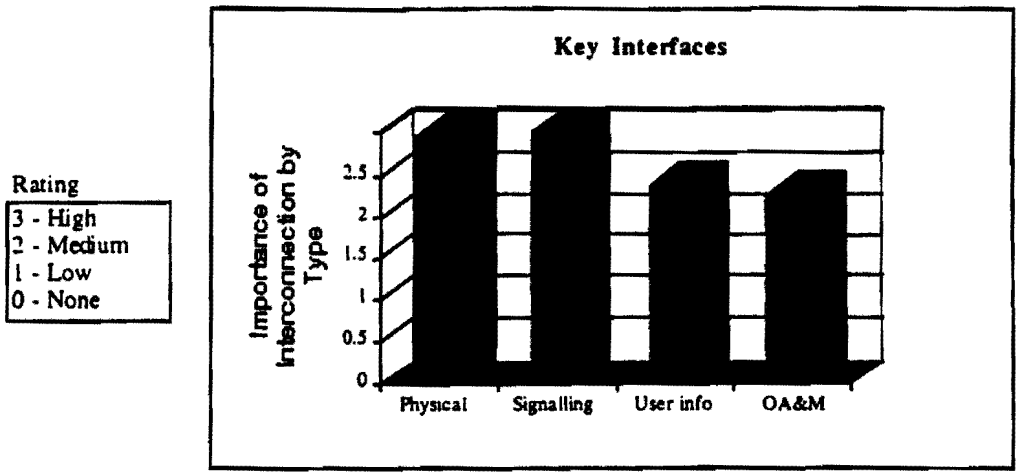

Figure 4-4. Bilateral Agreement Specifications (Chart 11d)

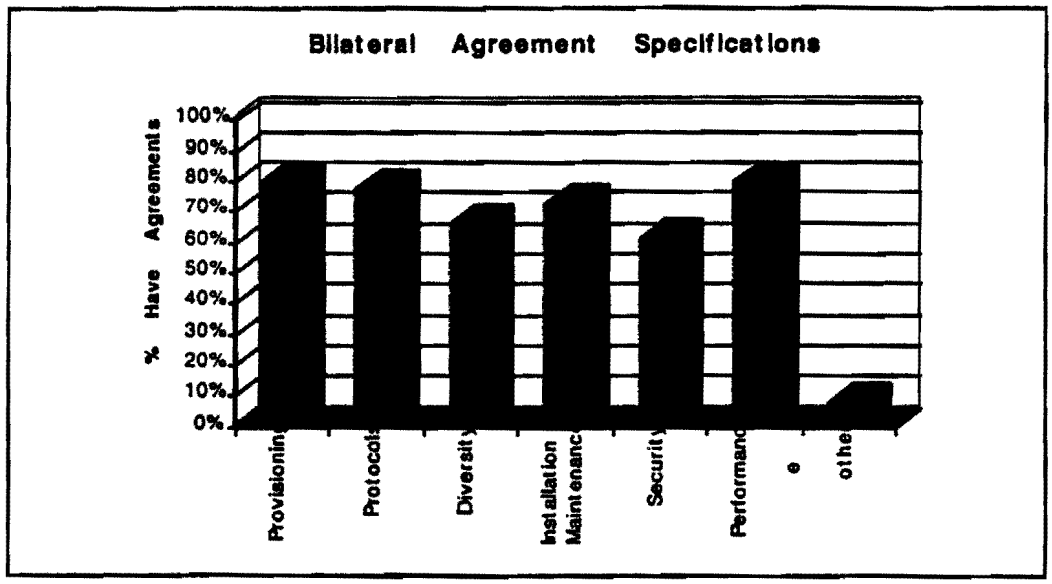

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Figure 4-5. Firewalls/Safeguards (Chart 18)

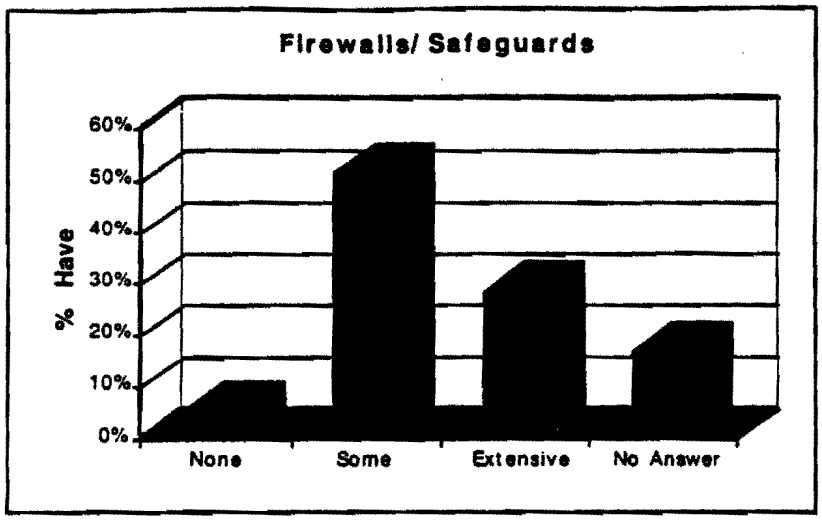

Figure 4-6. Disaster Recovery Plans (Chart 19a)

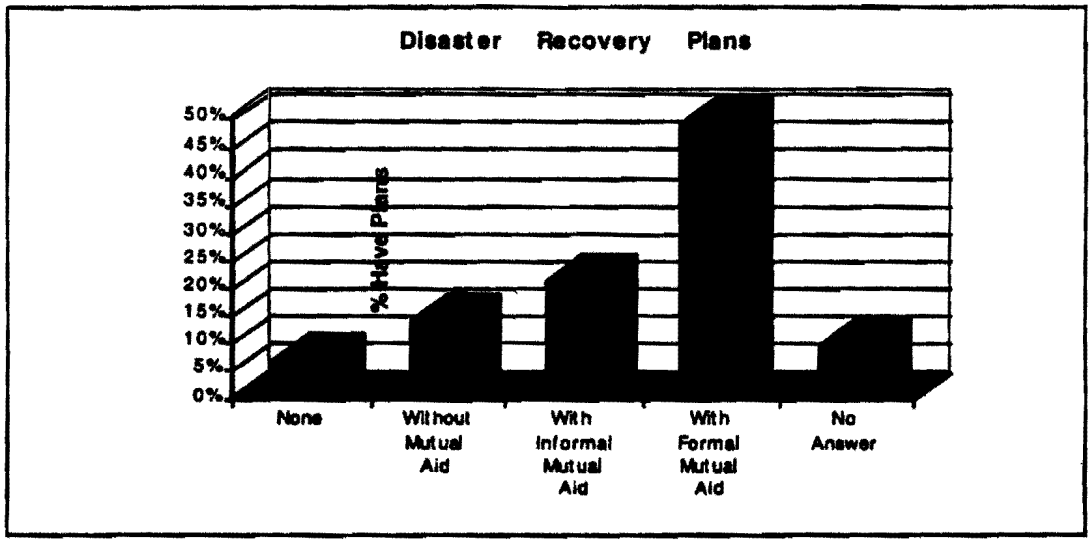

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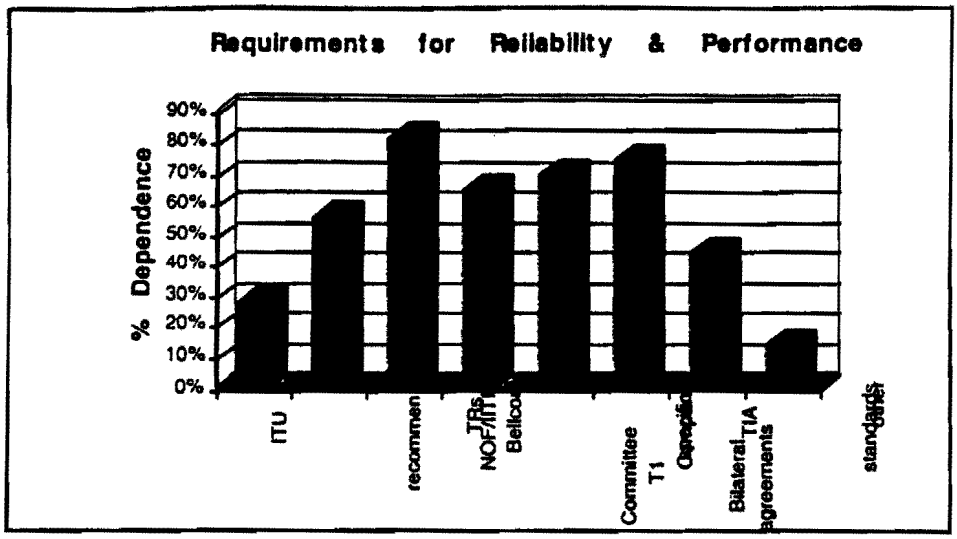
Figure 4-7. Requirements for Reliability & Performance (Chart 11a)



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5. STUDY RESULTS BY TYPE OF NETWORK PROVIDER

5.1 WIRELINE INTERCONNECTIONS

5.1.1 *DESCRIPTION*

With the invention of the telephone came the development of Public Telephone Service (PTS), whereby a customer had a dedicated connection to a central office and could be connected to any other customer of the service. This was sometimes referred to as plain old telephone service (POTS). The traffic network that provides PTS or POTS is referred to as the Public Switched Telephone Network (PSTN). While many different technologies are employed in the provision of the PSTN, for the purpose of this report the network providers who currently provide the PSTN are referred to as wireline providers. This section of the report will examine the implications of new interconnections to the PSTN from the perspective of the wireline network providers.

The PSTN has been the basis for providing POTS for well over a century. The PSTN has enabled end user customers to communicate with others in their local areas, across the United States and throughout the world. For a transcontinental call, the PSTN consists of the following basic interconnected networks and elements:

End User----Local Exchange----Inter-Exchange----Local Exchange----End User
Equipment Carrier Carrier Carrier Equipment

The End Users are the customers who want to communicate with each other; Local Exchange refers to the companies that provide dial tone to the end users; Inter-Exchange refers to those providers that provide facilities that cross defined geographic boundaries, e.g., exchange, local access transport areas (LATAs), or state. Thus, for a typical call, at least three different wireline companies could be involved in providing service to enable a customer to originate and/or terminate calls. Traditionally, the Local Exchange element has been performed by the Local Exchange Carriers and, prior to 1984, AT&T Long Lines was the predominant Inter-Exchange provider. Today, there are over 500 Inter-Exchange providers and several companies are emerging to become Competitive Local Exchange Carriers. In the near future, a wide variety of new entities are expected to emerge to perform the functions of these basic PSTN elements, primarily in the Local Exchange portion of the network. For the purposes of this report, attention is focused on the emergence of the cable TV, satellite and wireless industries, as well as new Local Exchange Carriers, as the new players that will interconnect to the PSTN.

Much has and is still being written about the "information superhighway" and the "convergence" of computers, telecommunications and television technologies. It is beyond the scope of this report to examine all the implications of this transformation of the telecommunications industry. One prominent industry leader has stated, "When it comes to development, information technology today is in its infancy. Just like automobiles at the turn of the century, just like television in the 1940s and just like jet travel in 1950s, if we've learned anything from the development of those technologies, it's that growth will be wild and chaotic and what ultimately happens will defy anyone's prediction."

Thus, this report will more narrowly focus on how voice services will be provided in the next 3 to 5 years as new entities interconnect to the PSTN to offer voice telecommunications services.

The emergence of these new business entities is driven by the expanding marketplace, technology and changes in regulation. With respect to the marketplace, it should be noted that local and long distance telecommunications in the United States is a $150 billion industry. Thus,

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it is an attractive market for new entrants. In addition, advances in technology will continue to make it easier for new entities to enter the telecommunications market. (For example, cable video operators will be able to handle POTS as well as TV programs over their facilities.) With respect to regulation, the prime drivers have been actions by the FCC to increase competition (for example, see FCC Dockets 91-141 regarding increased interconnection and Docket 91-213 regarding the restructuring of the local transport/access) and actions by the State Utility Commissions and legislatures to increase competition. In addition, legislation being considered by Congress will markedly increase the number of entrants into the PSTN marketplace.

5.1.2 *CRITICAL INTERCONNECTION POINTS*

A network interconnection is considered to be critical if messages or events, or the absence of messages or events, presented to an interface could reasonably cause a serious impairment at or beyond that interface.

For purposes of this task group report, a serious impairment is an event that meets the FCC's reportable impact criteria contained in FCC CC Docket 91-273, regardless of whether or not the service is subject to the specified reporting requirements.

Before considering the criticality of actual interconnection points, the task group examined interconnections from a wireline provider perspective. The projected potential growth in interconnections is occurring between the wireline network and the following types of networks:

- other wireline networks
- wireless networks
- cable TV networks
- satellite networks

While the general focus of the report was to look 3-5 years beyond today's network interconnections, the team hypothesized, at least for the next 1-2 years, there will not be significant growth in interconnection between the wireline and cable TV networks, or between the wireline and satellite networks, to make them critical. Further, the team hypothesized, interconnections between the current wireline network and emerging wireline network entities, such as Competitive Local Exchange Carriers (CLECs) and Alternate Local Telephone (ALTs) providers and between the wireline network and wireless entities, such as wireless "cellular" carriers and Personal Communications Systems (PCS) entities, would see strong growth within 1-2 years and thus would be critical.

The response from the questionnaire sent to the industry confirmed the team's conclusion. In addition, the response showed the industry believed that connections between cellular networks would be critical. Section 5.2 addresses wireless "cellular" connections, while the remainder of this section will be devoted to connections between the wireline network and other wireline networks and between the wireline network and cellular networks. Satellite and cable TV interconnections will be covered in detail in Sections 5.3 and 5.4 of this report. Section 12 Figure 1 describes the basic interfaces utilized in the interconnected PSTN network and shows how satellite and cable TV interconnections will be accommodated.

The second phase of the examination of criticality of interconnection points was the examination of elements common to specific interconnection points and includes:

- **Physical Channels**

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- Signaling Channels
- User Information Channels
- OAM&P Channels
- Synchronization and Timing

The definition of these elements and a discussion of their criticality is given below.

A theme throughout the questionnaire responses and the presentations made to the team was the importance of the need to comply with existing standards to assure network reliability and interoperability. In addition, it became clear that compliance with new standards addressing interconnection points between existing wireline and emerging local service providers would be critical for continued network reliability and interoperability.

Recommendation 1. Special attention should be given to utilizing applicable existing standards and implementing new standards addressing interconnection points between existing wireline and emerging local service providers.

5.1.2.1 *PHYSICAL CHANNEL*

The physical channel is the facility that is used to carry the Signaling Channel, the User Information Channel and the OAM&P Channel, as described below. The physical channel interface is the point where two telecommunications systems/facilities interconnect. Usually, it is described by industry terms such as copper or fiber, which may be inferred from the capacity of the facility at the interface, e.g., DS-O, DS-1, DS-3, OC-12 and the like.

The physical channel interface is the best defined of all the channel interfaces. The primary importance of the physical channel is its use as an integral component in carrying user information, signaling and OAM&P messages. The team did not focus on the reliability of physical channel interfaces since standards and operational procedures are well documented. Further, physical channel reliability is already the subject of continuing industry efforts to identify root causes and improve this element's reliability. However, the responses from the questionnaire showed the industry to be still focused on the high level of risk to the physical channel. This task group did expand its project scope to address the written comments concerning network timing and synchronization, as we surmise some respondents expanded the definition of physical channel interface to raise these concerns. Network timing and synchronization, an element of the physical channel reliability, are covered in Section 5.1.2.5 of this report.

5.1.2.2 *SIGNALING CHANNEL*

For traditional telecommunications services, signaling refers to the mechanism necessary to establish a connection, monitor and supervise its status and terminate it through the transmission and switching fabric of the underlying networks. These signals are messages generated by the user or some internal network processor, pertaining to call management. Signaling interconnections transfer this information to and among remote network elements. The signaling network is the collection of physical transport facilities and network elements that carry call routing signals.

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The signaling channel interface is commonly available in two varieties, in-band and out-of-band. Multi-frequency (MF) is an example of in-band signaling. SS7 is an example of out-of-band signaling. For the purposes of this report, the signaling channel interface indicates an interface interconnection of the signaling systems between two network entities.

The current trend in signaling in the wireline environment is a rapid migration away from in-band signaling to out-of-band signaling. This migration has resulted in the consolidation of signaling onto single-purpose dedicated data links. Thus, there is a greater potential risk of a signaling problem resulting in major service disruptions with out-of-band signaling than in-band signaling because of the number of call management signals that are concentrated in the data linkages. As a result, the team viewed the signaling channel interface as having the highest potential risk and therefore being the single most critical interconnection point. The responses from industry supported this conclusion.

The reliability of the signaling channel is dependent on:

a) the reliability of its physical channels and network components/applications; and,

b) the signaling network architecture.

The architecture adopted in SS7 networks requires paired deployment for all critical network components and redundancy, as well as 2 or 3-way physical diversity for the signaling links. Such an architecture greatly increases the reliability of SS7 networks. In addition, industry-wide SS7 interoperability testing (as described in Section 5.1.3.2) is routinely conducted to ensure reliability of the signaling protocol design and implementation before these protocols are installed for commercial use. This activity has significantly improved signaling network reliability.

Consideration also must be given to the reliability of the signaling message content. Specifically for SS7/C7 link signaling, the issue of how initial address messages configure the switching equipment should be reviewed and a common agreement reached by interconnecting company engineering design groups. As more interconnection opportunities develop, both domestically and internationally, service providers frequently and accurately follow the standards, only to find differing options within the standards cause end-to-end service incompatibilities. For example, SS7/C7 calls marked "voice" versus "3.1 KHz" are both acceptable but produce service incompatibilities, especially on facsimile calls.

Numerous ANSI standards, Committee T1 publications and Bellcore publications are available on various aspects of signaling. (See Section 11 - References for a listing). The Bellcore Technical Reference employed by many LECs for interconnection to their signaling networks to interexchange carriers' signaling networks is Bellcore GR-000905-CORE (also referred to as TR-905), entitled "Common Channel Signaling Network Interface Specification Supporting Network Interconnection (Message Transfer Part, ISDN User Part)." This document can also be applied to the interconnection of LEC signaling networks.

Recommendation 2. The task group recommends that changes in network-to-network signaling standards and requirements (e.g., standards, fora, TR-905, etc.) be reviewed by the Network Operations Forum (NOF) and considered a) for inclusion in appropriate testing procedures, and b) development of additional operational guidelines.

5.1.2.3 *USER INFORMATION CHANNEL*

The user information channel refers to the bearer or payload channel in a telecommunications network and the interconnection point between network entities. The user information channel is most visible to the end user since it is this channel that an end user's application, be it an ordinary voice call or a data transaction, is carried. The reliability of this channel is dependent upon the reliability of the physical channel described earlier and the specific application being utilized by the end user. The end user applications are, in turn, dependent upon the end user's hardware, software and other operative processes that are not part of the telecommunications network infrastructure.

Based upon the definition of "critical," the team did not feel the information channel would be a critical interface for interconnected networks. While a problem associated in this channel would affect end users and be important to them, there was little likelihood that such a problem would be spread into other interconnected networks and affect *other* users. The responses from industry tended to confirm this conclusion.

5.1.2.4 *OAM&P CHANNEL*

OAM&P is an acronym that stands for Operations, Administration, Maintenance and Provisioning. The OAM&P channel refers to the facility utilized by interconnected networks for the exchange of information regarding the management/control of interconnected networks. The reliability of the OAM&P channel is dependent on the reliability of the physical channel and the network systems applications utilizing the physical channel.

Several technical standards exist addressing OAM&P issues. For instance, ANSI OAM&P standard T1.115 addresses issues concerning diagnostics and management of the SS7 network; the Simple Network Management Protocol (SNMP) standard and Telecommunications Management Network (TMN) standard facilitate standardized implementation and information exchanges of telecommunications network management systems.

The team did not feel the OAM&P channel interface was a critical interface and the survey results agreed with this approach. However, this does not mean that this interface is unimportant. To the contrary, the importance of this interface will increase as the interactions between interconnected networks become more complex and require real time coordination.

The NOF has the responsibility for addressing various OAM&P issues. In February, 1994, the NOF reissued its Reference Document, NOF Reference Document Issue 11. The document provides industry guidelines for administrative and operational procedures involving exchange access and telecommunications network interconnection. These guidelines were developed as a minimum set of procedures to be followed by personnel in the installation and maintenance of access service. These guidelines can be used as a foundation for more specific, local procedures provided by individual companies. In addition, the NOF is currently looking at OAM&P issues involved with the interconnection between LECs operating in the same or different franchise areas. This issue has been identified as Issue 229. The resolution of this issue will address the Interconnection Testing requirements and the Installation and Maintenance guidelines for Competitive LECs that ensure an equal playing field for all interconnecting companies. Progress on this issue should be monitored for its impact on future interconnections.

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5.1.2.5 *SYNCHRONIZATION AND TIMING*

In response to the questionnaire sent to industry, some companies identified network timing and synchronization as a key interface. The need for synchronization is the result of digital switching and transmission systems directly interconnected by digital facilities requiring the use of some means of synchronizing clock signals. The term synchronization refers to an arrangement for operating digital switching and transmission systems at a common (or synchronized) clock rate with proper phase alignment at the bit and byte level between the transmitter and receiver. Improperly synchronized clock rates and/or phase misalignment will cause portions of the bit streams to be lost in transmission.

Numerous documents exist regarding network synchronization. (For example, see ANSI T1.101 Digital Network Synchronization Standard and Bellcore SR-TSV-002275, entitled "BOC Notes on the LEC Networks.") Entities wishing to interconnect with the wireline network should become familiar with these industry documents. As a start, these entities should appoint a Synchronization Coordinator to assist their company in becoming familiar with this discipline (SR-TSV-002275 outlines the responsibilities for such a coordinator.) In addition, these entities should also provide the coordinator's name to the ICCF for its Synchronization Directory. This will facilitate industry coordination for planning, designing, installing, testing and administering the synchronization network.

Recommendation 3. Companies should appoint a Synchronization Coordinator who will perform the responsibilities contained in SR-TSV-002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Recommendation 4. Companies should comply with the synchronization standards addressed in ANSI Standard T1.101, entitled "Digital Network Synchronization."

5.1.2.6 *GENERIC INTERCONNECTED PSTN NETWORK*

The above sections examined interconnection from a company perspective and then from those elements common to specific interconnection points. The next level of examination employed by the team involved a look at how these common elements are actually utilized in the interconnected PSTN network.

Section 12 Figure 1, entitled "Generic Interconnected PSTN Network" diagrams a signaling network interconnection and information channel interconnection. The signaling network interconnection is based on ANSI SS7 Standards T1.110 through T1.116. Bellcore TR246 also describes signaling requirements. The database requirements are given in Bellcore TR1149 and TR954. The information channel diagram describes five basic interfaces utilized in the interconnected PSTN network. These interface type groupings depicted in Section 12 Figure 1 are:

a) An End Office* type connection to an IC

b) An Access Tandem type connection to an IC

c) A PBX type connection to an End Office*

d) A Mobile Switching Center Type connection to an Access Tandem

e) A Base Station Controller (associated

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with PCS) to an End Office*

*Note that an end office may belong to a LEC or to a CLEC, CAP, or a cable provider.

Items a) and b) are currently in use today for the interconnection of LECs and ICs. The primary signaling system documents that detail the protocols to facilitate these interconnections are Bellcore TR-905 and ANSI Standards T1.110 through T1.116. The primary documents that detail the physical layer network interconnection are ANSI Standards T1.101, T1.102, T1.105 and T1.107. In the future, although different entities will be involved in these interconnections. e.g., CAPS, CLECs, satellite providers and cable TV providers, these same interfaces, plus others, will be utilized for the interconnection. Likewise, the same standards and interface specifications can be used to facilitate the protocols for information transfer.

Item c) is currently in use today for the interconnection of a cellular carrier to a LEC. (In this context, it is referred to as a Type 1 interface.) The primary document that details the protocols to facilitate this interconnection is Bellcore TR-NPL-000145, entitled "Compatibility Information for Interconnection of a Cellular Service Provider and Local Exchange Carrier Network." In the future, this document and other industry specifications can be used by any entity where a PBX to end office protocol is required.

Item d) is also in use today for the interconnection of a cellular carrier to a LEC. (In this context, it is referred to as a Type 2 interface.) The primary documents that detail the protocols to facilitate this interconnection are TIA/EIA Interim Standard-93 ("IS-93"), entitled "Cellular Radio Telecommunication Ai-Di Interfaces Standard" and Bellcore TR-145. In the future, these documents and other specifications can be used for the interconnection of a wireless network to any other network employing a local switching function.

Item e) is viewed as employing protocols for signaling interconnection between the BSC and a connecting message switch. It has not been implemented in today's networks.

It is impossible to predict all the possible interconnections that will be available in the future. However, it is highly probable that the vast majority of interconnections to be accomplished in the next three to five years can be accommodated by the interfaces described within this section. In addition, there are existing documents that describe the protocols to facilitate these interconnections.

5.1.3 *AREAS OF CONCERN*

5.1.3.1 *NETWORK INTERFACE*

Respondents to the industry survey indicated they utilize multiple sources to develop requirements for reliability and performance. (See Figure 4-1 - Standards Bodies Participation, for a breakdown of the standards bodies that are utilized. Further, see Figure 4-7 - Requirements for Reliability & Performance, for a listing of the primary information sources used by the respondents.) The primary sources that were identified include:

- NOF/IITP procedures
- Bellcore TRs/GRs
- Committee T1 standards and reports
- Company-specific documents

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- **Bilateral agreements**

The respondents determined the responsibility for development of standards should be shared by the standards bodies, industry fora, service providers and equipment manufacturers with little role for either the FCC or State Utility Commissions. This same pattern should be continued with respect to the planning for reliability standards. This view changed with respect to the responsibility for ensuring reliability standards. In this case, industry felt the primary responsibility was with service providers and equipment manufacturers. The FCC, Industry Fora, Standards Bodies and State Utility Commissions had a supportive role, but significantly less than that of the service providers and equipment manufacturers.

The team believed bilateral agreements were critical for ensuring reliable interconnections. This hypothesis was validated by the industry response. First, bilateral agreements were ranked high as a source for reliability and performance specifications. Second, the respondents indicated that all of the following need to be specified in a bilateral agreement: (See Figure 4-4 - Bilateral Agreement Specifications, for a ranking of the specifications used in bilateral agreements.)

- Provisioning information and guidelines
- Protocol implementation agreements
- Diversity requirements
- Installation and maintenance guidelines
- Security requirements
- Performance standards / service level agreements

Because of the importance of bilateral agreements, a template for potential use by interconnecting parties is included as Section 5.6 in this report.

One conclusion drawn from the analysis of the data is that carriers use a multitude of data sources for the development of their performance and operating standards. Thus, new entrants into the telecommunications industry who plan to interconnect to existing networks should participate in a wide variety of organizations to influence the development of standards. This is significant since the respondents have indicated that the existing standards process should continue to play a prominent role when establishing a new interconnection interface. Therefore, any future network interconnection interface standards (e.g., TR-905) should be developed by standards bodies and industry fora organizations.

Another interesting observation concerns the future role of Bellcore. The data indicates a high reliance by the industry on Bellcore TRs/GRs. Since the RBOCs announced their intention to sell Bellcore, the task group noted concern regarding the future of generic requirements. Bellcore responded that it plans to continue developing generic requirements, although its future business model has not been finalized. Bellcore noted the model under development takes into account the potential for a change in its ownership. The industry should continue to monitor the entire standards process to assure it continues to meet network reliability needs. The Standards process is discussed in Section 6.

Recommendation 5. Companies should monitor and if applicable, consider active participation in standards development organizations and industry fora.

Recommendation 6. Bilateral agreements should be established between interconnecting network providers in accordance with the bilateral agreement template contained in Section 5.6.

Recommendation 7. Any future network interconnection interface should be developed by standards bodies and industry fora to ensure design compatibility and interoperability.

5.1.3.2 *SERVICE ASSURANCE/INTEROPERABILITY*

Interoperability testing is a mechanism for all service providers and manufacturers to jointly develop, approve and execute test scenarios in an off-line environment that will enhance the reliability, stability and survivability of the interconnected networks.

The only industry-wide interoperability testing that occurs today is the IITP, which is concerned with interconnected SS7 based networks. Interoperability testing plans are administered by the NOF IITP Committee. The IITP guidelines and participant responsibilities are contained in the IITP Reference Document.

Interoperability testing provides the capability to ensure interconnecting networks are compatible at implementation and remain compatible for the duration of the interconnection arrangement.

The team recognized the importance of interoperability testing to the overall reliability for interconnected networks. This view was shared by industry, where the vast majority of respondents indicated they or their vendor actually had participated in IITP testing. In addition, a majority of wireline respondents indicated they had participated in IITP testing along with their vendors. Thus, IITP serves as an excellent model for an interoperability testing scheme that should be adopted for future interconnections. Some of the key elements associated with IITP are given below. It is important to note that interoperability testing does not provide an absolute guarantee that network problems associated with interconnection will be eliminated. Such a guarantee is impossible since it is impractical to test every possible situation that could occur in a real installation. Testing provides an important role in ensuring reliability, but it must be coupled with a total commitment to quality in all phases of the design and installation of the interconnected networks. Thus, quality processes must be utilized in the development of the equipment to be used in the interconnection, as well as in the development of standards and specifications (Section 6 - for additional information on the Standards Development and Compliance Process) and the actual interconnection of the networks. Thus, interoperability testing must be viewed as an important component for ensuring reliability but not as a substitute for any of the quality processes leading up to the interconnection. (See Section 7 for a discussion of a future direction for interoperability testing.)

With respect to IITP, carriers being interconnected will test to prove that compatibility and interoperability exist. In addition, many wireline carriers have a policy of testing all interconnecting networks prior to service turn-up. These carriers have developed testing suites to satisfy network integrity, compatibility and network interoperability concerns. These are applied as required. ANSI, NOF and interconnected company standards are used as the basis for testing and analysis.

An example of a testing suite for SS7 that is utilized by a wireline carrier is given in Section 12, Exhibit 8. Typically, these testing suites, along with any company specific requirements, are included in bilateral agreements between the interconnecting carriers.

In addition to nationally-coordinated industry-wide interoperability testing, respondents have indicated that they participate in various forms of bilateral testing before interconnecting.

Recommendation 8. Interoperability testing of all new/changed network interfaces having potential national PSTN reliability impacts should be performed via the IITP process to ensure continued network reliability.

5.1.3.3 *FAULT ISOLATION*

Fault isolation refers to the process that locates the source of trouble so corrective action may be taken. For interconnected networks, this process involves diagnostics isolating the service problem.

The primary method identified by industry respondents was the use of Network Control Centers that monitor the network on a 7 day a week, 24 hour, 365 day a year basis. These Centers utilize operational support systems and processes to monitor their own networks up to the network boundary between their network and any other interconnected network. The systems monitor traffic flows for any unusual patterns. In addition, the processes provide surveillance of critical network elements, such as signaling, switching and transport.

Recommendation 9. Bilateral agreements between interconnecting networks should address the issue of fault isolation. At a minimum, these agreements should address the escalation procedures to be used when a problem occurs in one network. Second, the agreement should address which company will be in charge for initiating various diagnostic procedures. Finally, the agreement should address what information will be shared between the interconnected companies.

5.1.3.4 *FAULT MIGRATION MITIGATION*

Fault migration refers to the situation where a fault originating in one system spreads across a network interconnection boundary to cause further service impairment in another system.

To prevent or mitigate such migrations, industry respondents reported on the use of several techniques. One of the techniques indicated was the use of existing standards, especially SS7 standards. Presentations made to the team by subject matter experts revealed the SS7 standards define effective "firewalls" to prevent fault migration in the signaling network. Since the signaling channel was viewed as a critical interconnection point, the adherence to the SS7 standards is a critical piece in a fault migration mitigation strategy. Also related to SS7 was the use of "gateway screening." This technique involves examining the format of certain SS7 messages and addresses for conformance to a specified format before they are allowed to enter into an interconnected network. This technique prevents misdirected messages from causing problems in the interconnected signaling network.

Another technique identified by the respondents involved real time network surveillance. Network control centers monitor network traffic and look for any abnormalities, especially at the network boundaries. Problems detected are immediately addressed utilizing network management controls.

A third technique involves a follow-up analysis that correlates troubles across network elements and/or elements to determine root causes of problems.

In short, wireline carriers use a three-pronged approach to mitigate fault migration that includes:

- Prevention (adherence to standards, use of firewalls)
- Detection (real time network surveillance)

- Correction (use of root cause analysis).

To gauge the actual use of prevention techniques, industry was asked to report on their use of "firewalls." Only 5 percent of the total respondents indicated they did not use any "firewalls." Thus, an overwhelming majority of the industry is currently using some type of prevention technique as indicated in Section 4, Chart 18 - Firewalls/Safeguards.

Recommendation 10. The SS7 current "firewall" techniques should continue to be used to ensure network messaging integrity. For the future, these techniques should be used as a benchmark for "firewalls" that can be used for new technology introductions.

5.1.3.5 *ENGINEERING CAPACITY PROVISIONING*

Wireline providers have had extensive experience in dealing with the challenges of having sufficient network capacity to handle traffic from interconnected networks because of the experiences gained from the interconnection of the Local Exchange Carrier and Interexchange Carriers' networks.

In response to the industry survey, wireline carriers indicate they use two basic elements to address capacity concerns resulting from interconnected networks. The first element involves preplanning. The parties to be interconnected provide estimates of their projected traffic for an upcoming period and the necessary facilities are provisioned. The second element involves network traffic management, surveillance and monitoring. Wireline carriers use network control centers to monitor their networks on a 7 day a week, 24 hour a day basis using trained personnel and expert systems. These centers employ call flow controls, such as, choke or call gapping, for general problems such as outages. For mass calling events, joint agreements for capacity control measures are utilized. In addition, if a problem is occurring in one network that can impact an interconnected network, the network control centers of the affected networks will be in contact regarding the nature of the problem and steps to be taken to mitigate the problem.

Certain network elements (switches, databases) are equipped with capabilities to automatically detect and control abnormally high volumes of traffic. One example of this would be for 800 call control where the 800 number database can recognize a focused overload from a switch and evoke call gapping controls to decrease the traffic volume. This prevents an overload of the database system and aids in protecting other elements of the network.

Recommendation 11. To control overflow traffic conditions from adversely affecting interconnected networks, interconnected network providers should utilize network surveillance and monitoring. In addition, companies should follow the guidelines for advanced notification of media-stimulated call-in events as outlined in Section VI of the NOF Reference Document concerning Media Stimulated Call-in Events. Further, interconnecting companies should include a contact name for inclusion in the Media Stimulated Call-in Event Contact Directory. Finally, interconnecting companies should address the control of overflow call attempt and signaling message conditions in their bilateral agreements.

5.1.3.6 *INFORMATION SHARING*

Information sharing enables all service providers and vendors/manufacturers to utilize non-competitive information uncovered by other service providers and/or vendors/manufacturers through the testing, validation/application of software, hardware, documentation and conformance to agreed-upon standards in order to:

- **Minimize the possibility of major outages and service interruptions that can affect our collective customer's service**

- Maintain and improve the reliability, capacity and performance of our interconnected networks

- Meet or exceed the expectations of our "customers"

Respondents to the industry survey indicated industry forums are widely used for sharing information. This is especially true when problems have industry-wide application. The primary forum for this purpose is the NOF. The NOF has developed a Reference Document (See Section 11) that addresses information sharing. In addition, when issues are brought to the NOF for resolution, the results are shared with the industry. Finally, generic results from IITP testing are shared with the industry. When issues are uncovered that are not industry-wide concerns, the affected parties work on these issues on a one-to-one basis, usually as the result of a bilateral agreement and sometimes pursuant to a nondisclosure agreement.

Recommendation 12. Information sharing should be utilized by all network providers to minimize recurrence of service disruptions. The guidelines contained in the NOF Reference Document can be used for this purpose. Additional requirements for the timely sharing of information between interconnected companies should be addressed in bilateral agreements.

5.1.3.7 *MUTUAL AID*

One of the outage mitigation techniques utilized by the telecommunications industry is to develop mutual aid arrangements with other network entities. These arrangements may be for resource-lending and/or network-sharing. They may be formal agreements or informal arrangements. The first NRC studied this topic and in "Network Reliability: A Report to the Nation" found there is extensive inter-carrier and carrier-vendor cooperation and coordination prior to and during emergencies/disasters threatening or impairing telecommunications networks.

The team surveyed the industry use of mutual aid arrangements. The results showed widespread use of mutual aid arrangements throughout the industry as indicated in Section 4, Chart 19a - Disaster Recovery Plans (Influenced by NRC I recommendations). However, the predominant users of these arrangements were the wireline providers. This is probably attributable to the relative maturity of the wireline industry and the long standing relationships between and among the LECs and long distance carriers. As more and more entrants interconnect with the wireline network and serve significant numbers of customers, it will be necessary for these new entrants to consider the development of mutual aid arrangements. Of immediate importance should be consideration of agreements that involve National Security Emergency Preparedness (NS/EP). In addition, new entrants should, at a minimum, have a communications structure in place to be used for timely notification of affected parties in the event of disasters or emergencies. The minimum requirements for such an emergency communications structure are:

- Carriers' Network Management/Operation Centers knowing who and how to contact one another and having pre-determined procedures for doing so

- These contact lists must be updated and published regularly

Further, a carrier experiencing a significant telecommunications service outage must be prepared to contact all relevant Network Management/Control Centers quickly to facilitate the evaluation of restoration alternatives. To enhance inter-company communications, the NOF maintains a Mutual Aid Contact Directory. New entrants should provide a contact name for this directory. The NOF has also established procedures for emergency communications to facilitate Control Center communications in the event of a catastrophic outage. New entrants should consider becoming a part of this network.

Recommendation 13. New entrants should, at a minimum, have a communications structure in place for timely notification of affected parties in the event of disasters or emergencies.

Recommendation 14. Companies should appoint and provide the name of a Mutual Aid Coordinator to the NOF for inclusion in the Mutual Aid Contact Directory which is published on a bi-annual basis.

5.2 CELLULAR "WIRELESS" INTERCONNECTIONS

Cellular is considered to part of the broader term "wireless" and currently is an extensively deployed "wireless" technology. Wireless also refers to paging services, both one-way and two-way, a variety of Specialized Mobile Radio services, and the emerging Personal Communoications Services. The bulk of the industry survey responses pertaining to wireless came from companies engaged in cellular and PCS business. Hence, the findings reflect that response. To the extent that other wireless services exhibit the same type of network interconnections as cellular and PCS, the broader use of the term "wireless" is intended to apply.

Current wireless "cellular" services are typically provided by two carriers serving an area - an "A-side" carrier and a "B-side" carrier-based radio frequency spectrum allocation. Resellers utilize the access services provided by these two carriers to further increase the distribution of services to the marketplace. This picture is changing, however, with the entrance of Specialized Mobile Radio (SMR) carriers and new Personal Communications Services (PCS) carriers, licensed to serve in a new area of frequency spectrum (~1.8 GHz).

A number of technology and regulatory initiatives are creating a significant impact on the future structure and interoperability of wireless networks. This NRC Task Group examined the potential future impacts on network reliability, integrity and standards requirements arising from these changes. Noteworthy regulatory proceedings include the following:

- FCC Notice of Proposed Rule Making (NPRM) regarding "Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services" (CC Docket No. 94-54)

- InterLATA Wireless Waiver Order signed by Judge Greene, lifting some of the restrictions regarding the routing of traffic across LATA boundaries for RBOC-owned wireless subsidiaries

- Pending telecommunications legislation, updating the 1934 Communications Act and further opening-up the telecommunications infrastructures to foster competition and innovation.

The scope of this wireless section includes the voice technologies listed below, which generally employ SS7 and such signaling protocols as IS 41 Mobile Application Part (MAP) and GSM MAP as the signaling infrastructure.

- Cellular (AMPS, NAMPS, TDMA, CDMA)
- "PCS" upbanded TDMA and CDMA
- Global System Mobile (GSM)
- Specialized Mobile Radio (SMR)

A work activity has been identified in TIA Standards TR46 to develop interworking between dissimilar MAPs. All such inter-system signaling interfaces will be important to monitor to ensure the continued reliability of interconnected networks.

5.2.1 *DESCRIPTION AND DIAGRAM*

This section provides a high level description of cellular systems (refer to Section 12 Figure 1 and Figure 1 below). For further detail, the reader is referred to TIA - TR45 Network Reference Model (Section 12 Figure 2) and TR46 PCS Network Reference Model for 1800 MHz (Section 12 Figure 3).

Typical Cellular Implementation

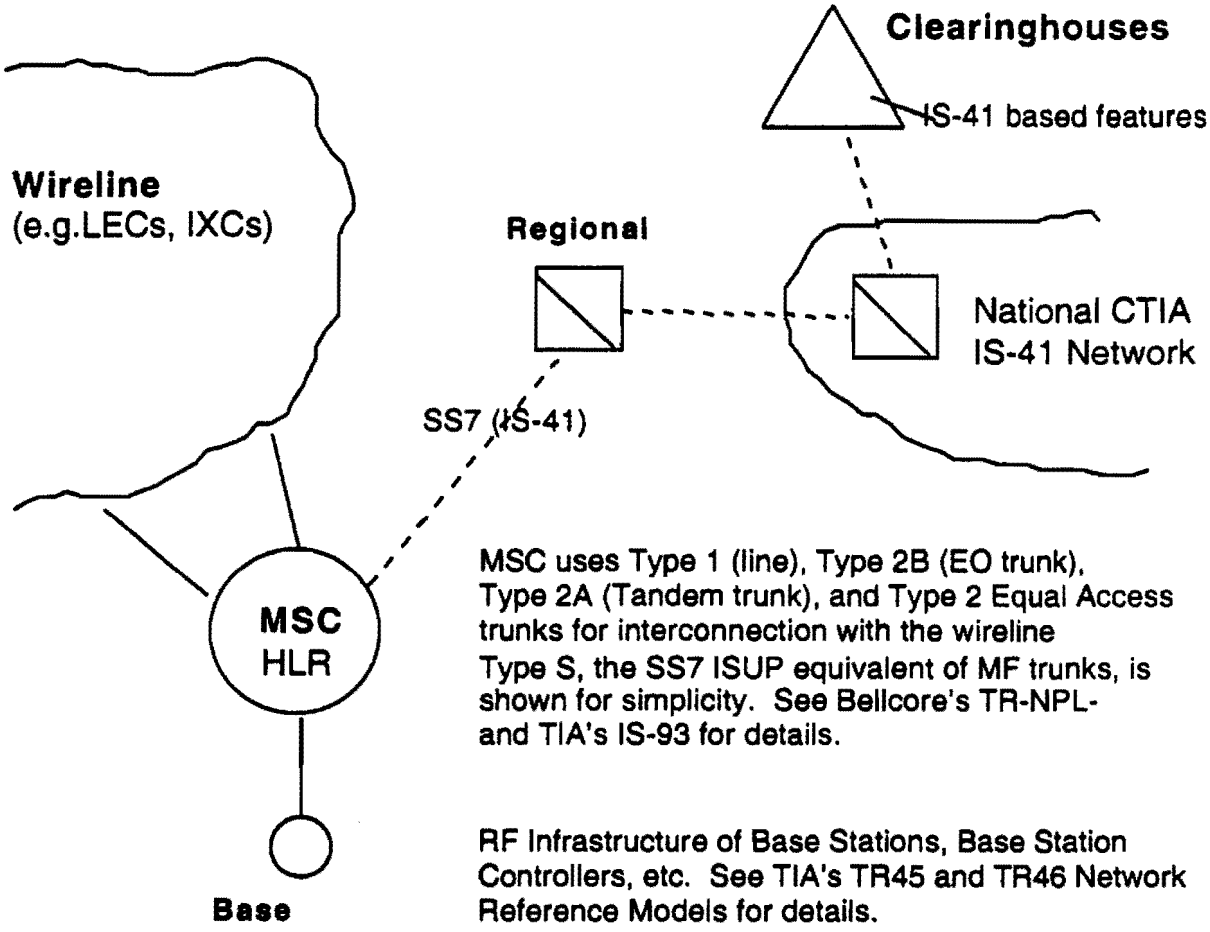

FIGURE 1

A Base Station, or Radio System per TR46 Network Reference Model in Figure 3, provides radio frequency management and other functions for cellular systems and provides radio network access to the Mobile Switching Center (MSC).

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The MSC is a switching system that is connected to one of several types of interfaces: (1) a landline End Office (EO) through a line (Type 1) or trunk (Type 2B) interface, (2) a landline Access Tandem (AT) through a trunk (Type 2A or Equal Access) interface or (3) an Interexchange Carrier (IXC) through a trunk interface. These connections provide access to the wireline and other wireless networks.

The MSC may also be connected to Signaling Transfer Points (STPs), in a mated-pair configuration, for connectivity to wireline and other wireless switches for call set-up signaling. The MSC may use these same signaling links, or a separate set of signaling links, for IS-41 MAP signaling for autonomous registration, call delivery and related wireless services. These signaling links also provide connectivity between the MSC and wireless network Service Control Point databases or wireline network SCP databases.

5.2.2 *CRITICAL INTERCONNECTION POINTS*

From the NRC Survey, network interconnections between cellular carriers and between cellular and wireline carriers are deemed critical and physical and signaling interfaces are both of about equal risk when considering their criticality.

Interfaces between cellular and wireline carriers are covered in Section 5.1.2.6. This section primarily addresses signaling interfaces between wireless networks that are unique to cellular , e.g., IS-41 inter system signaling. These interfaces are not explicitly shown on the network diagrams, Section 12 Figure 1.

5.2.2.1 *PHYSICAL CHANNEL*

The physical channel is used to carry the Information Channel, Signaling Channel and OAM&P Channel described above. It is the point where two telecommunications systems/facilities interconnect. Usually, it is described by the medium (e.g., copper, fiber and microwave) and capacity (e.g., DS0, DS1, DS3, T1, T3, OC12 and the like). This study does not specifically address the reliability of physical channels; rather, the use of physical channels as an integral component in carrying user information, signaling, or OAM&P information discussed below.

5.2.2.2 *SIGNALING CHANNEL*

The reliability of the signaling channel is dependent on the reliability of the physical channel[1] (see Section 5.2.2.4) and the network component applications utilizing the physical channel. Scope includes Signaling System #7 (SS7) network interconnection for both call setup (ISDN User Part, or ISUP) and services (Mobile Application Part, or MAP).

- ISUP For the first decade of wireless service, cellular networks were generally interconnected using inband MF signaling. Signaling was therefore highly distributed in the sense that a single point of signaling failure could not cause a major disruption of service. The trend in call setup signaling, however, is toward utilizing out-of-band Signaling System #7 with ISUP signaling messages, which represents a consolidation of signaling onto data links and an increase in vulnerability to major service disruptions.

- MAP For the first decade of cellular service, suppliers generally provided mobility control and features within the Mobile Switching Center. Networking for call control (e.g., pre-call validation and call delivery) was provided by means of direct data links between networks

[1] **The SS7 link, while used in support of cellular access services, is itself a wireline facility. SS7 links are deployed in pairs from the MSC for reliability in the event one link should experience an outage. Consequently, each link of an SS7 link-pair should typically be deployed in diversely routed paths, including entrance facilities.**

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and "clearinghouses." A major transition is currently taking place within the industry to utilize SS7 with IS-41 inter system messaging, which represents a consolidation of signaling onto data links and an increase in vulnerability to major service disruptions. With the advent of a Cellular Intelligent Network, there will be an even greater dependence on SS7 to carry information between two network components and between networks. It is envisioned that cellular subscribers will receive a wide variety of "seamless" services both in their home networks and in roaming networks.

Other summary points regarding IS-41 are as follows:

- IS-41 has been developed from specific needs of the wireless "cellular" industry
- Early applications focused on inter system hand-off and fraud control
- Currently, customer feature capabilities are being developed
- It appears that SS7 will be the primary means by which cellular operators distribute IS-41 messages both internally and externally

Interface Specifications:

- "Compatibility Information for Interconnection of a Wireless Services Provider and a Local Exchange Carrier Network" TR-NPL-000145 Issue 2, December, 1993 (edited and published by Bellcore through the combined efforts of the Wireless Interconnection Forum)

- "Cellular Radio Telecommunications Ai-Di Interfaces Standard" TIA/EIA Interim Standard-93 ("IS-93") December 1993

  TIA TR 45.2 is responsible for keeping IS-93 updated

- "Cellular Features Description" EIA/TIA IS-53 Revision A, May, 1995

- "Cellular Radio-Telecommunications Inter system Operations" EIA/TIA/IS-41 Rev. A (also, Rev. B December 1991 and PN-2991, which was approved November 17, 1995, for publication as IS-41 Rev. C).

5.2.2.3 *USER INFORMATION CHANNEL*

The reliability of the information channel is dependent on the reliability of the physical channel (see above) and end user application utilizing the physical channel. While this is important to the user, it was not considered critical by survey respondents. In reality, the end user application is a function of the end users' hardware, software and other operative processes, not telecommunications infrastructure. Further, while it may affect other networks in terms of loss, noise and delay, it is not envisioned that problems on information channels would affect interconnected networks as defined within the scope of "critical interconnection."

5.2.2.4 *OAM&P CHANNEL*

The reliability of the OAM&P channel is dependent on the reliability of the physical channel (see above) and network system applications utilizing the physical channel. Survey respondents did not identify the OAM&P channel as critical. Nevertheless, it is important that the cellular carriers work together with other types of carriers to develop "as seamless as possible" access to the PSTN. The significant differences in the air interfaces (e.g., analog or digital; - frequency, time, or code division multiple access; 800 MHz or 1.9 GHz) make it increasingly important that carriers cooperate in exchanging information via OAM&P channels. Following are additional items for consideration:

- Electronic bonding
- O-interface standard TIA TR 45.2 that would enable a centralized OAM&P platform

5.2.2.5 *SYNCHRONIZATION AND TIMING*

In response to the questionnaire sent out to industry, some companies identified network timing and synchronization as a key interface. The need for synchronization is the result of the fact that digital switching and transmission systems directly interconnected by digital facilities require some means of synchronizing clock rates. The term synchronization refers to an arrangement for operating digital switching and transmission systems at a common (or synchronized) clock rate with proper phase alignment at the bit and byte level between the transmitter and receiver. Improperly synchronized clock rates and/or phase misalignment can cause portions of the bit streams to be lost in transmission.

One source of information on architecture and requirements for synchronization is described in Section 11 of "BOC Notes on the LEC Network" SR-TSV-002275 Issue 2, April 1994.

Recommendation 1. Companies should appoint a Synchronization Coordinator for their company who will perform the responsibilities contained in SR-TSV-002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Recommendation 2. Companies should comply with the synchronization standards addressed in ANSI Standard T1.101, entitled "Digital Network Synchronization."

5.2.3 *AREAS OF CONCERN*

5.2.3.1 *NETWORK INTERFACE STANDARDS*

Survey results indicate that wireless carriers primarily use the following requirements or specifications for reliability and performance before interconnecting with other networks:

- Company-specific requirements
- Bilateral agreements
- TIA standards (see Section 7.1)
- Bellcore TRs

Of eleven (11) cellular company responses to the survey, the following were considered important to establishing processes for ensuring reliability and interoperability:

- Intra-company testing (11)
- Inter-company testing (11)
- Conformance testing (11)
- Standards & specifications (9)
- Load simulations (2)
- Stress to failure testing (2)

Examples cited in the NRC Survey by which carriers may monitor interconnections once in service include the following:

- Service monitoring (alarms) 24x7x52
- Maintenance routines
- Automated testing processes
- Traffic statistics

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Network Operations Forum Reference Document Section III "Installation & Maintenance Responsibilities, SS7 Link and Trunk Installation & Maintenance Access Services" provides operational guidelines for interconnected SS7 networks.

Networks wishing to exchange signaling messages should develop interoperability agreements and undergo testing. For example, the CTIA "Seamless Roaming Implementation Guide (SRIG)" January, 1995 provides operational guidelines for exchange of IS-41 messages between cellular networks. Recommendation 3. below, addresses emerging PCS carriers.

Recommendation 3. Industry standards should be the foundation for any network interconnections. Any carrier wishing to interconnect with another carrier should mutually agree upon industry specifications. See Section 5.6 for the recommended interface specification template.

Recommendation 4. Wireless carriers should participate in, or be represented in, the standards process so that needs will be met in a timely and effective manner. Areas of particular interest to oversee include:

- *Prioritize standards work efforts*
- *Ensure standards address reliability and performance concerns*
- *Increase velocity of standards development to meet service providers' needs*
- *Improve processes to ensure overall quality within and between standards bodies*

Recommendation 5. Within the wireless "cellular" industry, many interconnection standards and processes are already in place. They should be adapted or extended, as appropriate, to accommodate the needs of new PCS carriers.

5.2.3.2 *SERVICE ASSURANCE/INTEROPERABILITY*

New and/or existing testing practices between carriers (see Section 7 for a discussion of a future direction for interoperability testing):

- ISUP Interoperability Testing The Network Operations Forum and the Wireless Interconnection Forum (NOF/WIF) finalized work on developing test scripts for interconnection between wireless and wireline carriers, namely
  - Message Transfer Part (MTP) Compatibility Tests
  - ISDN Signaling User Part (ISUP) Compatibility Tests

  These test scripts are published as Attachment A and B to Section III of the NOF Reference Document.

- IITP Testing. IITP provides network management, failure and congestion scenarios. It utilizes lab switches configured as an interconnected national testbed and tests routing functions, not features. The IITP Committee of the NOF develops and approves test scripts and configurations. Participation in the IITP Committee is open to all interested parties. The NOF IITP Reference Document describes the functions and roles for participation in IITP testing.

- MAP Interoperability Testing. The CTIA Advisory Group for Network Issues (AGNI) managed the testing of IS-41 Rev A between cellular carriers with dissimilar network infrastructure equipment and published a matrix for the benefit of the industry. AGNI then sponsored an Interoperability Ad Hoc Group of cellular carriers and vendors in 1995 to develop a detailed test plan for IS-41 Rev. B network interoperability. Actual testing will

then be conducted based on the test plan to ensure network interoperability. This work is similar to IITP and could be extended to future releases of the IS-41 inter system messaging standard.

- System Testing. This is normally conducted by the carrier and/or vendor supplying network products. Typically, it is used in connection with first applications, acceptance testing and feature testing.

CTIA has developed a set of guidelines to assist cellular carriers in joining the nationally interconnected SS7 network for exchange of IS-41 messages. The following test procedures are taken from the "Seamless Roaming Implementation Guide (SRIG)" dated January, 1995:

- These are a standard set of acceptance tests prescribed for SS7 links. They should be executed by the SS7 Network Provider to ensure that all the facilities are ready to be placed in an operational status. Most Network Providers have automated these tests and will run them on their own schedules. If any problems are discovered during the testing, the Cellular Carrier and the SS7 Network Provider will correct those problems up to the Meet Point.

- The first test ensures that the physical facilities can support the end-to-end reliability required. These are measuring the quality of the facilities in terms of errors per time period. The cellular switch is not involved in this test, since the test signals are automatically returned (the facilities are placed in a "loop back" mode).

- The second and third tests involve the switch. The second test checks the compatibility of switch generic software against the software of the network switches. Failures in this test can usually be quickly corrected by changing software (timer) values in the cellular switch.

- The fourth test involves the interaction with at least one of every type of cellular switch active on the network before initial implementation. It ensures that unusual conditions in either the network or the cellular switches will not adversely affect other facilities. Most cellular switch manufacturers have conducted similar tests to certify their software against the standards, so failures at this test level are not common.

- This testing should be possible to complete within 10 business days and will indicate the readiness for live operation. This could also serve as the "Service Ready Date" for network operation.

The Wireless Carrier and the SS7 Network Provider may wish to perform further tests involving other market segments on the signaling network, prior to passing traffic to those segments. These are at the Wireless Carrier's discretion and are usually beyond the scope of network testing. Most switches that use generic software loads have passed such switch-to-switch tests. CTIA publishes a Switch Interoperability Matrix describing the interworking of switch pairs, and it is available upon request.

Recommendation 6. ***Interoperability testing by equipment suppliers and service providers should be performed prior to service turn up to ensure successful and reliable interconnections. See Section 5.6 - Templates for the recommended set of issues to be addressed in a bilateral agreement governing testing, implementation, operations coordination and related activities. Bilateral agreements governing test and turn up procedures are needed so that existing services are not interrupted when new interconnections are established. Bilateral agreements also help to ensure continuity of operations. Some issues to address in testing include:***

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- *Product operation and functionality*
- *Interoperability to establish operation across an interface, per standards*
- *Performance under stress and anomalies*

Recommendation 7. Some testing should be accomplished in nationally coordinated efforts so that all carriers and equipment manufacturers benefit without an undue outlay of resources and time. Cellular carriers should participate directly or through representation by an industry association(s). Some of the nationally-coordinated testing currently taking place includes:

- *IITP (SS7 ISUP)*
- *AGNI (IS-41)*

5.2.3.3 *FAULT ISOLATION*

When faults do occur, the source of trouble must be located through testing so that corrective action may be taken. Considerations include:

- Cellular networks are basically access networks, interconnecting to the wireline network for ubiquitous connectivity. These network interconnections are relatively straight-forward and well-defined. Testing must therefore be a cooperative arrangement between the cellular carrier and the wireline carriers.
- Some offices will not be staffed on a 24x7 basis and some will not be staffed at all. Therefore, operational procedures should ensure that Mean Time To Repair (MTTR) is kept to a minimum.
- Analysis tools may be needed to help synthesize and correlate network reports, activities and events as a result of increased network interconnections.
- A multiplicity of signaling protocols and software "versions" impact the complexity of the maintenance function. Continual training and upgrading of test equipment are important to maintaining high performance.

The Signaling Network Systems (SNS) Committee of the first NRC identified similar concerns and problems, which are documented in "Network Reliability: Report to the Nation." The NOF Reference Document also addresses some of these concerns.

Recommendation 8. Inter-company OAM&P processes should continue to be enhanced by the carriers so they can effectively establish and maintain service across a network interface. Key components of this recommendation include:

- *Service Providers' key role (e.g., 24x7x52 surveillance center)*
- *Qualified individual(s) to maintain an SS7 node and an SS7 network, including IS-41 and ISUP as required. (See SNS Best Practices.)*
- *Existing fora and associations' assisting role in developing guidelines and practices or use by interconnecting networks to foster network reliability*
- *Up-to-date Disaster Recovery Plan (ref. NOF Reference Document Section VI Network Management Guidelines and Contact Directory and its Appendix A Emergency SS7 Restoration)*
- *Contact information in the following Contact Directories of the NOF Reference Document Section VI Network Management Guidelines and Contact Directories*
  - *Network Management Contacts*
  - *Catastrophic SS7 Failure/Restoration Contacts*
  - *Media Stimulated Calling Event Contacts*
  - *LIDB Contacts*
  - *Mutual Aid Contacts*

5.2.3.4 *FAULT MIGRATION MITIGATION*

The best protection against fault propagation is to protect against 1) fault migration, 2) intrusion on network control channels, and 3) negative impacts to performance or call processing delay.

Selected narrative responses from the Survey, respectively:
1) Firewalls, load simulation testing, network monitoring, diversification, redundancy
2) Password access, gateway screening, alarm monitoring, secure facilities
3) Overlapping coverage, alternate call routing, alarm monitoring, periodic testing

The possibility that incorrect or corrupted messages (either unintentional or intentional) may affect a transiting or terminating network must be minimized. Example: Two cellular systems are networked via IS-41 Rev. A protocols and direct signaling links. After a database had been changed at System B, causing incorrect MSCID information to be sent, System A took excessive defensive check failures that triggered a system initialization. This resulted in total system outage for System A.

There is also a need to react to media-stimulated call-in events and network spill-over during focused overloads, which effectively look like "faults." When these occur, resolution is required, but steps should also be taken to design networks and procedures to limit such occurrences and the impacts they may have on the network. Advanced notification of these events to interconnecting carriers is very important to effect control and mitigate the impact of these events.

Considerations include:
- Careful system design and software development
- Notification procedures prior to network software changes
- Thorough system testing and interoperability testing
- Gateway or mediation devices
- Automatic call gapping procedures to limit signaling channel overloads

The Signaling Network Systems (SNS) Committee of the first NRC identified similar concerns and problems, which are documented in "Network Reliability: Report to the Nation." The NOF Reference Document also addresses some of these concerns. More specifically:

- Guidelines for advanced notification of media-stimulated call-in events are outlined in Section VI of the NOF Reference Document, which also contains a Media Stimulated Call-in Event Contact Directory. Interconnecting companies should consider including a contact information in this directory.

- Section III contains network security base guidelines and a CCS network logical security checklist.

5.2.3.5 *ENGINEERING CAPACITY PROVISIONING*

Most operators use manufacturer-recommended design specifications initially. After initial design, local company methods based on actual traffic experience are used.

Wireless service demand can be particularly unpredictable due to the mobile nature of end users as well as the rapid growth occurring in the industry. Competitive forces with new wireless carrier entrants will further affect the unpredictability of traffic demand.

5.2.3.6 *INFORMATION SHARING*

Industry forums are now prominently used for sharing information. Specific service agreements are frequently mentioned in the NRC Survey.

The Signaling Network Systems (SNS) Committee of the first NRC identified similar concerns and problems, which are documented in the "Network Reliability: Report to the Nation." The NOF Reference Document also addresses some of these in Section VII entitled *Information Sharing*.

5.2.3.7 *MUTUAL AID*

Wireline operators have a well-defined mutual aid process, as evidenced by survey results that show about 78 percent of carriers have formal mutual aid arrangements. Conversely, of eleven (11) survey respondents from cellular carriers, only two indicated their disaster recovery plans included formal mutual aid arrangements. Three others indicated their plans included informal mutual aid arrangements.

Competitive cellular operators often purchase equipment from different manufacturers, each with its own proprietary (internal) specifications and interfaces. For this reason, mutual aid is difficult. Mutual aid can be aligned within company ownership and between companies with equipment compatibility.

The Signaling Network Systems (SNS) Committee of the first NRC identified similar concerns and problems, which are documented in "Network Reliability: Report to the Nation." The NOF Reference Document also addresses some of these concerns.

5.3 SATELLITE INTERCONNECTIONS

5.3.1 *DESCRIPTION AND DIAGRAM*

Communications satellite services are categorized into three classes: Fixed-Satellite services (FSS), Broadcasting-Satellite services (BSS) and Mobile-Satellite services (MSS). Satellite communications networks, regardless of application, have a common architecture comprised of satellite(s), earth station(s) and a complex array of communications, data handling and processing equipment. FSS and BSS satellites are usually operated in geostationary earth orbits (GEO) designed to provide the maximum earth coverage. Earth station equipment provides Telemetry, Tracking and Commanding (TT&C) functions and communications (User Information Channels) functions for the network. (See Figure 5-2 - FSS/BSS System Interconnections)

A satellite in GEO has visibility to and from an area that can cover up to 40 percent of the earth's surface depending on antenna design; this allows simultaneous broadcast of video, voice and data to any earth station within the satellite's footprint. Earth stations must have line of sight access to a satellite to be able to communicate with it via a radio frequency (RF) link through an earth station antenna.

Domestic satellite operators, FSS providers, offer transponders for lease or sale to private business customers for dedicated video, voice and data networks. These satellite-based services often interface with the public switched telecommunications network (PSTN) through the use of commonly offered wireline services. FSS satellite networks rely on terrestrial connections (wireline, fiber, microwave, etc.) to link their earth stations with users of the network. FSS providers do not provide telephony services to the general public as part of the PSTN.

FSS satellite operators will either provide services themselves, or sell or lease capacity on their satellites to third parties for resale or value-added services. Service providers have capitalized

on the unique capabilities of GEO satellites to become the primary means of programming distribution for the domestic and international television industry. Major TV networks and cable TV operators rely almost exclusively on GEO satellites for this service.

A TV network or cable operator can receive and distribute programming via multiple satellites/service providers, depending on economic preferences and technical compatibility needs. Programming or other information to be carried by the satellite is collected from many sources at an earth station for uplink: e.g., down-links from other satellites, terrestrial wireline and fiber and pre-recorded tapes, etc. Interfaces with wireline service providers are usually established through common offerings, such as T1, etc., and are specified by the service provider.

Advances in technology have allowed satellites to operate at higher frequencies and power. These capabilities can be used either to increase data rates and information content of the planned network or to reduce the size of earth station antennas. Direct to home television and dedicated business networks are two new services that have benefited from these advances.

The FCC has designated certain GEO positions and frequency spectrum as BSS and has licensed several direct to home service providers to build and operate high power satellites at these positions. BSS differs from FSS services in that signals transmitted from the satellite are intended for direct reception by the general public. Direct to home television employs a high powered satellite that can be received by a small antenna placed on the subscriber's premises. These systems offer their subscribers the choice of hundreds of program channels.

Very Small Aperture Terminal (VSAT) network is another example of BSS and Businesses have found VSAT networks to be a cost-effective means of establishing a dedicated communications capability. Data on point of sale information for inventory control and credit validation are examples of real time uses. The VSAT terminal is also capable of receiving video, which allows a corporate headquarters to broadcast new product information and pass on other vital information to all its branches simultaneously. The system provides a voice link among all the nodes as well. Video, voice and data are sent to the VSAT hub station (remote control and uplink functions) via wireline interconnections for uplink to the satellite. A hub station can be owned and operated by the company using the network or by a third party operating a shared hub providing service to multiple VSAT networks.

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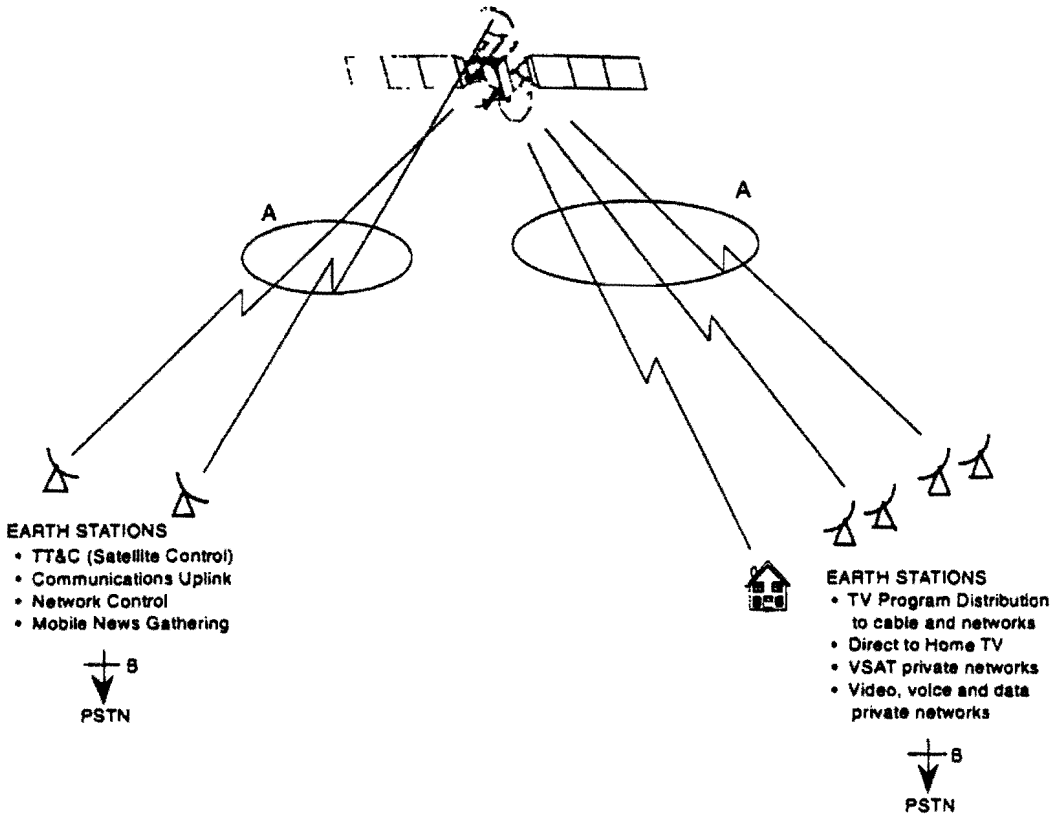
FSS/BSS SYSTEM INTERCONNECTIONS



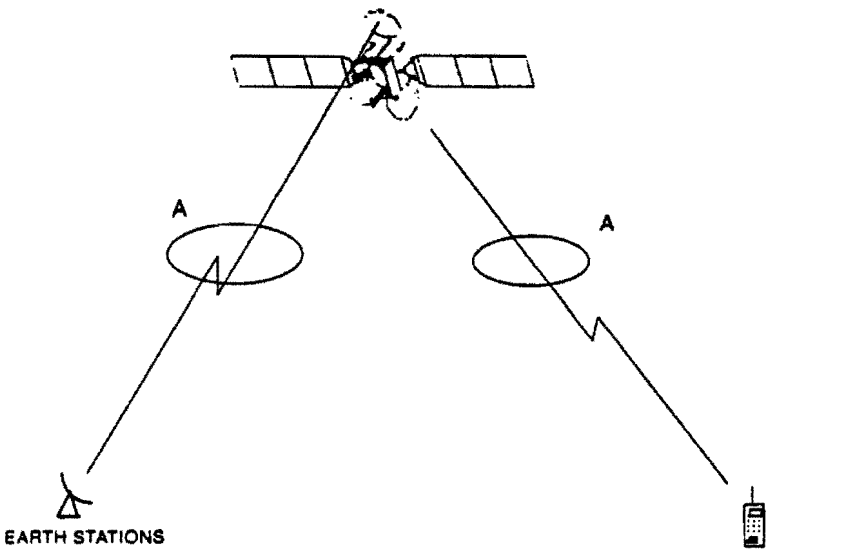
A Ground Station to Satellite Interface - Proprietary
- Defined by frequency, bandwidth, power
- Monitored by Satellite service provider and User

B Private Line Dedicated Service (E.G. T-1)
- Defined by current standards
- Monitored by PSTN & Satellite Service providers

Mobile satellite services are the newest to enter the marketplace; they will provide the equivalent of cellular telephone service to the general public. One company will begin service in late 1995, offering subscribers worldwide voice, data and facsimile communications to land, maritime and aeronautical users throughout the United States and Canada from a satellite in GEO. Several other concepts and competing systems are in various stages of development. These new system architectures employ multiple satellites in orbits below GEO (Medium (MEO) and Low Earth Orbit (LEO)) and also offer world wide connectivity either by satellite to satellite cross links or direct connectivity to existing international service providers.

MSS systems will interconnect with the PSTN and other cellular networks through earth station "gateways." The gateways are actually hybrid cellular mobile switching centers (MSC).
MSS designs rely on existing PSTN and cellular interface specifications and equipment to interconnect with other networks. The ultimate goal is to provide the subscriber worldwide voice and data connectivity from a hand-held unit. See MSS diagram.

MSS SYSTEM INTERCONNECTIONS



A Ground Station to Satellite
- Proprietary
- Defined by frequency, bandwidth and power
- Monitored by service provider and user

C Standard North American Interconnections to PSTN and Wireless Networks
- Negotiated with provider
- Typically primary rate digital interconnect

Technology will continue to increase the capability of satellites and satellite-based services. Advances in computer technology have allowed the transfer of functions from earth to space, making a space-based switched network a future option. Higher frequency systems with increased data rates will provide high speed duplex links and bandwidth on demand in support of the information highway and personal communications services (PCS).

A typical satellite-based system can take from eight (8) to ten (10) years to develop and implement, therefore networks that will interface with the PSTN as we know it today, are already in development. The high up-front cost and implementation risk of a satellite-based system (launch vehicle reliability is less than 95 percent for the industry) will necessarily limit the number of new services that actually make it to market. Satellite networks offer an option for diversity to services carried on terrestrial cellular networks and the PSTN and can provide an increase in overall service reliability if terminal unit multi-modality exists.

5.3.2 *CRITICAL INTERCONNECTION POINTS*

Respondents to the Task Group II questionnaire identified interconnection to the wireline networks as most critical. This response reflects today's architectures and the dependence on

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wireline for end-to-end connectivity. This response is expected to change in the future with the growth of direct to home services that do not require wireline for connectivity and the introduction of satellite-based mobile services. Other responses indicated that, at this time, satellite-based networks have limited interconnection to wireless and other satellite networks and evaluated these interconnections as lower risk.

5.3.2.1 *PHYSICAL CHANNEL*

Satellite-based networks interface with the PSTN and other networks through interconnections of physical channels. These connections are described by industry terms such as copper, fiber or microwave, which imply the capacity or data rates that can be accommodated at the interface, e.g., DS-O, DS-1, DS-3, etc. The physical channel interface is well defined and standardized; satellite service providers that use these channels comply with existing specifications. Satellite respondents to the questionnaire did not single out the physical channel as a significant risk to network reliability.

5.3.2.2 *SIGNALING CHANNEL*

FSS and BSS do not utilize signaling channels of the PSTN or other networks for connectivity and therefore do not affect the reliability of this important interface. Mobile satellite networks, however, will require interfaces with the PSTN and cellular networks to provide telephone services to their subscribers. Current architectures are planning to take full advantage of existing signaling standards, i.e., SS7 and IS-41 and equipment that complies with current specifications for call management. Satellite network interfaces to the signaling channel were not considered a significant risk to PSTN reliability by respondents. This reflects the industry's confidence in existing standards and current experience.

5.3.2.3 *USER INFORMATION CHANNEL*

As with wireline and cellular networks, the user information channel of a satellite network is the most visible to the end user and therefore of great importance to the service provider. If customers are unhappy with the availability or quality of this channel, they will seek other options to satisfy their needs. Respondents assigned the least risk to the PSTN resulting from satellite network interconnections using this channel.

5.3.2.4 *OAM&P CHANNEL*

Satellite network operators and service providers responding to the questionnaire did not assign a high risk to the Operations, Administration, Maintenance and Provisioning Channel. Inter and Intra network coordination are important functions that allow smooth operations and support fault isolation and service restoral. Procedures to implement bilateral agreements are usually coordinated through this channel. Coordination will become more important and complex as the number of networks and services grow.

5.3.2.5 *SYNCHRONIZATION AND TIMING*

Some companies identified network timing and synchronization as a critical interconnection issue. Many satellite-based networks are designed to use digital technology and therefore must have a method of ensuring their networks are synchronized with interconnecting networks. The issues are not unique to type of network; wireline, wireless and cable all face the same requirements for digital systems.

The term synchronization refers to an arrangement for operating digital switching and transmission systems at a common (or synchronized) clock rate with proper phase alignment at the bit and byte level between the transmitter and receiver. Improperly synchronized clock rates and/or phase misalignment can cause portions of the bit streams to be lost in transmission.

Numerous documents exist regarding network synchronization. (For example, see ANSI T1.101 Digital Network Synchronization Standard and Bellcore TR-NPL-0002275, entitled "Notes on the BOC Intra-LATA Networks.") Service provider entities wishing to interconnect networks should become familiar with these various industry documents. As a start, these entities should appoint a Synchronization Coordinator to assist their company in becoming familiar with this area (TR-NPL-0002275 outlines the responsibilities for such a coordinator.) In addition, the coordinator's name should also be provided to the ICCF for its Synchronization Directory. This will facilitate industry coordination for planning, designing, installing, testing and administering the synchronization network.

Recommendation 1. Each company should appoint a Synchronization Coordinator who will perform the responsibilities contained in TR-NPL-0002275. Companies should provide the name of its Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Recommendation 2. Companies should comply with the synchronization standards addressed in ANSI Standard T1.101, entitled "Digital Network Synchronization."

5.3.3 *AREAS OF CONCERN*

5.3.3.1 *NETWORK INTERFACE STANDARDS*

From the industry survey questionnaire, satellite service providers indicated a reliance on the following for reliability and performance requirements and standards when implementing an interconnection to other networks: bilateral agreements, Bellcore TRs and internal company specifications were identified by most as the primary sources; ITU recommendations, NOF/IITP procedures and Committee T1 were cited by fewer of the respondents. The FCC licensing role in the satellite service industry for satellite orbital positions and earth station operations was identified as an additional factor contributing to reliability and performance.

Bilateral agreements were clearly seen as a key element in defining network interfaces. The set of important issues to be included in bilateral agreements identified by satellite network respondents was similar to that identified by other type providers. Performance, provisioning, installation and maintenance and protocols were cited by most respondents; diversity and security requirements were cited by fewer respondents.

The need to monitor interconnections, once implemented, was pointed out by specific reference to procedures used by each provider. Respondents indicated reliance on several methods used to monitor their networks. Full-time automatic monitoring including alarms that identify fault conditions, reliance on user/customer notification of reduced performance and performance bench marking at service initiation with periodic testing to establish trend data.

Several comments relating to OAM&P activities were included in responses. The focus was on the potential for interference among/between satellites operating at the same frequencies and close orbital locations. The FCC has mandated that domestic service providers work together, through a process of coordination, to ensure that their services do not cause interference with other service providers operating in nearby orbital positions. The coordination process requires that designated representatives of each provider exchange information regarding future plans and changes to existing services that potentially affect services on one or the other satellites. The

coordination process usually starts prior to launch using data from system testing and analysis. Satellites already in operation have priority over new systems; some problems may not be identified until both satellites are in operation, in which case an operational work-around is usually developed by the parties to resolve the issue. Examples of operational work-arounds include the establishment of a defacto requirement that all FM analog C-Band television transmissions be centered in the transponder and the requirement to notify all operators of satellites that will be passed by a satellite that is moved from one orbital position to another. In addition to inter-satellite coordination, the service provider must maintain intra-satellite coordination among it's customers to ensure interference free operation for all transponders.

Respondents indicated strong reliance on inter-company testing, existing standards and specifications, and conformance testing to ensure inter-network reliability and interoperability once an interface between networks has been established.

Several suggestions were offered for a process to establish and implement standards for a new, previously unspecified, interconnection interface. The need to start very early with the development of requirements and a standard against which simulation, manufacture and verification testing can be compared was highlighted. One respondent proposed a strategy for developing a new standard that included providing a draft to all standards bodies and service providers who would be affected by the new service. The need for a single project manager to be the process owner/champion, with full responsibility from creation to adoption, was strongly recommended.

Satellite service provider responses to the series of questions relating to the level of responsibility for developing, planning and ensuring compliance with new inter-network service standards paralleled the other industry responses. Respondents levied primary responsibility on service providers, manufacturers, standards bodies and industry fora for developing and planning new standards; governmental agencies, FCC and State Utility Commissions were seen to have less responsibility. Responsibility for ensuring inter-network reliability/interoperability was also primarily levied on service providers, manufacturers and industry fora; standards bodies were thought to have less involvement in this phase of the process, as were the FCC and State Utility Commissions.

Recommendation 3. Satellite service providers are encouraged to continue their reliance on existing standards and interface specifications, bilateral agreements and end-to-end testing to define and verify performance and reliability requirements.

5.3.3.2 *SERVICE ASSURANCE/INTEROPERABILITY*

Respondents to the survey indicated mixed participation in existing standards bodies; no preference or industry focus was identified. Further, the satellite service providers as a group have not participated in the IITP. This most likely reflects the current level of satellite network interconnection with the public network, e.g., a wireline connection to the PSTN for transmission of video, voice and data to and from an earth station. These connections are defined service offerings and are specified by the service provider.

There is universal support for the requirement to conduct end-to-end testing when establishing a new network or bringing a new service on line. Several methods were identified, starting with system design including review of customer's service requirements, worst case analysis and detailed RF transmission path (link budget) calculations. Certification by the vendor and pre-service acceptance testing were included in the process. Verification of engineered values and operating parameters are accomplished to establish a baseline that will allow performance evaluation in the future. **(See Section 7 for a discussion of a future direction for interoperability testing.)**

Recommendation 4. Satellite service providers are encouraged to participate in existing standards bodies and industry fora to ensure future standards accommodate their requirements.

Recommendation 5. The newly-formed Satellite Industry Association (SIA) should be encouraged to interface with existing standards bodies and industry fora to ensure interoperability and reliability issues are properly addressed.

5.3.3.3 *FAULT ISOLATION*

Performance problems in a satellite network can be identified by the satellite operator, the service provider or the subscriber. The satellite operator monitors the satellite continuously and can determine if a fault is the result of a satellite sub-system problem or caused by the interconnecting ground system. If the problem is with a satellite unit the operator can switch to a redundant unit and restore service quickly. Once the satellite is ruled out, all parties must coordinate efforts to identify the network section that is causing the problem and the party responsible for restoring service. For example, an uplink earth station may have a noisy or failed high power amplifier that is introducing noise into the user information channel; once identified, the circuit can be brought down/isolated and the failed unit replaced. The usual methods of fault isolation include loop backs, swapping units, alternate routing and uplink/downlink signal comparison.

5.3.3.4 *FAULT MIGRATION MITIGATION*

Service providers were asked to identify means they employ to protect their networks against fault migration, control channel intrusion, negative impacts on performance and call processing delay. Responses varied, reflecting the different services and importance of each issue to the network. Satellite operators are concerned with intrusion and fault migration into the TT&C and network control channels as well as the user information channel.

Intrusion on network control channels is protected against in various ways, depending on specific application and type of control channel in question. For example, command and control of a satellite on orbit is protected from intrusion by frequency of the command RF link and by requiring each command to be uniquely formatted and addressed to the satellite. The earth station having command and control responsibility for the satellite can verify, through telemetry, that the desired command has been received before executing it. Some satellite operators have taken the additional step of encrypting all commands to their satellites to further protect against the possibility of intrusion. Intrusion into the command and control link of a satellite has not been a problem and has not contributed to network outages.

User information channel transmissions through a satellite are a simple reproduction of the information received (video, voice or data), either analog or digital in format. The satellite transponder will change the frequency of the received signal, amplify it and broadcast it back to earth. Once the satellite is configured to complete the desired link it will act as a "bent pipe," a simple pass through and provide the equivalent of a dedicated wireline circuit until the user no longer requires it. If there is a fault associated with the information at the interface between a terrestrial and satellite network, it will be retransmitted.

The potential for information channel interference exists, but service providers and users are constantly monitoring the information channel and can take quick action to restore signal quality. An earth station operating at an incorrect frequency or pointed at the wrong satellite can interrupt user information channels; when this occurs, operators rely on OAM&P channels to identify and correct the problem.

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Methods for protection against fault migration include installation and monitoring of upstream and downstream alarms to isolate/locate faults, diversity of interconnects, load shedding, reliance on connecting service providers and interface specifications and automated service diagnostic testing. Respondents indicated that firewalls and safeguards were part of their network protection plans; usage varied, however.

Since most networks are computer controlled through terrestrial links to earth stations, operators employ the usual methods of passwords and compartmentalization to protect those elements of the network. When links are required to or from remote sites, passwords and dial-back modems are often used for intrusion protection.

Proper performance of the satellite as a part of the end-to-end circuit, regardless of the contents of the information channel, is assured by continuous monitoring of the down link signal. This monitoring can be done by the service provider, the circuit user or both, depending on the nature of service being provided and the terms and conditions of the contract between them. Transmitting and receiving earth stations are continuously monitored to assess the status of equipment; many key units are redundant and are automatically switched in the event of a failure.

In addition to the above mentioned protections, respondents identified the following procedures and practices as significant parts of their overall network protection plans: some operators reserve the right, through contract terms and conditions, to terminate service to a customer that is causing problems in the larger network until the customer is able to restore nominal operating conditions; others cited the use of authorization codes and restricted interconnects.

5.3.3.5 *ENGINEERING CAPACITY PROVISIONING*

The satellite is usually the limiting factor in capacity provisioning for services. Size, weight and power are constrained by the capability of launch vehicles to put the satellite in orbit; in addition, frequency spectrum is allocated by the FCC and is limited. The service provider must determine if the limiting factors will allow sufficient capacity to support a profitable business. Once this determination is made the satellite service provider will work with interconnecting networks to ensure that end-to-end capacity is available.

5.3.3.6 *INFORMATION SHARING*

Satellite service providers recognize the need for information sharing and the benefits it brings to the industry. The recently formed Satellite Industry Association, an operating arm of the Satellite Broadcasting and Communications Association (SBCA), is made up of satellite owners, operators, manufacturers, launch vehicle manufacturers and service providers. It will provide a forum for information sharing and will represent the U.S. commercial industry.

5.3.3.7 *MUTUAL AID*

All respondents but one indicated they have disaster recovery plans. The responses highlighted the fact that plans are unique to the network provider and vary considerably in the formality of agreements with other providers for mutual aid and/or emergency resources. Not all providers rely on other networks for mutual aid. Responses to the question regarding frequency of review for these plans ranged from continuously to infrequently to annually.

Some providers have sufficient on-orbit resources to provide backup in the event of a catastrophic satellite failure; most satellites are designed with redundant on-board units that either switch automatically or can be commanded from the earth station to take over for a failed unit. Earth stations are also designed with considerable redundancy; most have Uninterrupted

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Power Supplies (UPS) to take over in the event of loss of commercial electric power and many have completely redundant backup stations that are geographically separated from the prime site to take over in the event of a major outage.

5.4 CABLE TV INDUSTRY INTERCONNECTIONS

The cable companies are projected to be emerging players in the telecommunications industry in the near future. They will have the same level of responsibility as other service providers to ensure the reliability of the "national" network. The focus of this study was to examine the differences and similarities of cable operators to other types of service providers to determine if their needs for interconnection require special requirements. As a result of this investigation, it appears that there will be many similarities and few differences between cable companies and other wireline providers in the telecommunications environment.

The NRC Task Group II on Increased Interconnection lacked direct participation by the cable industry. Although there were no written responses to the task group's questionnaire, the views of the cable industry were represented by a member of the NCTA. Also, information from the non-cable companies who did respond to the questionnaire was used to help reach these conclusions even though they answered the questions from the perspective of entities who will be interconnecting with cable companies.

Based on a discussion with a cable industry association representative, there is currently active participation in Committee T1, CLC fora, TIA, NCTA, PCIA, ITU and, for those who have cellular interests, CTIA. There has been no past need for cable involvement in IITP because they have not been in the telephony business, nor do they have operational SS7 signaling in their own networks at this time.

In the survey results, when non-cable respondents were asked, "How critical was interconnection with the cable companies to their networks?", the wireline companies expressed a greater concern with other service providers, i.e., cellular and satellite. Manufacturers felt the cable interface was more critical than any of the service providers expressed, but they still don't view it as the most critical interface.

When reviewing the material and studying the proposed architectures for the cable companies to enter into the telecommunications service provider scenario, it becomes apparent that the cable companies begin to look like other wireline carriers. They will be using similar technologies from the same vendors and have the same requirements for interconnection to complete calls across multiple networks. For these reasons, it is recommended that the cable operators' responsibility for critical reliability issues fall under the same guidelines and requirements as other wireline providers. To the extent they proceed into the wireless environment, they should follow the same recommendations made to other cellular service providers.

The task group believes the cable companies would agree with the respondents to the industry survey that the service provider is the primary responsible party to develop, plan and ensure inter-network reliability and interoperability between players.

5.4.1 *DESCRIPTION AND DIAGRAM*

By the end of this decade, cable television companies are expected to represent large providers of local distribution transport and switching. Their interconnection points to the PSTN are anticipated to occur at traditional locations where existing telecommunications industry standard interfaces already exist. In addition, interconnection may occur at unbundled interconnection points currently being defined that will also be subject to technical specifications. The diagram below illustrates one possible cable network architecture:

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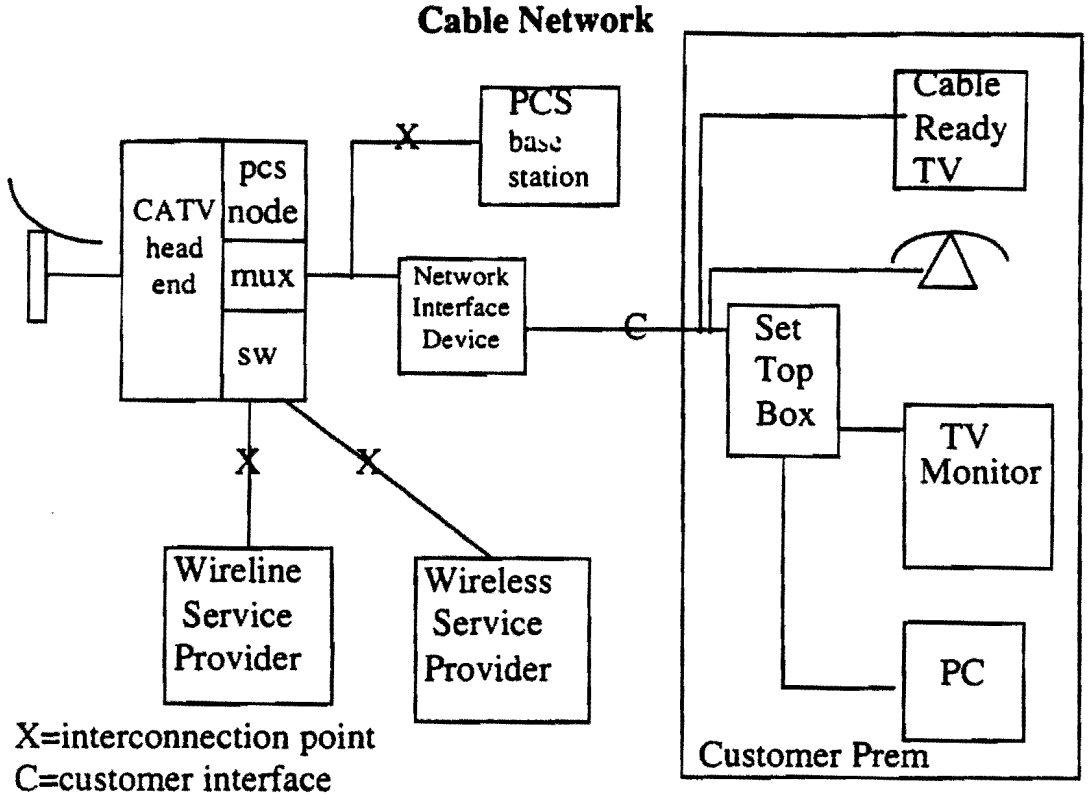

5.4.2 *CRITICAL INTERCONNECTION POINTS*

5.4.2.1 *PHYSICAL CHANNEL*

The physical channel is the facility that is used to carry the Information, Signaling and OAM&P Channels. The physical channel interface is the point where two telecommunications systems/facilities physically interconnect. Usually, it is described in industry terms as copper or fiber, which may be inferred from the capacity of the facility at the interface, e.g., DS0, DS1, DS3, T1, T3, OC12 and the like.

One cable contact indicated that a problem in the physical interface was more likely to affect a large number of customers than some of the other interfaces.

Recommendation 1. Appropriate safeguards or firewalls should be implemented so problems from one network are not spread to another. Additionally, the creation of new network elements used to support the physical channel should meet present loop performance requirements.

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5.4.2.2 *SIGNALING CHANNEL*
and
5.4.2.3 *USER INFORMATION CHANNEL*

The signaling channel was not viewed as the most critical inter-network interface by cable companies, mainly because they do not use SS7 signaling in their networks today. To the extent they begin building their own SS7 networks or begin building dependence on someone else's SS7 signaling in their networks, these interfaces will require compliance to industry standards as well as bilateral agreements to establish interoperability.

Cable companies are expected to require interconnections at traditional points in the PSTN where the technical issues have already been identified and have been resolved through industry standards and operations policies.

A possible interconnection problem can develop for the information channel interconnection in the form of fault migration. Because of the industry requirements for two-way transmission performance and because this interface is not being rigidly monitored, there should be special attention applied to loss, noise and transport delay design issues:

Recommendation: 2. Cable telephony providers should comply with generally accepted industry standards and processes when connecting to the PSTN, as described in the wireline section of this report.

5.4.2.4 *OAM&P CHANNEL*

The OAM&P channel was described by one representative from the cable industry as the most risky interface. According to this source, although the user interface is the cause of most difficulties, the entire user base can be affected by a problem in the OAM&P environment. This is an area of concern with the existing cable providers. Development is needed to define OAM&P processes in this arena.

Recommendation 3. When interconnection begins between cable networks and the PSTN, appropriate safeguards should be developed to avoid propogation of OAM&P problems into each other's network. Information sharing is essential.

5.4.2.5 *SYNCHRONIZATION AND TIMING*

In response to the questionnaire sent out to the industry, some non-cable companies identified network timing and synchronization as a key interface. The need for synchronization is the result of digital switching and transmission systems directly interconnected by digital facilities requiring some means of synchronizing clock signals. The term synchronization refers to an arrangement for operating digital switching and transmission systems at a common (or synchronized) clock rate with proper phase alignment at the bit and bite level between the transmitter and receiver. Improperly synchronized clock rates and /or phase misalignment can cause portions of the bit stream to be lost in transmission.

Numerous documents exist regarding network synchronization. (For example, see ANSI T1.101, Digital Network Synchronization Standard and Bellcore TR-NPL-002275, entitled "Notes on the BOC IntraLATA Networks.") Entities wishing to interconnect with the wireline network should become familiar with these various industry documents.

Recommendation 4. Cable companies should appoint a Synchronization Coordinator for their company who will perform the responsibilities contained in TR-NPL-002275. Cable companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Recommendation 5. Cable companies should comply with the synchronization standards addressed in the ANSI Digital Network Synchronization Standard.

5.4.3 AREAS OF CONCERN

5.4.3.1 *NETWORK INTERFACE STANDARDS*
and
5.4.3.2 *SERVICE ASSURANCE/ INTER-OPERABILITY*

In general, cable companies have little experience in interconnecting with other telecommunications networks. In the past they had no need to interconnect because their transmission of information was one way to the customer and their networks were independent of others. A problem in one cable system did not spread into other systems. As cable companies enter into the telecommunications world and begin to interconnect with other networks and carry two-way communications, however, they will face new requirements, standards and industry processes to ensure compatibility across networks. (See Section 7 for a discussion of a future direction for interoperability testing.)

5.4.3.3 *FAULT ISOLATION*
and
5.4.3.4 *FAULT MIGRATION MITIGATION*

With present cable network design, fault isolation and fault migration mitigation are not issues for the cable industry. However, as they enter the telecommunications business, procedures for handling fault isolation and fault migration mitigation will be necessary. The potential of service impairment spreading to other service providers' networks becomes critical and must be addressed.

5.4.3.5 *ENGINEERING CAPACITY PROVISIONING*

The views of the cable industry did not identify capacity issues as a critical concern. However, when cable network interconnection with the PSTN occurs, engineering capacity issues will need to be addressed. Cable providers' networks in this form of interconnection will resemble wireline provider exchange networks. As described in Section 5.1.3.5, the task group recommends that cable providers should be expected to adopt two basic elements to address capacity concerns resulting from interconnected networks. The first element involves preplanning. The parties to be interconnected provide estimates of their projected traffic for a future period and the necessary facilities are secured. The second element involves network surveillance and management. The task group recommends cable providers use network control systems to monitor their networks on a 7-day-per-week, 24-hour-per-day basis using a combination of trained personnel and performance monitoring systems. These network management locations have the capabilities to implement traffic flow control measures to choke traffic and/or perform call gapping to minimize the overall network impact of outages and network stress conditions. In addition, the network management locations should be part of a nationwide inter-network team, capable of responding to local, regional and national stress conditions to cooperatively mitigate traffic stress conditions when they occur.

Recommendation 6. To keep overflow traffic conditions from adversely affecting interconnected networks, interconnected network providers should utilize network surveillance and monitoring.

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In addition, companies should follow the guidelines for advanced notification of media-stimulated call-in events as outlined in Section 6 of the NOF Reference Document concerning Media Stimulated Call-in Events. Further, interconnecting companies should include a contact name for inclusion in the Media Stimulated Call-in Event Contact Directory. Finally, interconnecting companies should address the control of overflow conditions in their bilateral agreements.

5.4.3.6 *INFORMATION SHARING*

As a service provider in the telecommunications industry, the cable companies would be expected to participate in industry fora and share information in the form of contributions to help preserve the integrity of the "national" network. They would also be encouraged to participate in the IITP and other industry testing activities and testbeds.

5.4.3.7 *MUTUAL AID*

From the data gathered, it appears the cable companies already have limited mutual aid agreements, both formal and informal, within their own industry. To ensure service continuity in the case of a disaster or major outage, they will need to develop new agreements with other telecommunication providers as well.

Recommendation 7. Cable companies need to participate in industry fora such as ICCF and NOF and should appoint a mutual aid coordinator to be included in the "NOF" mutual aid contact directory. Engineering practices need to reflect the fact that they are interconnecting with other service providers and that overload conditions on their network can affect those to which they are interconnected.

5.5 STUDY CONCLUSIONS

5.5.1 *WIRELINE*

The wireline carriers represent a mature industry that has undergone tremendous changes since the breakup of the Bell System. The wireline carriers have developed processes to accommodate connections of local exchange carriers to interexchange carriers and of wireless "cellular" carriers to both local and interexchange carriers that can serve as the basis for interconnections that should occur in the next 3 to 5 years. These processes encompass the following basic elements: Standards and Specifications Development, Intra-Company Testing and Inter-Company Testing.

Similarly, the wireline carriers have developed a basic process to maintain the reliability of interconnected networks that consists of planning, testing and ongoing monitoring and surveillance.

In addition, there is evidence of the use of "firewalls" by the wireline carriers to minimize the possibility of a problem in one network causing a problem in an interconnected network(s). The process to be followed to develop a new interface should include the use of industry fora and, as appropriate, the use of standards bodies.

Existing processes will need to evolve to accommodate future interconnections. A key to successful evolution is the continuation of overall industry cooperation and willingness to participate in industry fora and committees. However, radical changes do not appear to be needed.

5.5.2 *WIRELESS "CELLULAR"*

The existing cellular carriers have experienced substantial growth and technology change while maturing as an increasingly significant part of the telecommunications industry infrastructure. Cellular and wireline carriers have identified and established standards and interfaces necessary for reliable line, trunk and signaling interconnections. Where necessary, new standards and processes were developed to meet industry-specific needs, especially in the case of inter system signaling to support seamless roaming operations.

Interoperability testing processes have been established to ensure reliable signaling interconnections and interoperability testing is becoming important. Industry associations have been tasked to coordinate some aspects of this testing on a national basis and thus speed new features to the marketplace.

Bilateral roaming agreements between carriers wishing to offer seamless services by exchanging signaling messages have become common practice. These agreements specify technical, operational and administrative practices and procedures across physical and logical interfaces. These bilateral agreements will be increasingly useful as cellular carriers begin interfacing with wireline carriers for the exchange of SS7 call setup messages.

As the cellular industry segment continues to evolve, these processes (standards, interoperability testing and bilateral agreements) should be utilized and enhanced. The emerging PCS carriers and other new wireless service providers are also encouraged to embrace these as well as developing whatever standards, testing and administrative processes may be required to support their technology and business specific needs.

5.5.3 *SATELLITE*

The domestic satellite industry has matured as the provider of dedicated transmission capacity for video, voice and data services to the community of private user networks. The unique attributes of a satellite in GEO have offered cost-effective and highly reliable means of providing these services. The user community includes major television networks, cable TV operators, private business VSAT networks and direct to home entertainment providers. These satellite service providers/customers are users of the PSTN but are not "interconnected" to provide switched telephony services. Responses to the industry questionnaire from all network types, wireline, cellular , etc., support the position that interconnections with satellite networks do not present an increased risk to PSTN reliability.

Evolution of satellite-based mobile telecommunications and the introduction of high data rate services will increase the number and complexity of interconnections with the PSTN and will require continued vigilance on the part of the connecting parties to ensure reliability is not degraded with the addition of new services. Satellite service providers have traditionally relied on existing interface specifications, e.g., Bellcore TRs, bilateral agreements and end-to-end testing to ensure reliable performance. Respondents to the questionnaire indicated this practice will continue.

5.5.4 *CABLE*

The cable companies will emerge to become network providers in the voice telecommunications industry in the near future. They will have the same level of responsibility as other service providers to ensure the reliability of the "national" network.

When reviewing the material and studying the proposed architectures for the cable companies to begin offering voice telecommunications services, it becomes apparent they begin to look like other wireline carriers. They will be using similar technologies from the same vendors and have the same requirements for interconnection to complete calls across multiple networks. For these reasons, it is recommended that the cable operators' responsibilities for critical reliability issues fall under the same guidelines and requirements as other wireline providers. To the extent they expand into the wireless environment, they should follow the same recommendations made to other cellular service providers.

5.6 TEMPLATES

Many of the recommendations contained in this report are directed toward developing standards, defining and approving industry specifications and actually interconnecting different service provider networks. Two templates are offered in this section that summarize and list activities to accomplish these goals. The first, titled "Network Interconnection Bilateral Agreement Template," is for use whenever two service providers are implementing a specification and will actually interconnect their networks. The second is titled "Network Interface Specification Template" and is proposed for use in developing standards and in defining and approving industry interconnection specifications. When used in standards, it is expected that some of the items may have options or ranges, but the important point is that a standard not be developed without consciously addressing the entire list. When used by industry fora to define and approve detailed interconnection specifications, the possible options would be narrowed to ensure reliability and network integrity of the specific interconnection type.

Custodial responsibilities are indicated on each template page to define ongoing ownership, although other industry groups may want to adopt them also.

5.6.1 *NETWORK INTERCONNECTION BILATERAL AGREEMENT TEMPLATE*

The following worksheet should be used during the joint planning sessions between interconnecting service providers. This is an outline of the minimum set of topics that need to be addressed in bilateral agreements for critical interconnections. These worksheets should be used as follows:

- The types of interconnections to be established are agreed upon.
- Each Service Provider develops a version of this worksheet for each interconnection type.
- Specific references, including citations, relating to industry documentation, standards and references are identified.
- Individual company practices, policies and procedures are also identified and provided to the other party.
- All significant differences in practices, policies or procedures should be reviewed and resolved in joint planning sessions. Changes in individual practices, policies or procedures may or may not be required. Procedural symmetry is not required if differing policies produce a compatible, agreed-to outcome.

The Network Operations Forum is the recommended custodian of this template. Other organizations may also find the processes that evolve from this template useful and are encouraged to make use of and enhance it.

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RELIABILITY CRITERIA	CHECK OFF
Interconnection Provisioning information and guidelines	
- Tariff Identification	
- NOF References	
- Interface Specifications	
- Network Design	
- Service Interworking Requirements	
SS7 and Other Critical Interface Inter-network Compatibility Testing	
- Service Protocols/ Message Sets	
- Testing Plans	
- CCS Interconnection Questionnaires	
Protocol implementation Agreements	
- Timer Values	
- Route set congestion messages	
- Optional Parameters	
- Switch parameters	
- TR246, T1.114, T1.116, GR 317, GR 394	
- Gateway screening	
Diversity Requirements	
- Route identifications	
- Diversity definition	
- SS7 Diversity Verification and Validation	
- Committee T1 Report No. 24 on Network Survivability Performance	
Installation, provisioning, maintenance guidelines and responsibilities	
- NOF Reference Document	
Network Admin/Ops Security requirements	
- Access methodology	
- Functional partitioning	
- Applicable tariffs on confidential information	
- Password and encryption control	
Performance service level agreements	
- Interface specifications	

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- MTBF/MTTR - Contact / Escalation procedures - Performance Thresholds	
Specific versions of protocol and/or interface specifications	
- Network interface standards, version control, mandatory and optional categorizations	
Maintenance procedures, including trouble and status reporting, etc.	
- NOF Reference Document	
- Contact lists	
Inter-network trouble resolution and escalation procedures	
- NOF Reference Document	
- Contact lists	
In-depth root cause analysis of significant failures	
- Failure analysis procedures	
- FCC Outage Reporting Criteria	
- Service configuration	
- Protocol tests	
- Compatibility testing	
Network Traffic Management	
- NOF Reference Document, Section VI	
Synchronization Design and Company-wide coordination contacts	
- Establish conformance	
- Identify contacts	
- T1.101 Digital Facility Standard	
- BOC Notes on the LEC Network, SR-TSY-002275	
Performance Requirements	
- Interface Specifications	
Information sharing for analysis and problem identification	
- NOF Reference Document	
Network Rearrangement Management	
- NOF Reference Document - notification procedures	

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Traffic engineering design criteria and capacity management	
- Alternate routing designs	
- Call Blocking criteria	
Mutual Aid agreements	
- NOF Reference Document	
- National Security/Emergency Preparedness	
Emergency Communications plan	
- Emergency Preparedness and Response Program	
- NOF Reference Document - Emergency Communications	
- Equipment Supplier participation	
Equipment manufacturer responsibilities	
- Written requirements	
- Software validation	
- Optional requirements	
- Testing	
- Emergency equipment availability	
RELATED ISSUES	
Explicit forecasting information	
- Direct traffic	
- Subtending/transiting traffic	
Network transition	
- growth/consolidation of network elements	
- NPA splits	
- Major rehoming, rearrangement plans	
- NOF Reference Document	
Routing and screening administration	
- Network call routing administration and management	
Responsibility assignments	
- Facility assignment	
- Network control	
- Automatic testing	
Calling Party Number Privacy management	
Tones and Announcements for unsuccessful call attempts	

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- Network interface specification	
- NOF Reference Document	
Billing Records Data Exchange	
- EMR standards	
- Ordering and Billing Forum documentation	
Pre-cutover Inter-network Connectivity testing	
- Network Interface specification	
- NOF Reference Document	
Documentation Requirements	
- Network configuration	
- Contact numbers	
- Service Level Agreements	
- Implementation plan/milestones	
- Interoperability test results	

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5.6.2 *NETWORK INTERFACE SPECIFICATION TEMPLATE*

The following template is a generic model for the development of network interface standards or specifications. It identifies the minimum list of items that must be effectively addressed by the affected service providers to establish and maintain each point of network interface. The ATIS-sponsored ICCF is the suggested custodian of this template. Other organizations may also find the processes that evolve from this template useful and are encouraged to make use of and enhance it.

INTERFACE SPECIFICATION CRITERIA	CHECK OFF
Define the physical/software interfaces in terms of existing tariffs and technical standards and government regulation.	
Establish a clear point of demarcation that allows for non-intrusive test access.	
Define the environmental operating requirements according to security and reliability needs.	
Develop power and grounding requirements in accordance with safety and protection regulations, codes and standards.	
Define diversity requirements and survivability capabilities needed.	
Define interference generation protection levels relative to radiated and conductive electromagnetic properties.	
(Radio interfaces only) Define frequencies channelization, bandwidth, power level frequencies, tolerances and adjacent channel interference levels.	
Identify protocol elements in terms of the seven layer model OSI protocol stack.	
Define the message set that will be transmitted across the interface.	
Develop gateway screening functional requirements to block accidental or intentional intrusion of unwanted/inappropriate messages.	
Build for robustness by defining error correction, re-transmission overload controls and fault migration mitigation criteria.	
Develop message sets to facilitate fault detection, identification, diagnosis and correction.	

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Develop network interface performance design objectives in terms of signal transport time (delay) availability (downtime) lost message probability and transmission criteria (BER, loss, noise, phase jitter)	
Define synchronization and timing requirements and establish monitoring and back-up capabilities.	
Ensure that forward and backward compatibility of the protocol is addressed for transition management.	
Provide local and remote network management notification and control capabilities.	
Develop a network impact statement to predict/specify the backward compatibility and purpose of the standard.	
Develop demonstrable performance criteria at agreed stages of specification development.	
Define and conduct acceptance testing to validate the defined stages of specification development.	

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6. TECHNICAL STANDARDS DEVELOPMENT PROCESS ADEQUACY ASSESSMENT

6.1 *ISSUE STATEMENT*

The Network Reliability Council charged Task Group II to examine and report its findings on the industry standards process, as described in the following Issue Statement:

"Consider the adequacy of the Standards Development and Compliance process. Is the voluntary development of and conformity to, standards keeping pace with increased interconnection and will it be able to in the future? If the standards development process is unable to keep pace with the needs, what escalation/resolution method is proposed?"

6.2 *BACKGROUND*

Standards form the basis for telecommunications network interconnection and are updated over the life of the standard to enhance or extend their capabilities to meet user and industry needs. The standards applicable to most telecommunications issues in the U.S. are developed by Committee T1 - Telecommunications sponsored by the Alliance for Telecommunications Industry Solutions (ATIS) and by the Telecommunications Industry Association (TIA). Exhibit 1 highlights T1 and TIA focus areas and standards structures. Some of the work of other standards groups may relate to telecommunications issues, e.g., IEEE (LANs, test equipment, etc.), X3 (private data networks, information technology, etc.), Internet Engineering Task Force (Internet protocol), SCTE (physical layer for cable television) and ITU-T (global telecommunications). Exhibit 2 contains additional information on the above groups. In addition, industry forums (e.g., ATM, Frame Relay and SONET Integration) use and influence standards to create user application profiles of standards and implementation agreements based on options approved in standards. These profiles and agreements are utilized by industry service providers and manufacturers to meet user needs.

6.3 *ANALYSIS METHODOLOGY*

To collect information on this subject beyond the knowledge of the focus group team, three standards bodies, an industry consortium and several manufacturers were invited to present their internal processes and descriptions of how they are linked to the development of industry standards. In addition, data was collected from a wide range of industry players on the role and effectiveness of the standards process in ensuring network reliability.

6.4 *THE STANDARDS DEVELOPMENT PROCESS AND RECOMMENDATIONS*

As a result of their ANSI accreditations, the technical standards development processes for the TIA Engineering Committees and Committee T1 are similar. The complete standards development process as viewed by Committee T1 follows.

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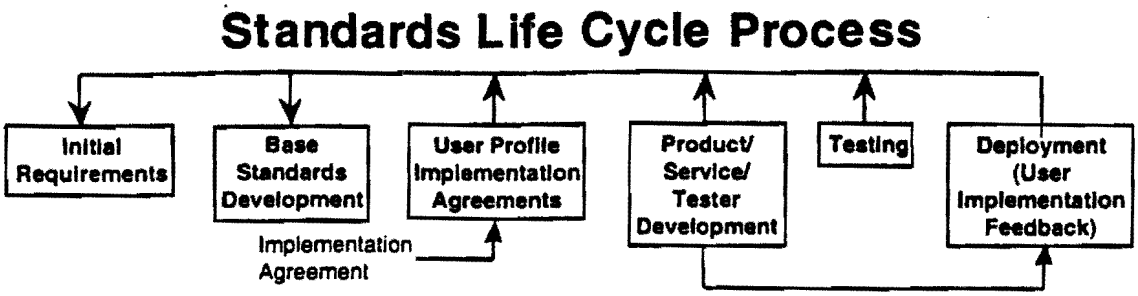

Figure 6.4.1 - Standards Life Cycle Process

The standards process is cyclic and so could theoretically start at any stage. In general, a flow beginning from the far left to the right, with feedback as shown, provides the most orderly introduction of a service or technology interface.

Stage 1: Initial Requirements. Inputs from users, manufacturers, or service providers that can provide an initial, perhaps high-level, basis for defining the service or technology interface.

The standards development initiation process is activated by a variety of sources. Listed here are some of them.

- Emergence of new technologies (PCS, ATM) may require new interfaces
- Industry group(s) submit requirements to exploit a business opportunity.
- Network user requests for additional capabilities stimulates new features or enhancements
- Industry evolution causes necessary accommodation of new interfaces
- Regulatory/legislative action mandates new interconnections

Stage 2: Base Standards Development. A minimum set of requirements defining interoperability provides an opportunity for individual manufacturers and service providers to be innovative in additional features and performance capabilities. This standards stage may require the cooperation of multiple organizations that develop standards within the U.S. (e.g., T1, TIA, IEEE and Committee X3) and harmonization with other standards bodies around the world. With regard to the latter, Committee T1 is the primary source of U.S. contributions to the ITU-T through a U. S. State Department process. It originates approximately 1,000 such contributions a year.

User and industry needs for reliable interoperability can be facilitated by the base standards development process that provides a comprehensive set of standards addressing the broad range of issues critical to interoperability. Program management techniques, including clear objectives, a customer involvement process, project milestones and identification of the dependencies between project elements can focus standards work to provide timely outputs. Reliable interoperability can also be aided, in some cases, through performance requirements for network elements that are consistent with performance and protocol specifications at the network interface.

Recommendation 1. Use of a network interface specification template is advised when a new network interface is identified for standardization. Standards bodies should use this type of template in developing the initial Standards Project Plan(s) for new interfaces to address the important areas for interconnection reliability. An example template for standards development planning is contained in Section 5.6.

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Recommendation 2. Industry associations, such as ATIS and TIA, should consider the value of incorporating performance requirements for complex network elements with the interface standards requirements. Also, the associations should consider how such requirements should be developed and funded.

Recommendation 3. A careful technical and editorial review process, similar to and expanding upon the TIA/T1 JTC Validation and Verification process, should be utilized for all standards that have the potential for affecting network interconnection reliability to ensure technical clarity and consistency. This would be an appropriate method to validate technical adequacy in meeting the intent of the interconnection reliability template and project plan described in Recommendation 1. Exhibit 9 is the TIA/T1 JTC procedure.

Stage 3: User Profile Implementation Agreements. Standards should be forward-looking and provide a target for the features a specific technology or service interface may develop. It is beneficial to identify how a new technology or service interface standard can be used with other standards to provide an application that meets a user's need. With new technologies or services it may be difficult to initially provide all capabilities ubiquitously. Therefore, it is essential that capabilities be prioritized to lead service requirements. In addition, fora frequently identify priority user applications, the profile of standards to provide that application and agreements of the key standardized features to implement in the technology/service interface introductions. New technology or service concepts that emerge in this process stimulate inputs to standards bodies.

Recommendation 4. Wherever appropriate, standards bodies should work with other industry groups that use standards, such as the ATM Forum, to more precisely define standards requirements and minimize complexity and optionality. Excessive optionality can be dealt with through an appropriate contribution to the affected standards committee. The Network Interface Specification, contained in Appendix 4 of this report, should also be used by industry forums to further define, detail and approve implementation for the industry.

Stage 4: Product/Service/Tester Development. Individual companies develop products, services and test equipment based on standards. Since the standards are voluntary, these products/services may fully or partially comply with the standard. In addition, they include features or capabilities beyond the base standards or the implementation agreements. These features and capabilities may provide a source of inputs to standards bodies.

Stage 5: Testing. Industry Testing (including interoperability testing) of telecommunications technologies can provide users and the industry with insight into characteristics (including interoperability between multivendor products) for a specific technology. Issues identified can be the basis for enhancements to the standards for that technology. Such testing is particularly important for widely deployed and critical network control technologies, e.g., Common Channel Signaling (SS7).

Stage 6: Deployment (User implementation Feedback) Deployment of standardized telecommunication technology provides an opportunity for user needs to be satisfied and for prove-in of network reliability. Feedback on introductory capabilities can stimulate needs for additional features and for improvements in standards to support new products, services and test equipment. This feedback is also important in the evaluation of the associated standards.

Recommendation 5. Interconnecting network operators should consider using interface survivability designs with redundancy and diversity such as those outlined in "A Technical Report on Network Survivability Performance" (Committee T1 Report No. 24).

6.5 *STANDARDS ORGANIZATIONS*

Within the U.S. telecommunications industry, Committee T1 and TIA have been the primary standards developers. The focus of their activities and organization information is given in Exhibit 1. The Society of Cable Telecommunications Engineers (SCTE), working on behalf of the cable television industry, will focus on "physical layer" standards for coaxial cable systems. while looking to Committee T1 and TIA groups to address other telecommunications needs.

Telecommunications systems interoperability is not limited to national interests. International interconnection demands cooperation on standards, now well beyond that needed for simple voice telephony. The Global Information Infrastructure (GII) requires global telecommunications standards within such groups as the International Telecommunications Union (ITU) and increasing collaboration among the various national/regional standards bodies (e.g., ETSI in Europe, TTC in Japan, Committee T1 and TIA in the U.S.). Committee T1 and TIA have been leaders in initiating harmonization and collaborative efforts.

6.5.1 *TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)*

TIA's Standards Committees are open to materially interested parties in accordance with TIA's ANSI-approved Engineering Manual. For TIA membership-eligible parties, voting participation on TIA engineering committees or subcommittees requires either being an active dues-paying member of TIA or paying a non-member participation fee. The non-member fee currently ranges from $1,000 to $6,800 yearly, depending on the number of weeks of meetings the committee/subcommittee plans to hold and the resource needs of the Formulating Group. TIA and Committee T1 costs are managed differently. TIA fees cover Secretariat, hotel, audio/visual and other costs, while Committee T1 members host their own meetings. Users can vote by paying a fee ranging from $200 to $6,800, depending on the activity level of the Formulating Group. Some Formulating Groups meet two weeks /year; some others meet as often as 15 to 16 weeks/year.

The TIA's Mobile and Personnel Communications Division organization and process flow is shown in Figure 6.5.1 below.

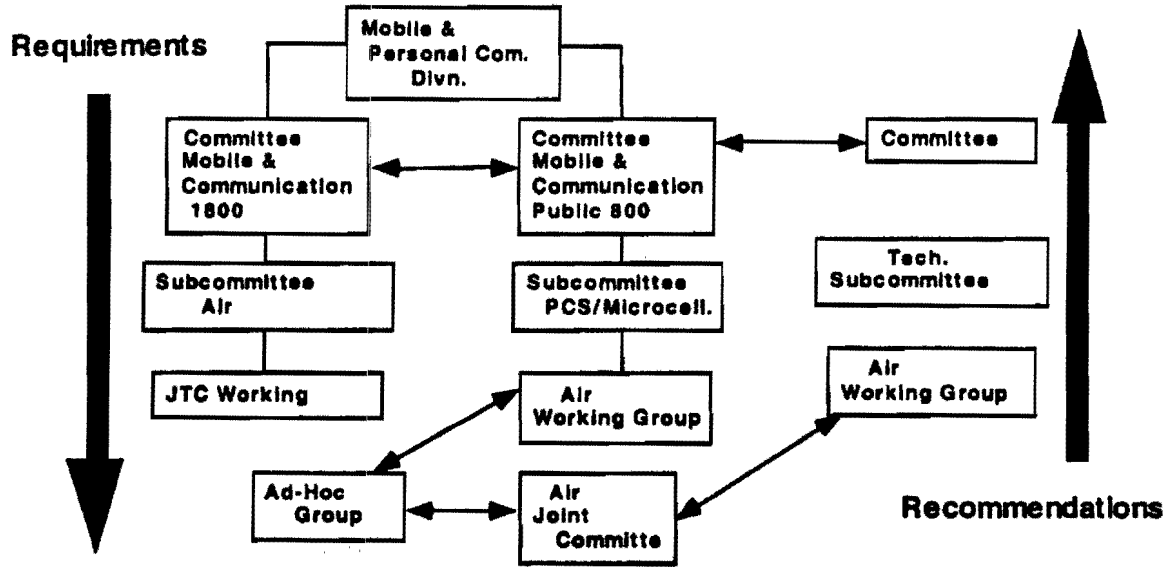

Figure 6.5.1 TIA Mobile and Personal Communications Division

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6.5.2 Committee T1

The mission of the Committee T1 is to develop technical standards and reports supporting the interconnection and interoperability of telecommunications networks at interfaces with end-user systems, carriers, information and enhanced-service providers and customer premises equipment (CPE). The T1 Committee currently has six Technical Subcommittees that are advised and managed by the T1 Advisory Group (T1AG). Each recommends standards and develops technical reports in its area of expertise. The subcommittees also recommend positions on matters under consideration by other North American and international standards bodies.

The Alliance for Telecommunications Industry Solutions (ATIS) sponsors and provides the secretariat support for Standards Committee T1.

Membership and full participation in Committee T1 and its Technical Subcommittees is open to all parties with a direct and material interest in the T1 process and activities. Free of dominance by any single interest, this open membership and balanced participation safeguards the integrity and efficiency of the standards formulation process. ANSI due process procedures further ensure fairness.

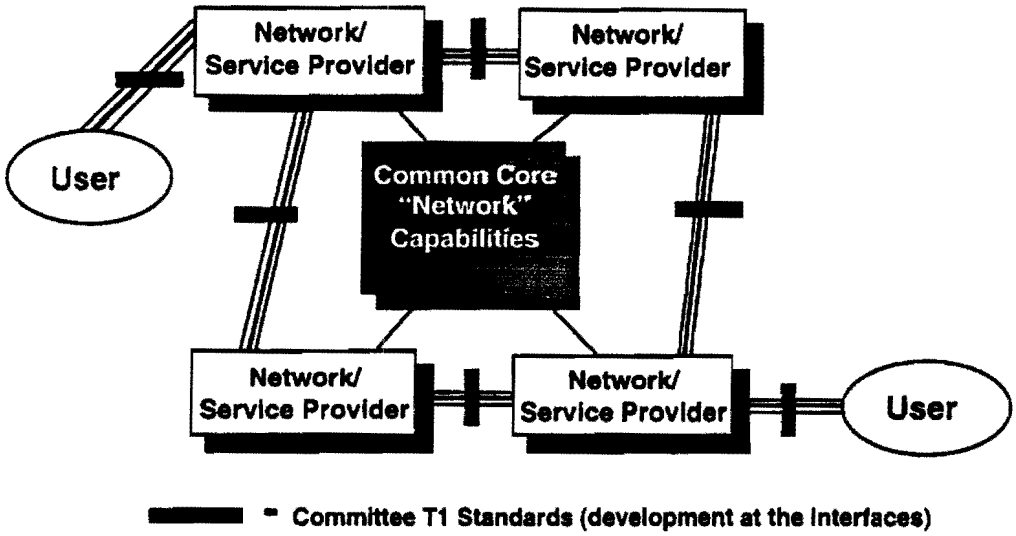

Figure 6.5.2.1 Sample Subset of U.S. Network of Networks, Committee T1 Standards

T1A AND COMMITTEE T1 KEY ITEM COMPARISON

Item	T1A	Committee T1
Membership eligibility	Manufacturers at the Division level IECs, LECs, Users can also participate at the Engineering Committee level	Manufacturers, IECs, Users, LECs
Process	Open, consensus-based, balanced, due process at the Engineering Committee level	Open, consensus-based, balanced, due process at all T1 levels

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Item	TIA	Committee T1
Dues structure	Dues range from $1,000 to $50,000 depending on annual product/service sales. This provides full mbrship in TIA.	$2,500/yr.-voting $1,500/yr.-observer $1,500/yr.-subscriber $850 TSC member
Accreditation	ANSI (organization method)	ANSI (Committee method)
Life cycle mgmt	Yes (maximum re-issue/re-affirmation interval - 5 years)	Yes (maximum re-issue/re-affirmation interval - 5 years)

6.6 DEFACTO STANDARDS

There is a cooperative relationship between telecommunications equipment suppliers, service providers and users. While competition exists among service providers and among suppliers for business in the same markets, a high level of cooperation is needed to achieve interoperability through standards. Success in creating a *de facto standard* by one or more companies to quickly achieve market presence is difficult since interconnection with user equipment and multiple networks in a multi-vendor environment is required. The need for backward compatibility and interoperability can create disincentives to de facto standards since such standards can create economic disadvantages and reliability problems for users, manufacturers and network providers.

However, there is concern that, as the industry evolves to respond to more competitive pressures, service providers may feel pressured to implement interfaces before standards are available. Network reliability can best be maintained if service providers follow the interconnection guidelines contained in this report.

Recommendation 6. New network providers are encouraged to participate in existing telecommunications industry standards processes, either directly or through associations, via membership or contributions to Committee T1 or TIA.

6.7 PRE-STANDARD IMPLEMENTATIONS

Manufacturers benefit from participation in the standards and forum processes. System requirements and equipment specifications yield the opportunity to design, build and sell products to the network providers and telecommunications end users. However, if consensus develops slowly, manufacturers or service providers may be motivated to try to anticipate the standards. This can create a high risk opportunity to begin equipment fabrication before stable standards are available. In the mid-1980s this was the case for Basic Rate ISDN where the major U.S. switch manufacturers developed equipment based on two different technical specifications including different option selection (not a single standard). Later network requirements and components were changed to gain network interoperability.

Recommendation 7. Where adequate network interface standards exist, suppliers should develop and evolve their products to meet those standards. If interface standards are not established, network service providers and network equipment suppliers should actively participate in the development of robust network interface standards.

Recommendation 8. Interconnecting network providers should utilize industry-proven interconnection standards.

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Recommendation 9. While standards are generally voluntary, increased emphasis should be placed on the value of compliance in ensuring network interoperability and reliability. However, in the case of public safety concerns, standards are identified with a "mandatory" emphasis.

6.8 *OTHER GROUPS INFLUENCING STANDARDS*

TINA (Telecommunications Information Networking Architecture) is a consortium of 40 companies that are developing an open architecture for telecommunications-distributed software applications, which makes use of recent advances in distributed computing and object-oriented design to achieve interoperability. TINA is presently collaborating with the standards bodies and industry forums. TINA's work is intended to have an impact on ATM, TMN, IN and multimedia.

6.9 *TIMELINESS OF STANDARDS DEVELOPMENT*

Experiences such as the pre-standard developments described in Section 6.7 and a greater market focus by U.S. telecommunications standards developers has dramatically improved the quality and timeliness of standards development. A few recent examples where timely standards development has been achieved in *12 to 18 months* interval (from initial proposal or issue identification to stable standard) are:

Timely Standards Development Examples

Personal Communications Air Interface (approx. 8000 pages)	T1/TIA Joint Technical Committee (T1P1 and TR46.3)
PCS Mobility Management Application Program	T1S1 to meet TIA TR46 needs
Outage Index based on FCC-Reportable Outage Data	T1A1 for NRSC
SONET Directory Services	T1X1 and T1M1
Asymmetrical Digital Subscriber Line	T1E1 to meet market needs
ATM Adaptation Layer for Data, Signaling and Video Application (AAL.5)	T1S1 with input requirements from the ATM Forum
SS7 Protocol Enhancements and Architectural Analysis	T1S1 for NRC I

Standards groups such as TIA and T1 are continuously improving their processes to meet user and industry needs. For example, Exhibits 3 and 4 describe improvements that have been implemented in the last few years and Exhibit 5 outlines the elements of the implementation Plan for the 1995 Committee T1 Strategic Plan.

However, broad concern still exists in the industry with respect to the ability of the standards process to keep pace with the accelerating requirements of new technology.

Recommendation 10. The most effective means to accelerate the standards development process is to ensure new standards work has sharp technical focus and clear standards deliverables, plus final and interim milestones for those deliverables. Exhibits 6 and 7 contain information on standards project proposals and project tracking based on this recommendation.

Recommendation 11. All telecommunications standards bodies should implement by year end 1996 interactive electronic access methods to expedite the submission, creation, acceptance, review and finalization of technical standards. This is already underway but a completion date has not been specified.

Recommendation 12. The Forum Process should be employed by the industry and companies/agencies to foster innovation and to produce contributions to the development of standards, not in lieu of standards. Industry fora have been instrumental in specifying implementation agreements.

Recommendation 13. Industry associations /fora, such as ATIS, TIA, ATM Forum, etc., should sponsor early (pre-standardization) industry interactions on emerging technology and service concepts. It was agreed that an initial "industry needs" framework would provide parallel inputs to industry standards activities and the development of generic requirements for network elements.

Recommendation 14. Industry associations, such as ATIS and TIA, should determine how the necessary generic requirements, described in Recommendation 13 should be developed, funded, approved and maintained. This approach will promote compatibility between standards and generic requirements.

6.10 *CONCLUSIONS ON STANDARDS ADEQUACY FOR NEW NETWORK INTERCONNECTION NEEDS*

The voluntary, open, consensus-based standards process, including Industry Forums and Generic Requirements Process, is viewed as being adequate to support network interoperability and reliability issues relating to basic voice services on wireline networks.

The industry survey data gathered for this report indicates a high degree of dependence on standards bodies to develop service, reliability and interoperability standards and specifications. However, the industry views standards bodies as having little responsibility for ensuring inter-network reliability and interoperability. Therefore, it is highly recommended that interconnecting network operators execute bilateral agreements and compatibility testing to ensure reliable interoperability. The survey data indicates a high level of support throughout survey respondents for the use of the standards process, industry forums, interoperability testing and bilateral agreements.

Recommendation 15. Bilateral agreements should be developed and put in place before networks interconnect in order to ensure reliable interconnection and interoperability. In addition, the forum process (e.g., NOF and ICCF) provides the framework for developing national technical and operational industry agreements for new network interconnections. Participants in these agreements should demonstrate compatibility with established industry standards, procedures and processes as a condition for interconnection. Exhibit 8 provides a Model Process for SS7 Network Interconnection. (Appendix 4 is a template for such a bilateral agreement.)

Quickly maturing and innovative standards development processes relating to cellular applications and interconnections with wireline networks are evident. The development or adaptation of interconnection standards for wireline and wireless networks with other networks, i.e., cable television, some new satellite systems, and mobile satellite systems, is still very much in the future.

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Since 1984, the U.S. telecommunications network has grown, while introducing new technologies and services in a multi-vendor environment of more than 500 Interexchange Carriers, 1,500 Exchange Carriers and 1,000 Cellular service providers. The development by telecommunications standards bodies of working relationships with industry forums, a focus on the positive impact of the standards and continuous improvement processes have allowed standards bodies to meet industry and user needs for timely standards development in the face of rapid evolution of technologies and the convergence of industries. Moreover, process improvements, including use of electronic document handling to facilitate and expedite standards development and dissemination, should ensure that the standards process can continue to improve to meet future challenges. In addition, the strategic impact of standards and increased executive awareness of the standards impact, where necessary, can stimulate corporate escalation processes for critical industry standards issues.

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7. ANALYSIS AND RECOMMENDATIONS FOR COORDINATED NETWORK INTEROPERABILITY TESTING AND FUNDING

7.1 *ISSUE STATEMENT*

In its Second Report and Order (FCC 94-189, FCC Docket No. 91-273), Released August 1, 1994, the Federal Communications Commission discussed comments provided to it by various industry members relative to long-term funding for the industry-wide Inter-network Interoperability Test Plan (IITP) efforts. The Commission noted in paragraph 77, "The NRC is the best mechanism for resolving any IITP funding problem that may exist, either by means of specific recommendations to the industry or, if such a solution is not possible, by means of a recommendation to the FCC. We refer this question to the NRC." The currently commissioned NRC asked this task group to address this issue.

7.2 *SUMMARY*

The goal of the task group's work was extended beyond the specific charge to recommend an IITP funding method. This report not only recommends a funding method, but it also outlines a functional management structure that will facilitate inter-network interoperability requirements development and testing and also allow evolution to address future network interconnection requirements, beyond current IITP efforts.

Relative to this expanded management structure, now to be called Inter-network Interoperability Test Coordination (IITC), the task group accepted input from many sources, including AT&T, Ameritech, Bellcore, GTE, DSC Communications Corporation, MCI, the Network Operations Forum, NORTEL, Pacific Bell, Sprint, U S WEST and other members of the task group. Based on this input, combined with a broader industry survey and internal discussion, the task group is making the following recommendations:

Recommendation 1. This task group reaffirms the NRC 1 Recommendation in the report "Network Reliability: A Report to the Nation", dated June, 1993 to continue the IITP cooperative industry relationships. The interconnection management test coordination processes should be institutionalized to permit continual evolution to address national network testing requirements.

Recommendation 2. The existing industry fora (e.g., ATIS-Network Operations Forum, CTIA-Advisory Group for Network Issues) should continue to be used proactively by existing and new service providers and manufacturers for recommending and planning network interoperability testing to ensure service compatibility and reliability across common interfaces.

Recommendation 3. The existing IITP (Inter-network Interoperability Test Plan) program should evolve as the basis of the more generalized IITC function. The present focus on interoperability vulnerabilities in the signaling networks should continue, but the focus should also be broadened to consider other high risk and critical interfaces resulting from the introduction of increased network interconnections and new technologies. (This recommendation is not meant to preclude the obvious need for industry-specific or technology-specific testing where there is no logical reason for IITC nationally coordinated testing.)

Recommendation 4. Once the IITC is operational, manufacturers and service providers will participate in the management and conduct of ongoing nationally coordinated interconnection testing.

Recommendation 5. The telecommunications industry should fund and manage the IITC. (See Chart #2, National Interoperability Test Management and Section 7.5.) A Steering Committee

will be staffed by industry executive volunteers, as outlined in Recommendation 8 of this section, to oversee this organization.

Recommendation 6. The IITC should be made a financially self-supporting organization within the Alliance for Telecommunications Industry Solutions (ATIS) business structure, at least initially and be similar to the ATIS method now used for the Committee T1 and SONET Interoperability Forum (SIF) groups. ATIS administrative costs would be covered by a portion of the annual fees as outlined in Recommendation 7 of this section.

Recommendation 7. A mandatory annual fee should be collected from telecommunications carriers and equipment manufacturers to support the interoperability test coordination function. (See Sections 7.5.1 and 7.5.2 for the detailed funding and reporting presentation.) IITC participation should be mandatory for the service providers and manufacturers.

Recommendation 8. The telecommunications industry associations should identify technical management representatives selected by their boards of directors or engineering committees to serve on a steering committee that would manage the IITC financial requirements, set IITC policy, prioritize testing activities and provide overall management guidance of this industry-wide program.

Recommendation 9. Bellcore and the industry organizations should continue their present responsibilities and financial support for the applicable IITP testing and coordination until the new IITC function is operational. (See also Section 1.1.7)

Recommendation 10. The test coordination funding issue is believed to be one of several potential industry-wide initiatives driven by the evolving competitive environment. Therefore, the FCC should consider a more appropriate long-term method of IITC funding in the context of other additional industry funding requirements, e.g., NANPA administration, that will surface from increased network interconnection, if the recommended methods do not provide adequate funding.

Recommendation 11. Based on approval of this plan, the NRC Chairman is requested to initiate the appropriate IITC formation processes necessary to establish the organization.

A number of management issues were of concern to the task group. They included the need for a stable funding mechanism that is relatively easy to administer, a mechanism that allocates the cost burden equitably among those companies benefiting from the test results and a general knowledge of the total funding needed that is sufficient to conduct the necessary nationally coordinated tests. The task group recommendations for the organizational structure and principles of business conduct represent the best alternatives of those considered. Ultimately however, these issues are believed best managed by the Steering Committee and should be among their first responsibilities to validate. These issues are presented more fully in the other paragraphs of Section 7.

7.3 SCOPE OF WORK ON INTEROPERABILITY TESTING/FUNDING

The goal of the task group's work was extended beyond the specific charge to recommend an IITP funding method. This report not only recommends a funding method, but it also outlines a functional management structure that will continue present inter-network interoperability development and testing requirements and also allow evolution to address future network interconnection requirements as they evolve.

The current IITP process may be viewed as a model for the more generalized IITC function recommended in this report. In IITP, industry members (service providers and manufacturers)

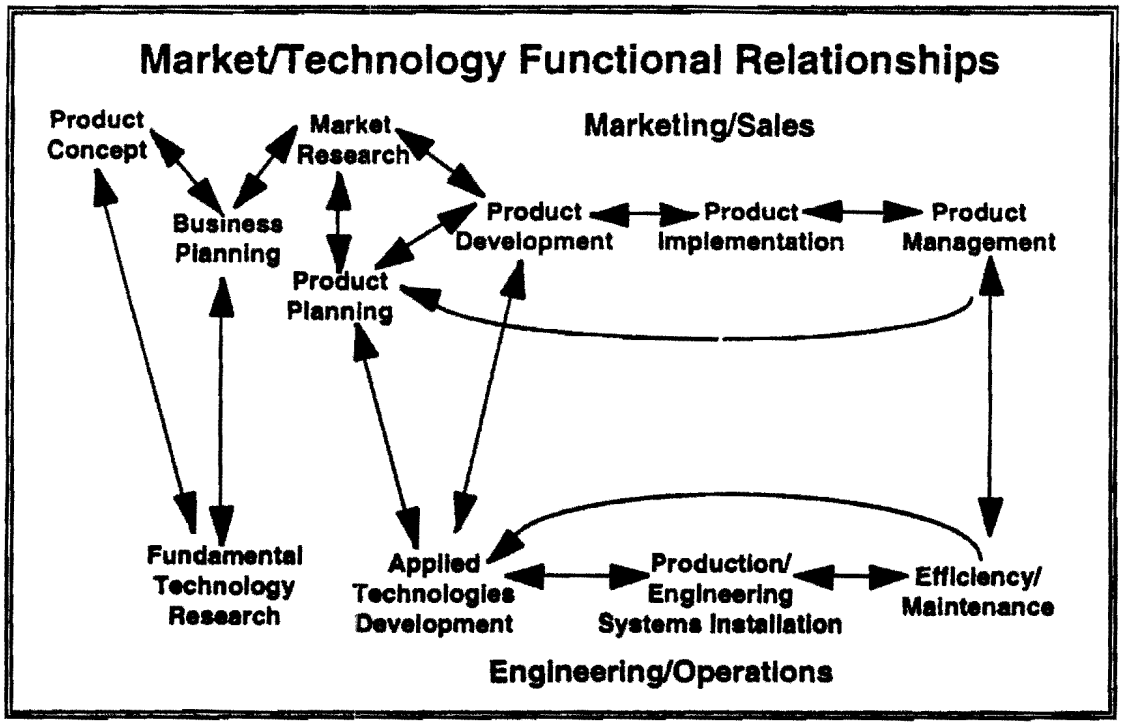
voluntarily develop test plans, test scripts and test network configurations. They also provide their own facilities/equipment and human resources for cooperative test execution. Bellcore, today funded solely by the RBOCs, provides a facility interconnection hub for testing, overall coordination for test network set-up and execution and administrative support for the IITP. However, the types of roles like those currently provided by Bellcore should be funded more uniformly across the industry.

7.3.1. *MARKET/TECHNOLOGY FUNCTIONAL RELATIONSHIPS*

Although the FCC and the telecommunications industry have identified interoperability testing as a key component of sustained network reliability, it is only one of the critical steps necessary in the process of successfully creating and deploying any new component of the national telecommunications network. It is helpful to place interoperability testing in perspective, as it is only one of many tasks to accomplish in deploying a network capability.

The following generic chart depicts the continual interaction and progression of activities between marketing and engineering groups to conceive and deploy a new product and manage it over its life cycle. Reading from left to right in chart #1 demonstrates one way this could be accomplished. Notice that all lines of flow are two-way, i.e. interactive, except two. This is indicative of the departmental interplay within companies. Any two telecommunications companies who intend to interconnect will experience the same interaction, albeit with business developers replacing marketers, but probably the same engineering groups.

Chart #1



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7.3.2. *STEPS TO ESTABLISH INTERCONNECTIONS BETWEEN COMPANIES*

Expanding on the Production/Engineering Systems Installation portion of the Chart #1, the four steps outlined below are necessary before any successful system deployment can be expected.

Step 1. System Design Requirement (Testing for alignment between the system design and available feature expectations. Typically, this is a paperwork exercise at this point.)

Step 2. Application Development (Pre-production testing against benchmark functional/feature criteria)

Step 3. System Deployment (Pre- in-service systems inter-operability testing against benchmark operational criteria to ensure overall compatibility)

Step 4. System Operation Testing, in general, is required before successfully moving from one step to the next in the process. When successfully accomplished, each subsequent step is more assured of success.

When applied to a business arrangement between two or more companies who must develop an interconnection between their networks, the above steps manifest themselves as follows:

Note: Three cases are possible: Both networks already exist, both networks are new or one is new and the other already exists.

Testing for alignment between the system design and available feature expectations: This is the first opportunity for interfacing companies to bring together, compare and resolve differing technical design approaches and develop common feature performance standards and expectations. Results of this work are incorporated in the application development of the systems that are to inter-operate. (At this point, only paper designs are available for comparison to expectations.)

Testing against benchmark functional/feature criteria: Testing interconnected networks at this phase is accomplished between vendor and/or service provider testbeds, an environment where conformance to industry standards and interoperability conventions can be validated without jeopardizing existing customers and where feature functionality is tested against industry network design expectations. This testing involves hardware and software design, capacity capability determination, fault tolerance performance, management interface systems, and operations, administration and maintenance provisions.

Interoperability testing against benchmark operational criteria is where the cooperative relationship between the new network and existing network service providers is most evident. This is the last opportunity to functionally test the interfacing components and ensure proper integrated performance before field installation and "turn-up." This very controlled testing must answer the question, "Will a network service provider's hardware, software and signaling protocols inter-work at all levels in steady state, error and overload conditions with no foreseen catastrophic failures to the network service providers comprising the Public Switched Telecommunications Network?" Usually, this testing phase occurs between new network provider units at testbed sites, or where the pre-operational equipment is installed and the existing network providers' already proven testbed systems. (As experience and expertise grows and installed equipment matures, more of the interoperability testing occurs between field locations of the network providers, by temporarily and carefully partitioning the incumbent's on-line equipment, thereby restricting access to the national network until operational tests are completed and performance history is established satisfactorily.)

7.3.3. *LESSONS LEARNED*

Participation in the industry standards development teams is of great benefit to any applications developer/service provider. However, conformance to standards does not automatically ensure interoperability when it comes to interconnected systems, nor does standards compliance imply that competing carriers' systems will always operate in the exact same way. What the interoperability testing does ensure is the accommodation of a permissible way of operation at common points of interface. (Example: Two competing IXCs with unique network protocol options interface to one LEC.) In addition to standards development issues, the telecommunications industry also operates fora concerned with inter-company network systems and operations issues that are equally critical to network reliability. (See Section 6.)

As an increasing number of competitive service providers interconnect to participate in the telecommunications market, there will be a corresponding increase in the number of interfaces that must be managed. In this NRC task group, three interfaces were identified as potentially critical to reliable interconnections: information channel, signaling channel and OAM&P channel interfaces. All three logical channels are transported by a physical channel(s). As these channels affect network reliability, the logical signaling channel and the physical channel carrying all information, i.e., signaling, OAM&P and information yielded the greatest degree of industry concern.

The required and beneficial tests between network signaling systems may include several types of testing. If service providers intend to connect ISUP (ISDN User Part) protocol signaling channels between voice message switches, TCAP (SS7 Transaction Capability Application Part) signaling channels to databases, or linkages to or between STPs (Signal Transfer Point), then test and acceptance arrangements between each combination of the interconnecting network service providers are necessary. This may be accomplished using a manufacturer's personnel and testbed facilities, properly equipped third party facilities, or the service providers' own laboratories. In any event, there are agreements to negotiate before connecting with each of the network providers' testbeds and ultimately between the operational networks.

The expressed industry concern for the physical channel reliability is traditional, because without it, there are no connections. It is important to the service provider, as the established connection between circuit end points is well documented and practiced in design, deployment and service maintenance. Industry efforts to maintain and improve network reliability are well documented by Task Group I of the NRC (Network Reliability Council.) Please refer to the reports of the ATIS Network Reliability Steering Committee.

As an ongoing concern for a sustainable interoperable network testing capability, there are continual changes in network software and hardware that require tests before "going live" on the national network. So, establishing a presence as a network service provider carries an ongoing responsibility thereafter to maintain and evolve network performance to accommodate new features and functionality of all interconnected network service providers.

The present IITP program provides the industry with several benefits, including a unique penalty-free testbed for performing cooperative stress-to-failure testing. This program is unique among wireline service providers and manufacturers. Data collected via the NRC survey indicate stress-to-failure testing is currently not done by other than wireline service providers and the associated manufacturers.

Overall, a major benefit of interoperability testing is the ability to test multi-manufacturer system compatibilities and stress network components, arranged in a system configuration, without service penalty or compromising the integrity of the national network.

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7.3.4. *INTEGRATING CURRENT AND NEW NETWORK PROVIDERS*

As a generic requirement, business and technical arrangements must be negotiated between interfacing network owners before any interconnection will be permitted. Having knowledgeable and experienced technical resources on both sides of this arrangement will allow more equity in the relationship and probably allow more flexibility in managing through the pre-service test plans.

Existing competitive network providers will offer a number of ways for new service providers to accomplish the interconnection testing required. It is recommended that all network providers join industry groups to establish the broad technical awareness and working relationships required for interoperability, but the business arrangement aspects of that interoperability are left to the interfacing companies to determine.

In Section 7.1 concerning Industry Standards Development Process Assessment, a diagram of the standards development process describes the cooperative industry efforts that parallel Chart #1. Further, industry forums are working common issues of concern necessary to ensure not only network interoperability, but also customer account management and operational support systems interface compatibilities. Both of these methods of participation are open to interested company participants.

7.4 *PURPOSE AND BENEFITS OF THIRD PARTY INTEROPERABILITY COORDINATION*

The needs satisfied by third-party test coordination are:

- Protection of company-specific proprietary information while enabling the identification of national network service problems and improvement opportunities
- Management of the performance of interoperability tests that have been shown to have national network value and importance
- Conduct of portions of interoperability test plans that are most cost-effectively accomplished from a single location
- Synchronization of test data collection for analysis and reports

Where third-party testing and coordination is actually needed, a properly equipped and staffed national facility is required. As observed from industry survey data, the task group agrees with the industry view that funding for this national facility should be shared among the recipients benefiting from the knowledge obtained from the network interconnection testing. Benefits accrue to the industry participants by providing:

- Advanced knowledge of interoperability problems, solutions and operating recommendations
- Test report material and functional test documentation
- Interoperability status reports
- Opportunities to contribute/participate in the process (direct knowledge gained)
- Evidence of good faith efforts to prevent a major service outage, if one actually does occur
- The telecommunications industry with a self-monitoring capability
- The industry with an inter-connected standby testbed network for diagnosis of systemic problems

Chart #2 describes the proposed organizational relationships to manage the national inter-network interoperability test coordination (IITC) function. Note, the coordination function may

be carried out by one or a combination of several qualified physical entities, selected as appropriate by the Steering Committee to meet test coordination requirements.

7.5. FUNDING AND MANAGEMENT

Management/funding of the interoperability testing coordination function can be accomplished in a number of ways. Factors to consider include:

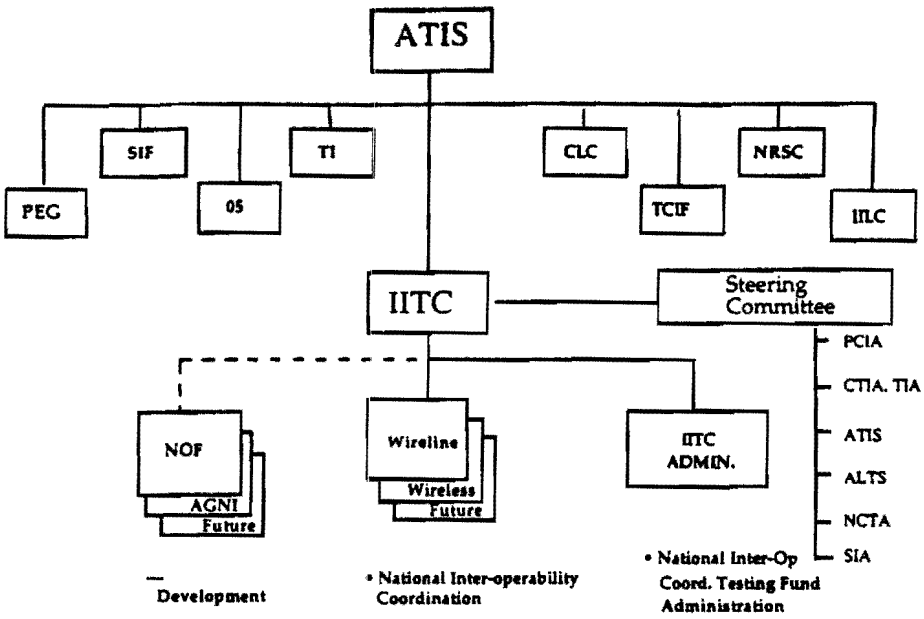
- The present and future benefit to the industry of network provider and manufacturer voluntary contributions of facility testbeds and skilled human resources
- The expected maturation of the equipment, human resources and industry players which will create, reduce, alter, or eliminate the need for various types of third-party test parameters to assess the value received in comparison to the actual coordinated testing accomplished
- The test coordination funding system needs to provide financial stability to recognize the continuing nature of interoperability test requirements. The expected set of interconnected and geographically disbursed testbed systems are not easily assembled or disassembled to follow sporadic testing programs or reactionary test requirements
- The funding system must be easily administered and share costs equitably among those benefiting from the test plans

Based on the industry's general sense of responsibility to provide a highly reliable national network infrastructure, an IITC fee structure would be determined and payments contributed to an industry-led organization that will manage and fund centralized interconnection test coordination. Since the ATIS (Alliance for Telecommunications Industry Solutions) industry standards and forums organization is not affiliated with any trade association and has open membership opportunities, ATIS is recommended to provide an "organizational sponsoring home" for the interoperability testing activities. Chart #2 depicts the organizational structure to manage this function.

A suggested set of guiding management principles for the IITC should include:

- A requirement for members to actively support and participate in the testing functions since its work is in the interest of the public
- A requirement that all service providers and equipment manufacturers financially support the IITC
- A requirement for the IITC to maintain financial self-sufficiency
- A requirement to provide an equitable fee structure for its members
- A requirement to provide equitable membership representation for IITC management oversight
- A stable funding mechanism to ensure availability and readiness of interconnected test coordination facilities

Chart #2



The IITC-controlled organizational elements are the two functions to be funded by the annual fees.

If the recommendations from this report are accepted in early 1996, it may be possible to establish the IITC and have it operationally ready to assume its responsibilities in 1997. This will require timely decisions and direction by the NRC and ATIS. The recommendation of the task group is for 1996 to be a transition period to create the IITC and develop the functional capabilties for full operation in 1997. To accomplish these goals, the organization and fee structure must be in place and collections begun by mid-year, 1996.

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7.5.1. *SUGGESTED RESPONSIBILITIES AND ORGANIZATIONAL ELEMENTS*

ATIS

- Solicit participation from industry associations to populate the Steering Committee and Requirements Development functions
- Provide administrative/facilitation support for the IITC management function
- Act as the legal entity for contracts that may be required for test coordination.
- Perform the interoperability test fund administration function described below

National Interoperability Test Coordination Function

This function performs the inter-network interoperability test coordination (IITC) and is the second of two functions funded by the annual fees. A number of test coordination entities could be established depending on the technical facilities and human resource expertise required. (Examples: Bellcore currently performs this responsibility for the SS7 ISUP wireline test coordination activities and the CTIA/AGNI coordinates IS-41 interoperability testing.)

- Project manage the tests specified by the Requirements group
- Perform portions of a test plan appropriate to conduct at a central location
- Collect, aggregate, partition and distribute data to appropriate test participants
- Participate in the data analysis and report generation. Conduct follow-up to ensure corrective action where needed
- Submit financial budget requirements through the IITC Director for Steering Committee approval

This function could also include, as appropriate, other centralized functions similar to today's "hub function" for IITP testing.

IITC Steering Committee

A voluntary industry Steering Committee selected from the ATIS, CTIA/TIA, PCIA, NCTA, SIA, ALTS board members and others as appropriate, would be established to oversee the management of the national test coordination responsibility. The steering committee would be charged with assessing the need and opportunity for nationally coordinated tests, approving test plan initiatives and managing the funds to accomplish these tests. Thus far, Bellcore and CTIA/AGNI possess the experience in conducting these types of test plans and there are valuable lessons to learn from these two organizations. This steering committee would be charged with assessing cross-industry testing needs for the future and to determine the best course of action to accommodate the requirements. Suggested responsibilities include:

- Ensure the value of the nationally coordinated testing is commensurate with the costs to support it
- Financial policy management
- IITC Directorship management

IITC Directorship

This position is responsible for the day-to-day management of the IITC. This position would be charged to,

- carry out the Steering Committee policies
- develop and manage the resources dedicated to the conduct of IITC business
- solicit and administer memberships in the IITC
- report on the financial and membership status of the IITC
- assess and report activities and actions to the respective federal agencies and associations

- solicit and select the appropriate entity or entities to perform the test coordination function based on requirements and plans

This is one of two functions funded by membership fees.

Requirements Development: Identification/ Specifications

The current organizations of ALTS, NCTA, PCIA, CTIA/TIA, SIA and ATIS would continue to identify and bring forward (to the respective Requirements Development groups) interoperability tests for coordination by a national test coordination facility.

- Test script development in response to industry requirements
- Determination of required interoperability tests that must utilize the national coordination function. (All other interoperability testing is assumed to not require any national coordination function.)

National Interoperability Membership and Test Fund Administration

This is envisioned as a responsibility within the IITC organization.

- Take direction from the IITC Director.
- Manage the collection and disbursement of the funds collected from the member companies.
- Develop administrative reports for the IITC organization.
- Manage the production and distribution of reports to the federal agencies, member companies and the industry.

This is the second of the two functions funded by the membership fees.

IITC Member Companies (Service Providers)

This group is composed of companies who see value in interoperability testing and are willing to support it with equipment, human and/or financial resources. (The membership motivation would include competitive forces to secure and maintain customers, provide high quality reliable service and demonstrate network performance to meet state and federal agency criteria.)

- Participate in the planning and conduct of recommended nationally coordinated interoperability test plans with appropriate resources and facilities
- Support the maintenance of the national coordination function (IITC) by sharing in the funding of that organization (see member fees in Section 7.5.2.)
- Participate in the data analysis and report generation. Conduct follow-up to ensure corrective action where needed

The present responsibilities and funding of Bellcore are recommended to continue for applicable IITP testing until the IITC organization is operational.

IITC Member Companies (Manufacturers)

Considering their interest in developing and selling high quality equipment and systems, switching equipment manufacturers offer their financial, technical and hardware/software resources to participate in required interoperability testing.

- Participate in the planning and execution of recommended nationally coordinated interoperability test plans with appropriate resources and facilities
- Support the costs of maintaining the national test coordination function (IITC) by sharing in the funding of that organization (see Section 7.5.2.)
- Participate in the data analysis and report generation. Conduct follow-up to ensure corrective action where needed

7.5.2. FUNDING AND REPORTING RECOMMENDATION

Beneficiaries of the testing were found to be in two classes, i.e., equipment manufacturers and service providers. Equipment manufacturers are fundamentally linked to interoperability issues, but only benefit from testing if they participate in those tests. Service providers receive benefit even if they do not participate directly, as long as the manufacturers they utilize participate. However, service providers accrue additional benefit when they do participate, by learning how their implementations interact with others in stress-to-failure conditions. Several funding alternatives were studied to gain insight into the issues of who pays, how much each member pays and their willingness to pay and to understand the administrative issues to comply with the guiding principles of section 7.5. As an illustration, the following chart describes a two-tier fee structure the task group believes will accumulate the $3.0 - $3.5 million Bellcore estimates it now spends annually for IITP coordination activities.

Company	Fee
Service Providers (> $5 million operating revenues)	$10,000
Service Providers ($1-5 million operating revenues)	$ 2,000
Manufacturers (> $100 million sales revenues)	$20,000
Manufacturers ($50-100 million sales revenues)	$ 2,000

The task group recognizes there are small companies that are inappropriate to consider for IITP funding support. Service providers with less than $1 million operating revenues and equipment providers with less than $50 million sales revenues are suggested exclusion levels.

Reporting requirements would include:

- The IITC will provide verification of IITC membership and maintain a list of current members in and out of good financial standing.
- The NRSC will publish the current IITC member list and the funding adequacy in its annual report to the FCC, as a leading indicator of network reliability.
- The IITC will invoice service providers and equipment providers, initially identified from FCC and industry association lists of carriers and manufacturers.
- 1996 will be a transitional year from the existing methods of funding nationally coordinated interoperability testing. Fees for IITC will be collected during 1996, based on 1995 reported revenues. The IITC will begin operation in 1997.

7.6 *CONCLUSION*

The current IITP is a unique cooperative arrangement among the telecommunications industry equipment suppliers and service providers. It serves a vital need to permit off-line stress testing across multiple network boundaries. Although not specifically referenced in this report, the achievements of the IITP function to identify and resolve actual and potential network interconnection problems are well documented.

The present funding of national SS7 ISUP test coordination has come from the RBOCs via Bellcore. The recommendation of this task group to expand the program into a function called IITC provides a method to spread the costs of future interoperability test coordination among all those equipment suppliers and network service providers benefiting from the knowledge gained. With increasing deployment of competitive networks and new technologies, the potential service reliability issues grow. However, the mandatory cooperation among telecommunications industry competitors to ensure overall reliable network performance is seen to benefit all market

segments and the national public interests. To achieve this industry cooperation, the industry should be held responsible for finalizing the funding and management issues.

8. METRICS

8.1 PROPOSED METRICS

While there are several methods of measuring the success and implementation of recommendations offered in this document - such as percentage of template usage, growth of standards and fora body membership and expansion of bilateral agreement execution - these are soft measures of established processes. The task group concluded the best measure of success would be actual network performance metrics, as currently tracked and reported to the FCC. The present FCC reporting, in addition to following the principles of RQMS as defined in Bellcore GR929, were considered more than adequate to monitor overall network performance. One specific suggestion concerning the IITC organization is to report funding adequacy and membership data to the public via the NRSC Annual Report as a leading indicator of network reliability.

While investigating network reliability concerns created by increased interconnection among multiple service providers, the task group suggests PSTN integrity may well be supported by competitive pressures through service substitution in tomorrow's telecommunications marketplace. Consumer expectations for reliable and continuous telecommunications services as a prerequisite market requirement will drive new entrants to meet or exceed service levels of incumbents.

Looking to the future, the definition of continuous telecommunications service is expected to gradually evolve as overlay and alternate networks emerge and integrate to develop a new public network of networks. As more and more subscribers gain multiple paths to access essential services, the need for continuous availability on any given network may change. However, developing this evolution was considered outside the scope of the task group study.

9. PATH FORWARD

9.1 SUSTAINING RECOMMENDATIONS

1. Although the emergence of ATM switching and SONET transport interoperability are already topics of industry interaction, future inter-company and nationally coordinated testing is expected. The IITC is the logical organization to manage the tests determined necessary by the various industry fora.

2. As satellite operators begin to offer switched telecommunications voice and data services, the processes outlined by this report's templates will become valuable tools for reliable interconnection planning and execution. The interoperability issues will surface as challenges to overcome in industry fora. The bilateral agreement template will become the vehicle for addressing a wide range of interconnection issues with the incumbent carriers.

3. Cable television operators offering telecommunications services will have the same learning experiences as the satellite operators. This report represents a good informational source for them to gain an understanding of the issues associated with network interconnection reliability.

This report is intended to go beyond the specific solutions needed for today's issues. The processes presented are generally applicable to envisioned industry needs for interconnection and for nationally coordinated inter-network testing.

10. ACKNOWLEDGMENTS

Several of the team member companies generously supported informational needs with presentations and data from subject matter experts. In the group's monthly meetings, the "ad hoc people" brought in by the team members and their alternate representatives in attendance added significantly to the discussion topics. The following non-members attended several meetings to support the study effort and are gratefully acknowledged.

John Sweitzer, NORTEL
Dr. Yi Shen, MCI
Bill Blatt, NORTEL
Dan Nielsen, U S West
Jim Joeger, MCI

Although the one-time participants are not named here, we appreciate the contributions from all of them.

Each task group of the NRC II was assigned a mentor to provide leadership during the work effort. Ross Ireland, Pacific Bell, was this focus group's mentor and we appreciate his guidance.

Not listed as a team member is Rob Hausman from Bellcore. He was responsible for the questionnaire distribution, data aggregation of the responses and presentation of the results to the task group. His contribution was of significant benefit to the overall task effort. Matthew Orr from Sprint provided helpful editorial and report formatting expertise to improve the presentation of this report.

As a further acknowledgment, each of the companies that arranged and funded the monthly meeting locations and supported the attendance of company's representatives is gratefully appreciated. Because of well qualified and supportive people who participated, the nearly year-long task has yielded a useful product and a new set of acquaintances to support the evolving network infrastructure.

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11. References and Glossary

11.1 Reference Document List

1. ANSI-OAM&P (T1.115) -- SS7 Monitoring and Measurements

2. Bellcore SR-TSV-002275 -- BOC Notes on the LEC Networks. Available from the Bellcore document coordinator.

3. Committee T1 Standards:

   T1.101 Digital Network Synchronization
   T1.102 Digital Hierarchy - Electrical Interface
   T1.105 SONET Interface Standard
   T1.107 Digital Hierarchy Formats Specification
   T1.110 SS7, General Information
   T1.111 SS7, Message Transfer Part (MTP)
   T1.112 SS7, Signaling Connection Control Part (SCCP)
   T1.113 SS7, ISDN User Part (ISUP)
   T1.114 SS7, Transaction Capabilities Application Part (TCAP)
   T1.115 SS7, Monitoring & Measurements
   T1.116 SS7, Operations, Maintenance & Administration Part (OMAP)

4. FR 64 -- 1995 LSSGR (Local Switching System Generic Requirements) Describes the content and structure of the 1995 LSSGR document set. Available from the Bellcore document coordinator.

5. GR929 -- Generic Requirements 929. Reliability and Quality Measurements for Telecommunications Systems. Available from the Bellcore document coordinator.

6. The Local Exchange Routing Guide (LERG) is an industry recognized document used to provide network configuration and NXX/NPA code activation/change information for the purpose of routing calls within and between networks. The LERG is available from Bellcore-Traffic Routing Administration.

7. Network Reliability: A Report To The Nation. Issued by the NRC I. (copies available from the ATIS 1200 'G' Street, N.W. Suite 500, Washington, D.C. 20005, telephone 202-628-6380)

8. NOF ISSUE 229 -- OAM&P Issues of Interconnected LEC Networks

9. TRNPL 145 -- "Compatibility Information for Interconnection of a Wireless Services Provider and a Local Exchange Carrier Network," Issue 2, December, 1993.

10. TR374 -- See FR64

11. TR246 -- Bellcore Specification of Signaling System Number 7 (SS7). Contains proposed generic requirements specifying the SS7 protocol and architecture. Available from the Bellcore document coordinator. 1,838 pages.

12. TR905 -- Common Channel Signaling (CCS) network interface specification supporting network interconnection. States Bellcore's preliminary view of proposed generic requirements stating the required interfaces between the CCS architectures utilizing the

Signaling System 7 protocol deployed by the Bellcore client companies. Available from the Bellcore document coordinator.

13. TR 1149 -- OSSGR (Operational Support System Generic Requirements) Section 10. Details the information contained in the Transaction Capabilities Part (TCAP) messages exchanged between an operator services system and the Line Information Database (LIDB) or billing validation database. Available from the Bellcore document coordinator. 108 pages.

14. NOF Reference Document -- Available in paper or diskette form from the NOF Secretary. (Contact ATIS for this information.)

15. TIA References

TR45	Network Reference Model
TR46	Network Reference Model
IS-41 Rev. C	"Cellular Radio Telecommunications Inter system Operations.
IS-93	"Cellular Radio Telecommunications Ai-Di Interfaces Standard", dated December, 1993
IS-53	"Cellular Features Description," dated August, 1991

16. CTIA "Seamless Roaming Implementation Guide (SRIG)," dated January, 1995 (Contact the CTIA for this document.)

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11.2 Glossary

A/D LINK Analog to Digital Link
ABS Automated Billing System, or Alternate Billing System
AGNI Advisory Group for Network Issues (a CTIA Organization)
AIN Advanced Intelligent Network
ALTS Association for Local Telecommunications Services
AMPS Advanced Mobile Phone Service
AT Access Tandem, a switching point in a LEC network
ATIS Alliance for Telecommunications Industry Solutions
ATM Asynchronous Transfer Mode (a cell-based data switch technology)
Bilateral Agreement - An agreement developed between two entities for the purpose of securing commitments to perform equally beneficial acts or in equally beneficial manners concerning the design, performance and reliability of interfacing telecommunications networks.
BOC Bell Operating Company
BSC Base Station Controller, associated with cellular telecom networks to control access and utilization of the radio frequency spectrum among the subscribers.
CAP Competitive Access Provider
CCIS (Common Channel Inter-office Signaling) Out-of-band signaling network deployed mainly by AT&T in the 1970's. This system pre-dated SS7.
CCS Common Channel Signaling. Related terms: SS7
CDMA Code Division Multiple Access
CLC Carrier Liaison Committee. One of the sponsored committees of the Alliance for Telecommunications Industry Solutions (ATIS). The CLC has three subgroups: Network Operations Forum, Industry Carriers Compatibility Forum, Ordering and Billing Forum.
CLEC Competitive Local Exchange Carrier
Committee T1 - One of the sponsored committees of the Alliance for Telecommunications Industry Solutions (ATIS). It produces standards for the telecommunications industry.
Control channel - A means of interconnecting networks for the purpose of conveying network control information.
Critical Interconnection - A network interconnection is considered to be critical if messages or events, or the absence of messages or events, presented to an interface could reasonably cause a serious impairment at or beyond that interface.
CTIA Cellular Telecommunications Industry Association.
DB Database, a network element providing information to validate and route calls in a telecommunications network
Electronic Bonding - The application-to-application communications between telecommunications jurisdictions as they are defined in Telecommunications Management Network (TMN).
EO End Office, the first/last point of network switching intelligence in a voice network
Emergency Resources - Those resources that are planned and/or reserved for extraordinary service restoral requirements. The resources may be human, tools, power equipment, parts, production capacity and materials necessary for the accelerated restoral of the products and/or services delivered normally by a telecommunications company.
ESP Enhanced Service Provider.
Fault migration - A fault originating in one system that spreads across the network interface to cause fault(s) in another system.

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GEO	Geostationary Earth Orbit. - A satellite orbit located in the earth's equatorial plane (approximately 22,300 mi.). A satellite in this orbit appears to remain stationary with respect to a point on earth.
GHz	Giga-Hertz (one billion Hertz), a measure of radio frequency rate
GSM	Global System for Mobile Communications. Previously called Group Special Mobile. European standard cellular telecommunications
IC	Inter-exchange Carrier
ICCF	Industry Carriers Compatibility Forum, sponsored by ATIS
IILC	Information Industry Liaison Committee. One of the sponsored committees of the Alliance for Telecommunications Industry Solutions (ATIS). The IILC manages industry interests for Open Network Architectures (ONA), the ONA User Guide and evolving network services architectures.
IITP	**Inter-network Interoperability Test Plan** - A plan administered by the NOF to identify, develop and carry out nationally coordinated testing of the SS7 network. The test network is composed of network provider and manufacturer testbed equipment interconnected by network provider transport facilities through Bellcore for test configuration and coordination.
IITG	**Increased Interconnection Task Group** - One of five task groups commissioned by the Network Reliability Council of the FCC to conduct studies and make recommendations concerning the national network reliability issues generated by an increasing number of interconnected network service providers.
Inter-LATA	A term established at the time of Bell System divestiture to geographically differentiate the business interests of Local Exchange Carriers (LECs) and Long Distance Carriers (IXCs). The term is also used to describe telecommunications traffic transiting LATA boundaries.
IS-41	Interim Standard 41. A signaling system developed by the cellular telephone industry for inter system control messages. Packaged for transmission over the SS7 network.
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU-T	International Telecommunication Union - Telecommunications. The international telecommunications standards management body headquartered in Geneva, Switzerland.
IXC	Inter-exchange Carrier
LATA	Local Access & Transport Area. A geographic area defined at the time of the Bell System divestiture to prescribe the business domain of the Local Exchange Carriers
LEC	Local Exchange Carrier
LEO	Low Earth Orbit. - A satellite orbit in any plane at an altitude above the earth of a few hundred to a few thousand miles. Orbits are usually inclined to the equator and provide repeated access to areas within the satellite footprint.
LIDB	Line Information Data Base. A repository used for call validation and accounting data needed to bill long distance calls.
Link Budget	- Engineering assessment of the ability to provide connectivity between a satellite and an earth station. The budget includes RF power, antenna efficiencies, transmission losses etc.
MAP	Mobile Application Part, part of the SS7 message protocol
MHz	Mega-Hertz (one million Hertz). A measure of radio frequency rate.
MEO	Medium Earth Orbit. - A satellite orbit in any plane at an altitude above the earth of several thousand miles. Orbit not precisely defined but is between LEO and GEO.
MF	Multi-frequency. A method of switched circuit signaling using a combination of audible tones.
MSC	Mobile Switching Center, associated with cellular access services

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MSCID MSC Identification
MTP Message Transfer Part, part of the SS7 message protocol
MTTR Mean Time To Repair
Mutual aid Agreements - Agreements between telecommunications companies in similar lines of business to share resources (human, tools, equipment, service capabilities) to effect the accelerated restoral of service caused by a disproportionate outage by a minority of the parties to the agreements.
NCTA National Cable Television Association. An association of cable television system owners/operators whose purpose is to coordinate, among other things, the technical issues facing this industry.
Network Reliability - (a) the ability of a network to maintain or restore an acceptable level of performance during network failures by applying various restoration techniques and (b) the mitigation or prevention of service outages from network failures by applying preventative techniques.
NOF Network Operations Forum. One of the CLC responsibilities as described under CLC. NOF conducts industry interest forums concerning telecommunications network management, SS7 testing, toll fraud protection and installation/test and maintenance of telecommunications systems.
NPRM Notice of Proposed Rule Making, Federal Government
NRC Network Reliability Council. A 35-member council established by the Federal Communications Commission in 1994 to study and recommend solutions to five tasks. Focus Groups I & V- Network Reliability Performance and Application of Best Practices; Focus Group II - Increased Interconnection, Focus Group III - Reliability Concerns Arising Out Of Changing Technologies, Focus Group IV - Essential Communications During Emergencies.
NRSC Network Reliability Steering Committee. A group managed by ATIS that periodically reports the status of the nation's network performance to the FCC.
NSEP Network Security/Emergency Preparedness, a government/industry cooperative effort to manage resources during national stress conditions.
NSTAC-CCS Task Force - National Security Telecommunications Advisory Committee - Common Channel Signaling Task Force
OAM&P Interface - Operations, Administration & Maintenance. In this context, the interconnection point between network entities where OAM&P information is provided/received and utilized for the management and /or control of interconnected networks.
OAM&P Operations Administration Maintenance & Provisioning
PBX Private Branch Exchange
PCIA Personal Communications Industry Association.
PCS Personal Communications System
Physical Interface - The point where two telecommunications systems/facilities interconnect. Usually, these are described by industry terms such as, copper and fiber and may be inferred by the capacity of the facility at the interface, e.g., DS-0, DS-1, DS-3 T-1, T-3, OC-1 2 and the like.
POTS Plain Old Telephone Service
PSTN Public Switched Telecommunications Network
PTS Public Telephone System
PUC Public Utility Commission
RBOC Regional Bell Operating Company
RF Radio Frequency - a term describing a portion of the electromagnetic spectrum applicable, in this context, to frequencies used for telecommunications
RQMS Reliability and Quality Measurement System
SIA Satellite Industry Association. - The national trade association that represents the U.S. commercial satellite industry.

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Signaling Channel Interface - Commonly available in two varieties, in-band and out-of-band. Multi-frequency (MF) is an example of in-band signaling. SS7 is an example of out-of-band signaling. Used here to indicate an interface interconnection of the signaling systems between two network entities.

SMR Special Mobile Radio

SNMP Simplified Network Management Protocol

SNS Signaling Network Systems (a committee established by the first NRC)

SP Switching Point, associated with the voice switch interface to the SS7 signaling network

SRIG Seamless Roaming Implementation Guide (a CTIA publication)

SS7 (Signaling System 7) An out-of-band signaling system for telecommunications network similar to the international version called CCITT7. SS7 is the ANSI accredited version used in the United States.

STP (Signal Transfer Point) A specialized packet switching system used for out-of-band signal routing in telecommunications networks.

SW Switch, refers to a voice message switch in a telecom network

TCAP Transaction Capability Applications Part

TDMA Time Division Multiple Access

TIS Telecommunications Industry Standards. Committee Tl is the ANSI accredited standards body for the development of telecommunications industry standards in the United States.

TIA Telecommunications Industry Association. An association of telecommunications industry manufacturers whose purpose is to ensure the compatibility/interoperability of equipment manufactured.

Timer Values - Refers to optionable logic timing parameters requiring specification in a SS7 network of Signal Transfer Points (STP's) and SSP's for proper system operation.

TMN Telecommunications Management Network

TR Technical Requirement (as developed and issued by Bellcore). Now replaced by the GR (General Requirement).

TRS Telecommunications Relay Service

TT&C Telemetry, Tracking and Command. - Functions required to maintain the orbital position, attitude and desired operating status of an orbiting satellite.

TVRO Television Receive Only. - An earth antenna that is capable of receiving signals from a satellite in orbit but has no capability to transmit signals to the satellite.

User information channel interface - Refers to the bearer or payload channel in a telecommunications network and the interconnection point between network entities.

VSAT Very Small Aperture Terminal. - A satellite earth station that employs a small antenna, one to two meters in diameter, to both transmit and receive signals from a satellite in GEO. Used primarily in private communications networks.

WIF The Wireless Interconnection Forum meets semi-annually to discuss and resolve interconnection issues. The WIF is sponsored by the Southern Telecommunications Industry Association, PCIA and AMTA. For ISUP SS7, WIF has participated in joint activities with the wireline SS7 providers at the Network Operations Forum.

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12. FIGURES AND EXHIBITS

Figure 1:	Generic Interconnected PSTN Network
Figure 2:	TIA TR45 Network Reference Model
Figure 3:	TIA TR46 PCS Network Reference Model for 1.800 MHz
Exhibit 1:	T1 and TIA Focus and Organization
Exhibit 2:	Key Telecommunications-Related Standards Groups
Exhibit 3:	Improvements in the Committee T1 Standards Process
Exhibit 4:	Improvements in the TIA Standards Process
Exhibit 5:	Elements of Implementation Plan for the Year 2000 T1 Strategic Plan
Exhibit 6:	Description of an Example Standards Project Proposal
Exhibit 7:	Description of an Example Project Tracking Process
Exhibit 8:	Model Process for SS7 Network Interconnection
Exhibit 9:	Joint Technical Committee Verification and Validation Procedures

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Signaling Channels

Information Channels

Information Signaling Channel

Mobile Switching Center

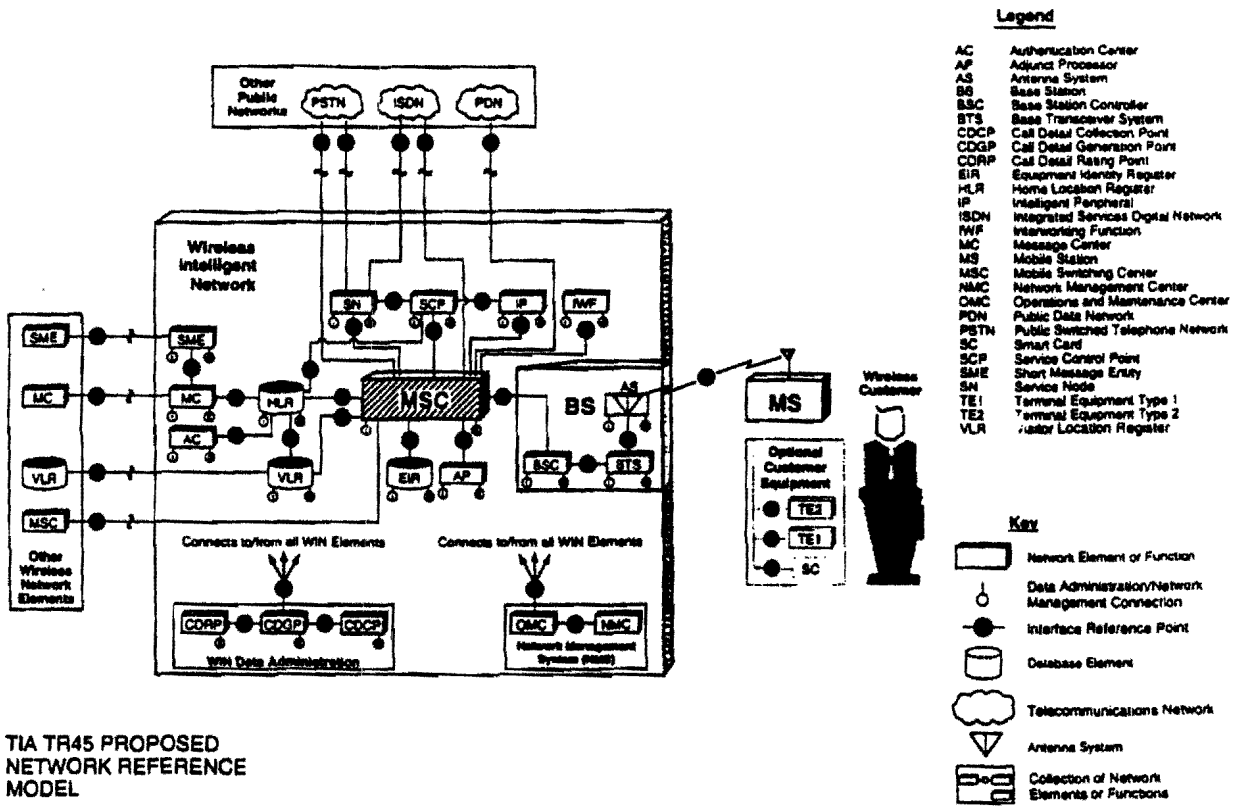
Competitive LEC, Competitive Access Provider or Cable

Generic Interconnected PSTN Network

SECTION 12, FIGURE 2

TIA TR45 NETWORK REFERENCE MODEL

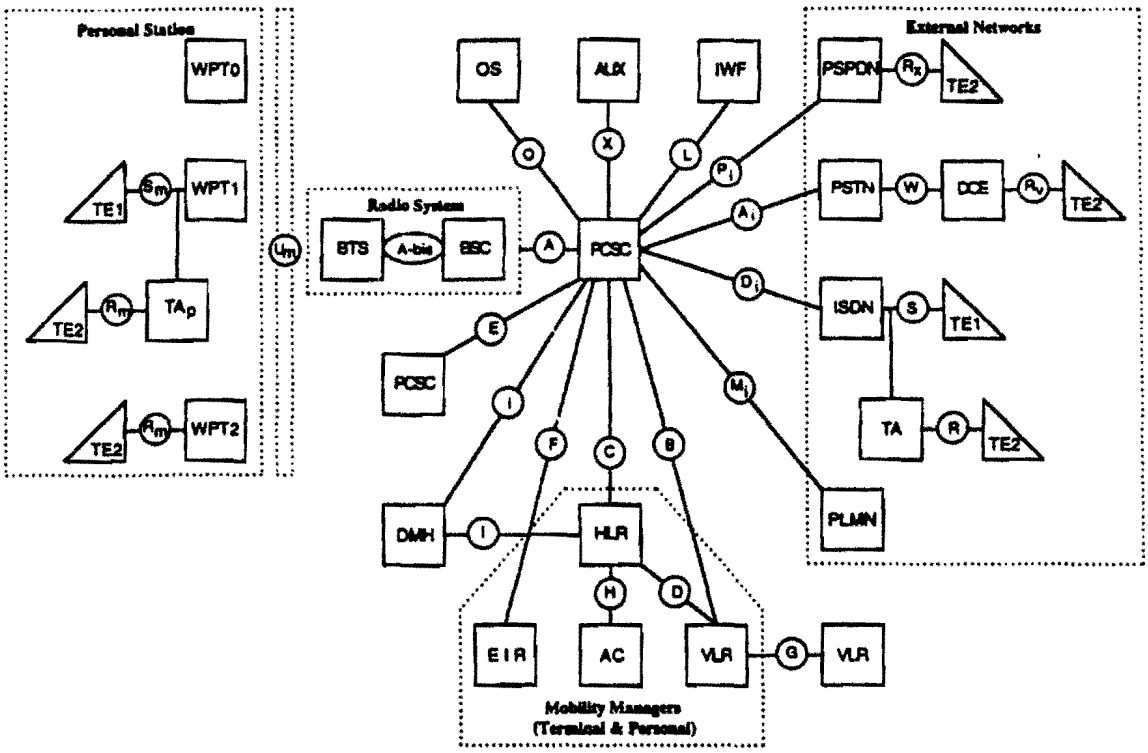
Wireless Intelligent Network Reference Model



TIA TR45 PROPOSED NETWORK REFERENCE MODEL

SECTION 12, FIGURE 3

TIA TR46 PCS Network Reference Model for 1,800 MHz



Legend:

AC	Authentication Center
AUX	Auxiliary Services
BSC	Base Station Controller
BTS	Base Transceiver System
DMH	Data Message Handler
EIR	Equipment Identity Register
HLR	Home Location Register
ISDN	Integrated Services Digital Network
IWF	Interworking Function
OS	Operations Center
PCSC	Personal Communications Switching Center
PLMN	Public Land Mobile Network
PSDN	Packet Switched Public Data Network
PSTN	Public Switched Telecommunications Network
TA	Terminal Adapter
TE	Terminal Equipment
VLR	Visitor Location Register
WPT	Wireless Personal Termination

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SECTION 12 EXHIBIT 1

T1 and TIA Focus and Organization

T1 Focus Areas for Strategic Plan

ATM/BISDN/ADSL
Intelligent network
SONET Common Channel Signaling (SS7)
Network Reliability /Survivability
Telecommunications Management Network (TMN)
Personal Communications
National Information Infrastructure/Global Information Infrastructure

T1 Technical Subcommittees

T1A1	Performance and Signal Processing
T1E1	Interfaces, Power and Protection of Networks
T1M1	Inter-network Operations, Administration, Maintenance and Provisioning
T1P1	Systems Engineering, Standards Planning and Program Management
T1S1	Services, Architecture and Signaling
T1X1	Digital Hierarchy and Synchronization

TIA Engineering Committees

TR-8	Landmobile Services
TR-14	Point-to-Point Communications Systems
TR-29	Facsimile Systems and Equipment
TR-30	Data Transmission systems and Equipment
TR-32	Personal Radio Equipment
TR-34	Satellite Equipment and Systems
TR-41	Telecommunications Equipment Requirements
TR-45	Mobile and Personal Communications Public 800 Standards
TR-46	Mobile and Personal Communications 1800
FO-2	Optical Communications
FO-2.6/FO-6.10	Fiber Optic Components, Systems, Quality Assessment & Reliability
FO-6	Fiber Optics

SECTION 12 EXHIBIT 2

Key Telecommunications-Related Standards Groups

	Key Areas of Standardization	Key Technologies/Focus Areas	Sponsor	Location	Contact (US) Phone Fax E-mail
Committee T1-Telecommunications **T1**	Telecom Network Interfaces; Interoperability	BISDN, SS7, PCS, IN, TMN, SONET, Multimedia; Network Reliability, NII/GII	Alliance for Telecommunications Industry Solutions (ATIS)	Suite 500 1200 G St. NW Washington, D.C. 20005	Alvin Lai 202 434-8829 202 347-7125
Telecommunications Industry Assoc. **TIA**	Telecom Equipment	PBXs, Telephones, Cellular, PCS, Fiber Systems, Satellite, Radio Systems	TIA	Suite 300 2500 Wilson Blvd. Arlington, VA 22201	Dan Bart 703 907-7700 703 907-7727 TIASTDS@aol.com
Society of Cable Telecommunications Engineers **SCTE**	Cable TV Systems, especially physical layer	Cable TV Components - cable, connectors, modulation	SCTE	669 Exton, PA 19341	Bill Riker 610 363-6888 610 363-5898
International Telecommunication Union - Telecommunications Sector **ITU-T**	Telecom	BISDN, SS7, FLMPTS, IN, TMN, SDH, Multi-media, Satellite, Fiber Systems, Radio systems, Broadcast Video	United Nations' ITU	U.S. State Dept 2201 C St NW Washington DC Geneva: ITU-T Place des Nations CH1211 Geneva 20 Switzerland	U.S. Earl Barbely 202 647-0197 202 647-7407 Geneva: Theo Irmer 41 22 730 5851
Committee X3 **X3**	Information Technology	Video, Imaging, Storage Media, Data Protocols	Information Technology Industry (ITI) Council	Suite 200 1250 I (Eye) Street NW Washington DC 20005	Jean-Paul Emard 202 737-8888 202 638-4922
Institute of Electrical and Electronics Engineers **IEEE**	Electrical and Electronics	Local Area Networks, Software Languages, Test and Measurements	IEEE	445 Hoes Lane Piscataway, NJ 08855	Judy Gorman 908 562-3820 908 562-1571 j.gorman@ieee.org

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Internet Engineering Task Force **IETF**	Internet	TCP/IP and its Uses to Transport Information -Telnet, FTP	Center for National Research Initiatives (CNRI)	Reston, VA	Steve Coya 703 620-8990 703 620-9913 scoya@ietf.cnri.reston.va.us
Satellite Broadcasting and Communications Association **SBCA**	Satellite Communications	Satellite Broadcast Equipment Earth Station Equipment	SBCA	Alexandria, VA	Ed Reinhart 703-448-9552
Satellite Industry Association **SIA**	Satellite Communications	Satellite Earth Station Equipment	SIA	Alexandria, VA	Clay Mowry 703-549-9697

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SECTION 12 EXHIBIT 3

Improvements in the Committee T1 Standards Process

Background

Committee T1 and the standards process, in general, are not perfect. Committee T1 has viewed the "quality process" as one of continuous improvement; a journey without end. The Committee T1 process does not limit the industry or T1 participants in developing timely, high quality standards. Standards leaders and participants, however, must not limit themselves by imposing unnecessary restrictions and need to remain open to ideas and processes that would streamline the standards development effort.

Committee T1's Quality Improvement Program includes an annual, informal workshop where processes and operations are reviewed, as well as a five-year strategic plan. This workshop is distinct from business meetings and provides a creative atmosphere for new ideas. This has proven effective, since many of the most recent improvements were developed as a result of the Leadership Workshop. The Five-Year Plan provides specific direction and includes an Implementation Plan that highlights specific actions to pursue.

Standards Development and Liaison

The pace of Committee T1 standards and technical report production has increased significantly. Some of the specific actions taken to achieve this so far include establishment of Technical Focus Areas, implementation of a T1 Bulletin Board System (TIBBS) and T1 training programs.

Technical Focus Areas

While there are 150 individual projects, committee T1 has identified eight areas of Technical Focus that are deemed critical to the future U.S. "network of networks" and are certain to be important elements of a national information infrastructure. These areas are highlighted in Exhibit 1. With the exception of the Network Survivability and SS7 Interconnection areas, these topics are supported by a number of global standards counterparts to Committee T1.

In each of the focus areas, Committee T1 pays special attention to building liaisons with other industry fora, user groups and organizations. This has become an important addition to the Standards Life Cycle. The NIUF, ATM Forum, Frame Relay Forum, NRC, etc. are just a few examples of the organizations with which linkages have been established and maintained.

Exhibit 2 describes many of the organizations where excellent interactions have been established.

Electronic Document Handling

Committee T1 believes that electronic document handling (EDH) is critical to the future of the standards process. T1BBS has dial up unrestricted access and offers File Transfer Protocol and self subscribing e-mail capabilities. There is a program to stimulate utilization of the system, although it is not currently a requirement. An award is presented to the company that has provided the most leadership on EDH. One PCS group meets monthly and handles more than 90 percent of their work through EDH capabilities.

Training Programs

A T1 Leadership Training Workshop is held annually for leaders at all levels within T1. The workshop includes reviews of all processes, procedures and legal issues and includes case studies and practical experience reviews for difficult problems. EDH seminars are held and Information Directors are named to assist individual subgroups in resolving their questions and issues.

Committee T1 Standards Approval Process

In 1993-94 Committee T1 conducted a successful one (1) year trial of parallel voting processes for T1 and TSC letter ballots. It is believed that this enhancement shortened the approval process by 3 to 6 months. This is now the normal mode of operation.

Publication

ANSI publishes Committee T1 standards and ATIS, the T1 Secretariat and sponsor, publishes Committee T1 Technical Reports. There was a lengthy process involved in getting these publications out. New processes are in place that save one to two months in publishing standards, without compromising the quality of the documents.

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SECTION 12 EXHIBIT 4

Improvements in the TIA Standards Process

The Telecommunications Industry Association (TIA) is accredited by the American National Standards Institute (ANSI) as a Standards Developing Organization (SDO) in the field of telecommunications. TIA's telecommunications standards-setting activities have been actively undertaken for over 50 years via TIA or one of its predecessors, such as the Electronic Industries Association (EIA) Information and Telecommunications Technologies Group. The more than 70 Engineering Committees and Subcommittees of TIA are supported by product-oriented divisions in areas such as Fiber Optics, Mobile and Personal Communications, Satellite Communications, Network Equipment and User Premises Equipment.

In the past two (2) years TIA has undertaken numerous activities to expand and enhance its Standards and Technology Department and speed up the development of TIA Standards:

- Additional human resources have been added and more are planned. Computer resources have been upgraded, including a state-of-the-art fiber optics Local Area Network (LAN) and direct connection into the Internet backbone.

- Expanded the use of electronic dissemination of information by bulletin board systems (BBS), Internet (including World Wide Web and e-mail) and broadcast facsimile.

- Undertook an updating of TIA's Engineering, Style and Scope Manuals to improve the standards process.

- Expanded joint and cooperative standards setting both domestically and internationally, with agreements with other SDOs such as Committee T1-Telecommunications (T1), the Canadian Standards Association (CSA), the European Telecommunications Standards Institute (ETSI), the Society of Cable Telecommunications Engineers (SCTE), as well as participating in international sectoral activities such as the Global Standards Collaboration (GSC), RAdio STandardization (RAST), International Telecommunication Union (ITU), International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), Future Advanced Mobile Universal Service (FAMOUS), InterAmerican Telecommunications Commission (CITEL) and the Consultative Committee Telecommunications (CCT), for which TIA is the USA Secretariat.

- Actively participated in National and Global Information Infrastructure (NII/GII) issues including co-sponsor of R&D Forum on NII; participated on the Steering Committee of the ANSI-sponsored Infrastructure Standards Panel (IISP), jointly published White Papers with EIA on NII and GII and organized three-day conference in Warsaw, "GII: Agenda for Cooperation in the East/Central European Region," and other fora activities directed to these NII/GII standards issues.

- Launched an Intelligent Transportation Systems (ITS) activity to support Intelligent Vehicle Highway Systems (IVHS) and other wide-area communications needs of this part of the nation's information infrastructure.

- Added as a member of the FCC's Network Reliability Council (NRC) and active participant on FCC's Negotiated Rulemaking Committee on Hearing Aid Compatibility.

- Supported Mutual Recognition Agreement (MRA) discussions between the United States and the European Union (EU) and member states of the EU in the areas of testing results and type approval of equipment.

- Published a Standards and Technology Annual Report (STAR) in 1994 to highlight TIA's 50 years of standards setting activities.

- Recognizing the convergence of technologies, in 1995, organized TIA's and EIA's Standards and Technology activities under a single vice president.

TIA's standards-setting activities recognize the strategic importance of standards to TIA's members, service providers, users (including federal and state governments) and the overall welfare, security and reliability of our telecommunications infrastructure.

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SECTION 12 EXHIBIT 5

Elements of Implementation Plan For the Year 2000 Committee T1 Strategic Plan

Identify and Maintain Technical Focus Areas

1. The list of Focus Areas will be reviewed annually to ensure that it is up-to-date and reflects industry needs.
2. New projects will identify which focus area they address, as appropriate.

Improve the Timeliness of Standards Products

1. Increase the use of T1BBS for distribution of contributions and comments prior to meetings.
2. Provide access to draft standards on T1BBS.
3. Implement a single ballot process.

Enhance Quality Awareness

1. Expand the T1 leadership training program.

Advance the Program Management Process

1. T1P1 to take a pro-active role in the management of standards for NII.
2. T1AG to regularly review the role of program management.

Expand the Synergy of Work Plans

1. Share information at the earliest possible time with other domestic, regional and international standards organizations.
2. TSCs to assist in the identification of the work and purpose of fora and other organizations.
3. Develop guidelines to accept appropriate work items for standardization from forums and other organizations.
4. TSCs to take a pro-active liaison/participation with forums.

Increase Industry Awareness And Support

1. Focus on "Hot" technologies in the press i.e., PCS, ATM, ADSL, NII, ISDN.

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2. T1 Secretariat PR group to contact TSC Chairmen after each TSC meeting to assure that the PR group is updated on actionable items. Secretariat to make press releases when new work begins, milestones are reached and when a standard or report is completed.

3. Angels to work with Secretariat PR group to maintain updated information on focus areas.

4. T1 to encourage members' participation in seminars and to make submissions to journals.

5. Secretariat to provide inputs to the ANSI Reporter regarding Committee T1 activities.

Enhance Executive Awareness and Support

1. T1 leadership to communicate with executive management of member companies the appreciation for funding of T1 participants, and hosting meetings and the accomplishments resulting from this support.

2. T1 Secretariat to notify the official representative of member companies of articles mentioning T1 activities for distribution to company executives.

Optimize T1 Structure/Organization

1. T1AG to undertake a review of the structure and organization of the TSCs.

Advance and Implement an Effective Electronic Document Handling Plan

1. T1EDH Standing Committee to:
   - Define and develop WWW interface
   - Establish home pages for each TSC
   - Provide a linkage for access to the server
   - Secure committed workers for BBS development
   - Maintain close liaison with the ATIS public relations group
   - Establish a method for electronic balloting

2. Continue to work with ANSI to encourage electronic access to standards.

3. T1, T1AG and TSCs will provide all meeting notices and agendas electronically no later than June 1996.

Optimize Meeting Logistics and Effectiveness

1. Secretariat to investigate alternative meeting funding arrangements.

2. Encourage the use of EDH to distribute meeting contributions electronically.

Maintain a Multi-Year Financial Plan

1. T1 secretariat will develop a multi-year financial plan based upon projected participation in Committee T1. This plan will be presented to T1/T1AG for approval.

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SECTION 12 EXHIBIT 6.

Description of an Example Standards Project Proposal

(Based On The 1994-95 Committee T1 Procedures Manual)

This exhibit, by way of example, describes the preparation process for project proposals used by Committee T1 - Telecommunications.

Preparation Of Project Proposals

Introduction.

A project may be introduced by any individual, corporation, organization, technical subcommittee, the T1 Advisory Group, or any other party, whether or not a member of Committee T1. Once the need for a project has been identified, a project proposal must be prepared that clearly identifies the purpose and scope of the project. This proposal should also clearly identify the expected outputs of the project, that may include any of the draft documents covered in this section of the manual. The preparation of a project proposal is set forth below.

Project Proposal Form.

Figure A-1 is the outline to be used in preparing a project proposal. The initial draft of a project proposal need not include all the required data. However, the final draft submitted for T1 Technical Subcommittee (TSC) and T1 approval must include all the data specified in this section. If the proposed project is a candidate American National Standard (or set of closely related standards), the project proposal should address that standard (or set of standards) only.

STANDARDS COMMITTEE T1-TELECOMMUNICATIONS

PROJECT PROPOSAL

1. PROJECT IDENTIFICATION
    - 1.1 Title
    - 1.2 Submitted by
    - 1.3 Date

2. DESCRIPTION
    - 2.1 Description of proposed project
    - 2.2 Proposed program of work
        - 2.2.1 Work Products
        - 2.2.2 Milestones
    - 2.3 Project assignment and resources
        - 2.3.1 Technical Subcommittee assignment
        - 2.3.2 Technical Subcommittee resources
        - 2.3.3 External resources required

3. JUSTIFICATION OF NEED FOR PROPOSED PROJECT
    - 3.1 Description of the need
    - 3.2 Existing standards or practices

4. RELATED STANDARDS ACTIVITIES

4.1 Other Technical Subcommittee activities
4.2 Other domestic standards activities
4.3 International standards activities
4.4 Standards related group activities

Project Proposal Outline

A study project may identify the need for several standards projects. If this is the case, separate standards project proposals should be prepared for each candidate American National Standard (or set of closely related standards) identified by the study project. A study project may also identify contributions to international standards organizations and/or may identify a technical report as an intended product. Each item on the form is discussed below. The same form is used whether the project is a standards project or a study project.

Project Identification

Title. Clearly identify the subject of the proposed project and indicate whether it is for the development of an American National Standard or whether it addresses a study project. The title should be brief and to the point. Recommend an abbreviated or "short-form" title where the definitive title is extensive.

Submitted By. Identify the name of the individual or organization submitting the current version of the proposal. This should be updated, as required, to reflect the degree of approval the project proposal has received. When an organization is indicated, also list the name of an individual who can be contacted for questions.

Date. Insert the latest date of preparation.

Description

Description of Proposed Project. State the purpose and scope of the proposed project in sufficient detail to permit proper evaluation. List areas covered (e.g., protocols, services, interfaces, etc.,) and related areas the project does not address. Describe the expected outputs (e.g., standards, reports, contributions).

Proposed Program of Work. Describe the steps to be taken to complete the project. Be as specific as possible concerning milestones and scheduled deliverables. The final draft must include estimated dates for the following specific milestones (target dates) where applicable to provide input for the Committee T1 Project Tracking System:

- Project approved by TSC
- Project approved by T1
- Draft standard or technical report submitted to the TSC
- Draft standard or technical report ready for TSC ballot
- Standard or technical report approved by TSC
- Standard or technical report approved by T1
- Standard approved by ANSI (Normally eight (8) weeks after T1 approval)

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- Standard reaffirmation date (Five (5) years after ANSI approval date)

Project Assignment and Resources

Technical Subcommittee Assignment. Recommend a TSC to work on the project. Project assignment to a particular TSC is based on the current mission and scope of the TSC. It is the responsibility of each TSC to ensure that all project proposal efforts are confined to projects within its mission and scope. When in doubt, the chairman of the identified TSC should submit the project proposal to the T1 Advisory Group for assignment clarification. Project proposals submitted directly to Committee T1 or the T1 Advisory Group will be assigned to a TSC by the T1 Advisory Group.

Technical Subcommittee Resources. Identify the skills and expertise required within the TSC to complete the proposed project.

External Resources Required. List any external resources required to perform the work contemplated by the proposed project. Examples of external resources that may be required are testing, lab facilities, user requirements, or individual experts in a specified field.

Justification of Need for Proposed Project

Description of the Need for Standard. Describe the reasons for developing this standard or study project (e.g., compatibility, advances in technology, market/user requirements, etc.).

Existing Standards Practices. Identify existing standards, technical publications, etc. and current practices that are similar or comparable to the proposed project. Also list existing standards or practices that may be used as references in the planned work.

Related Standards Activities

Other TSC Activities. List in this section other standards projects or study projects currently underway in other TSCs of Committee T1. Describe liaisons needed for effective completion of this project. Be specific.

Other Domestic Standards Activities. List potentially related projects or activities in other domestic standards bodies (e.g., X3, EIA, IEEE, etc.). Describe the specific liaisons required for the effective completion of the proposed project. Organizations should be listed if it is expected that they will coordinate with the proposed project or need to be aware of it.

International Standards Activities. List related international standards development activities such as CCITT. Be specific. Indicate where contributions are likely to be submitted to the international groups as a result of this project.

Standards Related Group Activities. List related groups (fora). Indicate related outputs, inputs and dependencies.

SECTION 12 EXHIBIT 7.

Description of an Example Project Tracking Process

Objectives Standards Process Management.

It is necessary to manage the standards development progress through changes in personnel. structure and issues addressed in Committee T1. This exhibit is intended to tie together those aspects that assist in managing the standards development process. Particular attention has been given to assure that this process is simple and flexible to use. The primary benefit of using this process is that standards are developed in a more timely fashion due to the interactive identification and development of action plans with targeted objective dates, which are then effectively used with a tracking and monitoring system.

Components of Standards Process Management. The basic components of the management process are:

- Initial Objectives and Milestones
- Action Plans
- Project Tracking Reports
- Monitoring System

Initial Objectives and Milestones. The initial objectives and milestones are set at the project proposal stage. Section 6 and in particular 6.1.4.1 and 6.1.4.2, provide instructions to specify the objectives (e.g., areas covered, expected outputs, etc.), the steps to be taken to complete the project and the setting of milestones and deliverables. The estimated dates for the specified milestones are then used to populate the project tracking report. The specified milestones are given in 6.1.4.2 and 15.3.1.

TSC Action Plans. The action plans to accomplish the standard development process in accordance with the objectives and milestones are developed by the TSC (Technical Subcommittee) and WG (Working Group) Chairmen and other work leaders, in conjunction with the members. There are a variety of components that constitute effective action plans, including the following:

- Prioritizing work in accordance with the established target dates
- Breaking the work program into phases with associated milestones and calls for contributions for each phase
- Structuring agendas to accomplish the above
- Assigning defined tasks to sub working groups and ad hoc groups
- Selecting a roll call vote or a letter ballot

The action plans should assure process timeliness, but not inhibit due process or preclude technological innovations.

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Project Tracking Reports. A common project tracking report and system has been developed for use by all TSC's for the purpose of tracking the status of all projects within Committee T1. It is the responsibility of the TSC Chairman to update the project tracking report quarterly after each meeting of the respective TSC. This project tracking report shall also be used in the Annual Report of the TSC.

A format description of the Project Tracking Report is found later in this exhibit.

Monitoring System. The monitoring system component of the standards process management has a very close tie with the project tracking system. A monitoring system should provide a means to measure the effectiveness of the process, reassess/change initial objectives and milestones and optimize the entire standards development process. The monitoring system includes action by the TSC Chairman, its members, the T1AG and all members of Committee T1. A scenario of a functional monitoring system is as follows:

- Initial objectives and milestones are approved
- The project information is loaded into the project tracking system
- Action plans are developed and intermediate milestones/phases established
- The project status report is updated quarterly to reflect progress
- The work leaders, members and T1AG monitor the milestone achievement and note any areas where progress is not meeting milestones and the associated reasons
- The work leaders and T1 Committee members:
  - reallocate resources to meet the established milestones
  - assess any long-term penalties of individual issue delays
  - feed back changes to milestones to reflect the realities of the particular project

After a standard is approved, it is so noted permanently in the project tracking system along with the ANSI reaffirmation date to remind the organization of the timing requirements for the next generation or reaffirmation of the standard.

Project Tracking Report Description

Milestones. The project tracking report accepted for Committee T1 usage to record critical milestone dates and information on the status of projects has the following specific milestone dates chosen for tracking:

- Project approved by TSC
- Project approved by T1
- Draft standard or technical report submitted to the TSC
- Draft standard or technical report ready for TSC ballot

- Standard or technical report approved by TSC
- Standard or technical report approved by T1
- Standard approved by ANSI
- Standard reaffirmation date

Historical, Projected and Target Dates. Dates for these milestones are tracked for each project proposal on a per deliverable basis (i.e., standards and technical reports). Looking both ahead and back in time, the date information is summarized graphically in a matrix form. Historical, Projected and Target dates are defined as follows:

A Historical date is the actual date a milestone was completed. Since a Historical date represents actual completion, it is posted only once and retained without change.

A Projected date is a future date for which completion of a milestone is anticipated. A Projected date is changed as necessary to reflect the current estimate of the milestone completion.

A Target date is the future date for which completion of a milestone was anticipated at the time of the Project Proposal approval. A Target date is posted only once in accordance with the dates on the Project Proposal and retained without change.

Column Headings. Explanations of the project tracking report column headings are as follows:

WG - The Working Group to which the project has been charged.

ANSI PROJECT - The ANSI project designation.

DESCRIPTION - The subject or title of the project.

STATUS - The status (Active or Inactive) as determined by the TSC.

TYPE OUTPUT - The type of output document(s) (Contribution, Standard, etc.) intended by the TSC for the project.

PROJECTED APPROVAL DATE - A future date for which completion of a milestone is expected. Two types of dates described in 15.3.2 are entered here: Target and Projected.

LETTER BALLOT - The TSC and/or T1 letter ballot designation associated with the type of output.

APPROVAL DATE - The actual (Historical) date a milestone was completed.

COMMENTS - For use by the TSC as desired (e.g., a standard's subject or title, relation to other projects, final ANSI standard designation number, etc.)

Update When Standard Approved. Upon final ANSI approval of a standard, the first six (6) milestones (i.e., the standards development milestones) and their corresponding dates are removed from the project tracking report. Permanent entries are made for the ANSI approval date (including the ANSI designation number) and the standard reaffirmation date. The TSC may wish to retain record of those six (6) dates removed as a track record for use in estimating development time for other projects.

SECTION 12 EXHIBIT 8.

Model Process for SS7 Network Interconnection

Interconnecting Networks

A Service Provider tests all interconnecting networks prior to service turn-up. These networks include, but are not limited to:

- Local Exchange Carriers
- Competitive Local Carriers
- Interexchange Carriers
- Radio Common Carriers
- Enhanced Service Providers
- Satellite Service Providers
- Cable TV Service Providers

Scope

The purpose of this document is to define, in broad terms, a model for CCS Network testing a Service Provider performs when interconnecting CCS networks. Testing is performed with interconnecting network elements to verify signaling network integrity, signaling compatibility and application interoperability.

General Methods

Testing is performed by technical staffs of or representing the Service Providers. Technical requirements are specified for each suite of tests. Testing must prove that compatibility and interoperability exist. Testing will be performed with each interconnecting network. Exceptions requiring either a test subset or repetitive testing are identified in the testing suites section on the following page. Technical requirements are prepared for each suite and are available separately.

Testing Architectures

A variety of environments as required by the interconnecting network architectures and by the service or application provided through network interconnection will be used. Four test strategies are employed:

- Intrusive Testing (Lab environment)

  This test strategy requires interconnecting elements to be directly connected (via "A" or "D" links as appropriate) to a captive STP pair. This test architecture supports intrusive tests at the link and network level of the Message Transport Part (MTP), using specialized test equipment. These tests are used to verify signaling compatibility.

- Monitoring/non-intrusive (Live/Controlled Environment)

  This test strategy supports an interconnection architecture of live CCS signaling elements to an in-service STP pair. Test data are acquired via non-intrusive bridge monitoring of the signaling links. This test architecture supports verification tests for traffic routing translations, signaling network management implementations and signaling network integrity.

- Controlled Testbed (Live/Controlled Environment)

  This test strategy requires interconnecting networks to establish live signaling and trunking connections to a controlled test network. It supports interoperability testing of the services and applications for ISDN-UP for call control (ISUP-CC).

- Pre-Service and Vertical Services Testing (Live/Controlled Environment)

  This test strategy supports pre-service verification of ISUP-CC application translations and implementations in the live network. It is most commonly applied at the start of message trunk conversion from in-band (MF) signaling to out-of-band (SS7) signaling.

Scheduling and Approval

Test scheduling can begin after a bilateral interconnection agreement is in place. Approval to interconnect is issued immediately after successful completion by the testing staffs. Interconnection can proceed after formal compatibility and interoperability acceptance. All testing data, results and compatibility and interoperability acceptances are to be archived.

Testing Suites

Specialized tests are developed by the Service Provider to satisfy network integrity, network compatibility and network interoperability concerns. These test suites are applied for network interconnection based on the services or applications supported. NOF or ANSI standards are used to form the foundation of the actual test suites, when they are available.

Examples of Test Suites are Message Transfer Part (MTP), ISDN User Part for Call Control (ISUP-CC) and Vertical Services.

- Message Transfer Part (MTP)

SS7 Level 2 and 3 protocol and procedures testing is performed as follows:

- STP to STP:
  Lab/Intrusive tests are performed in a Lab-to-Lab or Lab-to-Live environment for every interconnecting network using an STP to STP architecture.
- "A" Link Access:
  Lab/Intrusive Signaling Point to Lab tests are performed on switch types and or generic levels that are not already deployed within the Pacific Bell CCS network.
- "A" Link Access
  MTP Subset/Non Intrusive SP to STP Pair (live) tests consisting of a MTP subset for routing translations and network management implementation verification are performed when switch types and generic loads are identical to switches currently deployed within both interconnecting networks.

- Signaling Connection Control Part (SCCP)

Protocol and Procedures Testing are performed for the Signaling Connection Control Part (SCCP) to address the following items:

- Subsystem Management
- Subsystem Routing and Mated Pair
- Global Title Translations

- ISUP-Call Control

Controlled Testbed tests are conducted subsequent to successful completion of MTP testing for interconnecting networks requesting conversion of trunk groups from in-band (MF) to out-of-band (SS7) signaling. These tests include:

- Controlled Routing
These tests are conducted in a live test environment using restricted line and trunk groups.

- Switch Type
Testing is applicable to interconnecting signaling points which are not deployed within both interconnecting networks.

- Interworking Combinations
Testing is performed between the interconnecting network and all SS7 capable switch types deployed within both networks. All potential call paths and points of MF to SS7 interworking are tested.

- Live Routing
These call-through tests are conducted in a live environment in a pre-service mode on switch types and generics that are currently deployed in both networks.

- Maintenance Verification
Circuit and Group state control tests are performed on trunk groups in both the Controlled Routing and Live Routing test environments.

• Vertical Services (TCAP Messaging)

Controlled Testbed tests are required for vertical services; these tests are conducted after successful completion of MTP compatibility testing and ISUP if they are ISUP dependent (e.g., CLASS, ISDN services).

These tests are customized, by application. Tests include:

- 800 Query
- ABS/LIDB
- CLASS
- ISDN
- AIN-TCAP
- IS-41 TCAP for PCS and Cellular

• Service Monitoring/Element Testing

Service Providers should monitor SS7 network interconnections for anomalous signaling conditions as a matter of course. This includes additional testing as required, for example:

- SCP Performance Testing
- 800 Call Sample Testing
- LIDB Global Title Routing Testing
- PCS Phase 1 Network Integration

• Generic Changes

New generic loads for network elements should be tested by Service Providers prior to placing them in service. There is no policy to re-test with interconnecting networks based on changes in those networks. Service Providers should monitor SS7 network interconnections for anomalous signaling conditions as described under service monitoring/element testing.

Process and Roles

Both interconnecting Service Providers will maintain parallel functional roles, consistent with their internal organizational structures.

- Industry Market Management - responsible for direct inter-Service Provider interface.
  - Acquaint new interconnecting Service Providers with bilateral agreement, test and order processes
  - Arrange for completion of bilateral agreements
  - Define test architecture and serving arrangements
  - Exchange test plans and contact lists
  - Obtain agreement on schedule and test plans
  - Coordinate test schedules with respective Systems Engineering and Network Services groups
  - Ensure Service Orders and trunk orders are placed
  - Notify Systems Engineering and Network Services of due dates, orders and delays

- Network Services Planning - responsible for testbed coordination.
  - Provide detail of test architecture to affected work centers, such as switch routing and translations, circuit information, signaling network routing and translations
  - Coordinates orders and changes with work centers
  - Provide Industry Market Management with test architecture information
  - Track and link trunk orders
  - Notify Systems Engineering when MTP and/or ISUP testbed is ready

- Network Operations- responsible for testbed installation and control.
  - Input translations and routing
  - Verify trunk circuits
  - Notify Network Services Planning when orders completed
  - Perform trunk group busy/idle commands during testing

- Signaling Network Control Center- responsible for SS7 network testbed installation and control.
  - Complete link orders and verify alignment
  - Input routing and translations in the STP
  - Notify Network Services when orders completed
  - Perform on-site link patches and cross-connects
  - Perform link maintenance and administration during testing

- Systems Engineering - responsible for test control, analysis and acceptance.
  - Verify testbed SS7 link, translation and routing for MTP tests
  - Verify ISUP testbed translations, routing and trunking
  - Conduct MTP and ISUP tests
  - Analyze test results and report findings with other participating Service Provider
  - Coordinate non-compliance process and retest when required
  - Issue formal compatibility and interoperability acceptance for MTP and for ISUP
  - Issue formal compatibility and interoperability acceptance for SS7 interconnect
  - Release testbed for next Service Provider testing.
  - Archive test results

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SECTION 12 EXHIBIT 9.

Joint Technical Committee Validation and Verification Procedures

(Reference: JTC(AIR)/94.08.04-541R2)

1. A Validation and Verification (V&V) committee must be established for each document. Procedures will require that Technical Ad hoc Group (TAGs) request that the Joint Technical Committee (JTC) approve and form a V&V committee for each of their respective documents. The TAGs must provide the names of those who have committed to participate in the proposed V&V committee (at least six) in order to gain approval. This will ensure that everyone will know who the V&V committee members are.

2. A V&V committee must consists of at least six participants that include the following (additional participation is encouraged):
   - Chairman
   - Document editor
   - Subject Matter Experts (SME) from two different companies
   - Participants from two different Service Providers or Potential Service Providers

   This is recommended as the minimum participation level for a V&V committee to ensure that editorial changes can be efficiently made in the actual document and that there will be adequate technical competence and service provider review. The chairman will have the additional responsibility of facilitating the work and providing reports on the progress of the committee to the JTC.

3. All V&V committee members should participate to the fullest extent possible from the beginning of V&V through its completion and are expected to read the entire document to ensure adequate review and facilitate rapid completion.

   In addition, the document should be made available to any JTC participant who may participate in the V&V process by completing a Document Discrepancy Report (DDR) and submitting it to the appropriate TAG chairman. This DDR will follow the same review process as documented in Item 5 below.

4. Large documents (i.e., greater than 500 pages) may be subdivided or broken into logical segments such as topics or "chapters" and the V&V committee divided accordingly (i.e., a minimum of six participants per segment as specified in item 2). However, it is preferable for a single V&V committee to review an entire document.

5. V&V committee members are to review the document for:
   - Editorial clarity (grammar, ambiguous phrases, etc.)
   - Editorial consistency (style, references, terminology, etc.)
   - Technical clarity (adequate specification)
   - Technical consistency (consistency between requirements)

6. V&V committees will be empowered to make editorial corrections and clarifications.

7. V&V committees will identify in writing all questions regarding technical clarity and consistency and forward them to the TAG for resolution. <u>V&V committees are empowered to make technical changes.</u>

The V&V committee should document all changes to the document, both from the DDR participants as well as the committee itself, in a line in/~~line-out~~ format until the document is approved by the TAG to transmit out as a clean document.

8. After V&V is completed to the satisfaction of the TAG, the TAG may make a recommendation to the JTC regarding the disposition of the document (e.g., recommending the document be forwarded to TR46 and T1P1 for ballot).

9. In order to ensure completeness of the V&V process within each TAG, a final report (which might simply be copies of the V&V meeting reports) and a copy of the draft document should accompany the recommendation of the V&V committee.

V&V of Large Documents

Paper copies are required for members of the V&V committee.

Paper copies of sections of the document to be reviewed can be distributed all at once, or as a V&V review schedule. A complete copy is preferable so that cross references can easily be checked.

Mail out electronic copies on both MAC and DOS disks to the JTC mailing list.

Include the complete test of the document to be reviewed.

Include a soft copy of the Discrepancy form, the V&V review schedule and an appropriate READ_ME.TXT file on both MAC and DOS disks. The READ_ME.TXT file should contain instructions on how to print out the document.

Sufficient time should be allocated so that disks can be received by JTC participants so that they will have the benefit of the complete review period (a minimum review period of 5 weeks) to fill out and return Discrepancy sheets (i.e., allow x business days for disk duplication and y business days for distribution by mail, etc.).

Participants should record only one discrepancy per discrepancy sheet.

Discrepancy sheets should be returned to the contact person listed at the bottom of the discrepancy sheet.

Only one (1) copy of discrepancy sheets needs to be made available to the V&V committee (i.e., the contact person listed at the bottom of the discrepancy sheet).

SECTION 13

APPENDICES

Appendix 1

Network Reliability Council
Issue Statement

Author: Ross Ireland
Pacific Bell

Problem Statement/Issues to be Addressed

The number of Telecommunications Service Providers and new network configurations will continue to grow at an increasing pace. The larger the number of providers and interconnected network configurations, the more complex the reliability problem becomes. This is due to the difficulty in identifying and isolating network problems to the responsible element or the entity containing the problem so that it can be fixed, while not affecting other parts of the network. Telecommunications Service Providers that are providing interconnection must do so in a way that does not compromise reliability.

Areas of Concern/Problem Quantification

The following are the major areas that should be considered for increased interconnectivity.

- Impact of New Networks. Identify the impact on existing networks of interconnection with new networks such as cable networks, satellite networks and wireless networks, over the next 5-10 years.
- Unbundling of Existing Networks. Identify the impact of increasing interconnections of a variety of service providers into the current networks.

The list below represents areas where reliability may be jeopardized if not well cared for prior to interconnection.

- Network interface, performance standards and operating standards. Clear, well documented standards for network interconnection.
- Network interface and service assurance, interoperability testing. Demonstrated performance in a realistically simulated operational environment.
- Fault isolation. The ability to identify and isolate a problem to specific network elements and service providers.
- Fault migration mitigation. Network firewalls to prevent problems from spreading across networks.
- Engineering/capacity provisioning. Identification and assessment of higher/different traffic volumes and/or traffic patterns.
- Information sharing between service providers. Data requirements in a standard format disseminated rapidly to aid service provider problem identification and analysis processes.
- Mutual aid. Expedited mutual aid recovery requirements through collaboration.

Consider the adequacy of the Standards Development and Compliance Process. Is the voluntary development of, and conformity to, standards keeping pace with increased interconnection and will it be able to in the future? If the standards development process is unable to keep pace with the needs, what escalation/resolution method is proposed?

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To the degree that interoperability testing or other centralized work is recommended, include a recommendation for how such work should be funded (including the current SS7 Interoperability testing).

Description of Proposed Work

The team working this issue should consider the following total quality process to assess network reliability vulnerability due to increased interconnection and should propose problem solutions.

1. Collect appropriate data from all available industry sources to determine/confirm areas of greatest current criticality and risk and to determine greatest potential future concern.

2. Perform sufficient analysis of the data to determine the high reliability risk areas of increased interconnection. Sub-analysis should include:
   - Current interconnections network reliability problems:
     - Designs, shortcomings
     - Operations, Administration, Maintenance and Provisioning Plans
     - Documentation
     - Testing
   - New network interconnection reliability risks for cable, satellite, wireless
   - Reliability risks of unbundled interconnection of various service providers to the current network.

3. From the analysis of reliability risks, determine an appropriate action plan to reduce the possibility or severity of failures in high risk areas.

4. Determine industry "Best Practices" for dealing with the high reliability risk areas and share this information with industry participants as soon as possible. Also consider cost/benefit tradeoffs of these "Best Practices." (Attached are some initial areas for consideration.)

5. Consider the development of principles and/or templates that depict the areas of interest that should be addressed prior to interconnection. Attached is an example offered by the steering team of which areas might be considered for inclusion in an interconnection template. This is meant to be an example only and may be accepted or rejected by the interconnection focus team.

6. Consider a recommendation for the following if the "template" example or a similar recommendation is made. Determine which group or organization should be responsible for:
   - Ongoing stewardship for templates and minimum interconnection requirements
   - Any interoperability testing to be performed on a centralized or national basis
   - Dispute resolution between interconnect parties

7. Develop a timeline and metrics to measure the effectiveness of the team's recommendation.

A. Network Interfaces Specification Template. Establishes a generic criteria for the development of Network Interface Specifications that identifies the minimum list of items that must be effectively addressed to establish and maintain a point of network interconnection for all service providers who interconnect their networks. This template can be used to insure key issues such as fault isolation, fault migration mitigation and performance objectives. Following is a draft outline of such a template:

Network Interface Specification Template

- Physical interface defined
  - Clear point of demarcation, allowing test access, surveillance access
  - Mechanical, environmental, power, grounding and security requirements
  - Specification of radiated and conductive electromagnetic properties
  - Spectrum allocation and management standards

-Message set defined and published (proprietary or network specific messages should not be transmitted across the network interface)

-Defined/robust protocol, without proprietary extensions
  - Error correction, retransmission
  - Message overload controls and management
  - Fault migration mitigation, etc.

-Compatible Routing and Addressing Plan
  - Point Code, CIC, NXX requirements defined
  - Standard circuit assignment and identification

-Network Performance design objectives defined
  - Signal transport time (delay)
  - Availability (downtime by node, access, service)
  - Lost message probability
  - Undetected error
  - Transmission plan and performance specified (e.g., Bit Error Ratio, loss)
  - Network congestion design objective

-Regulatory Issues, e.g., Calling Party Number Privacy Management Capability

-Forward and backward compatibility of protocol for transition management

-Route Status (available, not available, etc.) to be maintained for all interconnected points.

-Which group/organization should be responsible for
  - Ongoing stewardship for templates and minimum interconnection requirements.
  - Any interoperability testing to be performed on a centralized or national basis
  - Dispute resolution between interconnecting parties.

B. Service Specification Template. Establishes a generic criteria for the development of Service Specifications that identifies the minimum list of items that must be effectively addressed to establish and maintain a service across a network interconnection. This template can be used to address key issues such as fault isolation, fault migration mitigation and performance objectives for services on their specified network interface and protocol. Following is a draft outline of such a template:

Service Specification Standard Template
- -Functional requirements
- -Interconnection architecture
- -Routing Plan
- -Network Interface Specification
- -Protocol requirements
- -Physical interface requirements
- -Performance requirements
- -Billing data recording requirements
- -Network data information administration and sharing agreement
- -Regulatory constraints, such as Calling Party Number Privacy Protection Policy and Operating Rules

C. Operations, Administration, Maintenance and Provisioning Plans Template. Establishes a generic criteria for the development of Operations, Administration, Maintenance and Provisioning plans that identify the minimum list of items that must be effectively addressed to establish and maintain a service across a network interconnection. This template can be used to insure key issues such as network management, network security and operating procedures are effectively addressed. Following is a draft outline of such a template:

Operations, Administration, Maintenance and Provisioning Plans Template:
- -Network Management
- -Network Security
- -Operating procedures
- -Maintenance procedures, including trouble isolation
- -Routing and Screening Administration
- -Inter-network provisioning procedures
- -Responsibility assignments (control, testing, etc.)
- -Information sharing for analysis and problem identification
- -Network transition management
- -Calling Party Number Privacy Management
- -Traffic engineering design criteria and capacity management
- -Tones and Announcements for unsuccessful call attempts
- -Joint planning on network transition (e.g., CIC expansion to 4 digits, NPA split, etc.)
- -Mutual aid agreement
- -Emergency Re-routing plan

D. Compliance Plan. Processes should be established to insure compliance to the development of standard specifications for network interconnections. Methods for insuring the adequate implementation of such specifications should be evaluated and recommendations made.

Existing Work Efforts:

Various industry standards development groups work to resolve interconnection standards issues. This work should be evaluated for applicability and adequacy for increased interconnection of networks.

Various methods are used today to maintain network reliability of interconnected networks. These are outlined below:

Network element manufacturers currently perform regression and compatibility testing among the various network elements within their own product lines. In addition, some have similar test programs for other manufacturers' typically interconnected devices in support of the service providers and end users they support.

Protocol compliance testing is performed by several third party and industry segment sponsored test laboratory services.

Some service providers establish and maintain compatibility testing requirements for interconnected network providers in the following areas:

-Interconnection design and installation
-Facility transmission tests
-Interconnection acceptance and performance tests
-Protocol functional compatibility tests

For ongoing SS7 interoperability assurance, some service providers and manufacturers participate in ongoing interoperability test efforts such as the FTP, under the auspices of the ATIS Network Operations Forum.

Recommended Team Leader:

Industry "Best Practices" Initial Areas for Investigation

For established interconnection services some service providers have well established procedures that have served network reliability concerns. Examples of these include:

- For Feature Group D, the Pacific Bell Access Services Installation and Maintenance Handbook
- For the provisioning of Message Trunks between Pacific Bell and other California Local Exchange Carriers practices such as BSP 002-580-915T (GTE) and 002-580-916PT (Continental Telephone Co.).

Finalized by the NRCTG2 Team
January 17-18, 1995

Appendix 2

NRC Increased Interconnection Task Group Data Request Questionnaire

Single Points of Contact for NRC Data Collection:

The Federal Communications Commission (FCC) has chartered the Network Reliability Council (NRC) to address a number of significant issues concerning maintaining and improving network reliability. These issues include, among other things, the impact of increased interconnection and the introduction of new technologies into the network.

To carry out its charter, the NRC has formed five task groups. Each group will address an FCC identified issue:

Task Group 1	Network Reliability Performance
Task Group 2	Increased Interconnection
Task Group 3	Reliability Concerns Arising Out of Changing Technologies
Task Group 4	Essential Communications During Emergencies
Task Group 5	Telecommuting as Back-Up in Disasters

Recently, you were notified that data requests for each of the task groups would be sent to you for you to coordinate in your company. Attached is the data request (questionnaire) for the Increased Interconnection Task Group. The Increased Interconnection Task Group is conducting a study to gather input on various interconnection issues from the Local Exchange Carriers (LECs), Inter-exchange Carriers (ICs), CATV Service Providers, Wireless Service Providers and Satellite Service Providers to determine the effects of increased interconnection to the public telecommunications network.

Attached is a questionnaire asking for your input on interconnection issues and possible suggestions to address critical areas.

All data collected from your company will be protected by the nondisclosure agreement (see attachment). Data received will be aggregated by Bellcore and shared only on an aggregate basis.

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Your personal support of this data collection effort is essential for an effective accomplishment of the mission of the NRC. Please return the completed questionnaires within 30 days (i.e., by April 30, 1995) to:

John Healy
Bellcore, Room 2X-227
331 Newman Springs Road
Red Bank, NJ 07701
Tel: 908-758-3065
Fax: 908-758-4370

If you have any questions, please call either John Healy at 908-758-3065 or Rob Hausman at 908-699-3408.

Thank you very much in advance for your cooperation.

Casimir S. Skrzypczak
President, NRC Steering Committee

Attachments (3)
Nondisclosure Agreement
Questionnaire
Glossary

Copy (without Attachments) to
Terry Yake
NRC Interconnection Task Group Members

NETWORK RELIABILITY COUNCIL

INCREASED NETWORK INTERCONNECTIVITY TASK GROUP

DATA REQUEST FOR INTERCONNECTION ISSUES

In order to support the industry initiatives requested by the FCC (Federal Communications Commission), the members of the Network Interconnectivity Task Group under the Network Reliability Council (NRC) asks for your company's support in completing this questionnaire. We are studying current and future national network reliability issues that derive from the increasing number of communications service providers. Since your company provides equipment, systems and/or service that ultimately serve end-user customers, we are soliciting your opinions on various network interconnection issues. While numerous types of interconnections may be available now and in the future, the scope of this questionnaire is limited to those interconnections that result in the provision of switched voice telecommunications services.

Please complete one copy of the questionnaire for each of the following categories in which your company is involved.

1. CATV network
2. Satellite network
3. Wireless network
4. Wireline network
5. Other (e.g., ESP, access purchaser, regulatory body, etc.)

The questionnaire has three parts. The first part requests background information on your company's role in the telecommunications industry. The second part involves an assessment of the current and future situation concerning inter-network connectivity. The third part is focused on processes and practices designed to mitigate potential future interconnection problems and ensure end-to-end network reliability as more service providers interconnect and increase the complexity of national and international communications networks.

PART 1 - COMPANY BACKGROUND

1. Company name: _____
2. Contact name: _____
3. Contact title: _____
4. Contact phone number: _____
5. What type of network does your company provide to support public telecommunications (check one):

   __ Cable TV
   __ Satellite Based Telephony
   __ Wireless
   __ Wireline
   __ Other (define) _____

6. How many telephony customers do you serve? (check one in each column)

	currently	the year 2000
none	_____	_____
- 10,000	_____	_____
- 100,000	_____	_____
- 1,000,000	_____	_____
more than 1,000,000	_____	_____

7. Regarding network interconnection issues, in which of the following standards bodies and industry fora do you currently participate?

   __ Committee T1 __ CTIA
   __ CLC Forums __ ITU
   __ TIA __ PCIA

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__ NCTA __ WIF

__ IILC __ other(s) _____

8. Has your company and/or your vendor(s) participated in the Inter-network Interoperability Test Plan (IITP)? (check as applicable)

__ your company __ your vendor(s)

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PART 2 - ASSESSMENT OF INTERCONNECTION ISSUES

9. In terms of reliability and continuity of telephony service, how critical are/will be the inter-network connections between your network as identified in #5 and each of the following types of networks:

	High	Medium	Low	None
Cable TV	H	M	L	N
Satellite Based Telephony H	M	L	N	
Wireless	H	M	L	N
Wireline	H	M	L	N
Other (define _____)	H	M	L	N

10. The following are the key inter-network interfaces identified (see definitions in glossary) by the Increased Interconnection Task Group. Please rank these interfaces in terms of potential risk to inter-network reliability and continuity of service.
(4 - greatest risk, ... 1 - least risk)

__ physical interface
__ Signaling channel interface
__ User information channel interface
__ Operation, administration and maintenance (OAM&P) interface
__ other _____

Comments: _____

_____

11. a. What are your company's requirements or specifications for reliability and performance before interconnecting with other networks?

__ ITU recommendations
__ NOF / IITP procedures
__ Bellcore Technical Requirements
__ Committee T1 standards
__ Company-specific requirements
__ Bilateral agreements between the interconnecting parties
__ TIA standards
__ other _____

b. How are requirements and specifications in question 11(a) validated prior to turn-up for service? _____

_____

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c. How are these interconnections monitored and maintained once in service to ensure they are performing according to expectations? _____

d. Within bilateral agreements, what needs to be specified?

- __ Provisioning information and guidelines
- __ Special protocol implementation agreements (e.g., timer values, etc.)
- __ Diversity requirements
- __ Installation and maintenance guidelines
- __ Security requirements
- __ Performance standards / service level agreements
- __ other(s) _____

12. What current activities or future plans do you have for coordinating inter-company operation, administration and maintenance (OAM&P) information?

PART 3 - IDENTIFICATION OF EXISTING AND FUTURE PROCESSES

13. In your opinion, what level of responsibility should each of the following have to **develop** inter-network service standards?
(H - High, M - Medium, L - Low, N - None)

__ the interconnecting service providers themselves
__ network equipment manufacturers
__ the industry fora (service providers, equipment manufacturers and end users)
__ standards bodies (service providers, equipment manufacturers and end users)
__ FCC
__ state utility commissions
__ other (please specify) _____

14. a. In your opinion, what level of responsibility should each of the following have to **plan** for inter-network reliability/interoperability?
(H - High, M - Medium, L - Low, N - None)

__ the interconnecting service providers themselves
__ network equipment manufacturers
__ the industry fora (service providers, equipment manufacturers and end users)
__ standards bodies (service providers, equipment manufacturers and end users)
__ FCC
__ state utility commissions
__ other (please specify) _____

b. In your opinion, what level of responsibility should each of the following have to **ensure** inter-network reliability/interoperability?
(H - High, M - Medium, L - Low, N - None)

__ the interconnecting service providers themselves
__ network equipment manufacturers
__ the industry fora (service providers, equipment manufacturers and end users)
__ standards bodies (service providers, equipment manufacturers and end users)
__ FCC
__ state utility commissions
__ other (please specify) _____

15. a. **Which processes or procedures do you use to ensure inter-network reliability and interoperability? (check all that apply)**

__ Identify defined standards and specifications
__ Intra-company testing procedures
__ Inter-company testing procedures
__ Load simulations (in a testbed environment)
__ Stress to failure testing (in a testbed environment)
__ Conformance testing with interconnecting networks
__ IITP recommendation implementation
__ Others (please specify) _____

What additional processes are needed? _____

_____

16. With respect to network interconnections, how do you protect against

a. Fault migration _____

_____

b. Intrusion on network control channels _____

_____

c. Negative impacts to performance or call processing delay _____

_____

17. What process should be used for establishing and implementing a new, previously unspecified, network interconnection interface? _____

_____

_____

18. a. Are there firewalls/safeguards to protect your network from intrusions and incompatibilities from other interconnecting networks?

__ Extensive __ Some __ None

b. If so what are the significant ones? _____

_____

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19. a. Do you have disaster recovery plans?

__ Yes, with **formal** agreements for mutual aid and/or emergency resources
__ Yes, with **informal** agreements for mutual aid and/or emergency resources
__ Yes, but without agreements for mutual aid and/or emergency resources
__ No

b. How often are your disaster recovery plans reviewed? _____

20. Additional comments:

_____

_____

_____

_____

_____

_____

Appendix 3

RECOMMENDATIONS

This compilation of recommendations clarifies the action items. In most cases current network providers will need only minor adjustments in current processes to conform. New and emerging providers should begin implementing these recommendations early in their service processes development. In some cases, the recommendations are applicable to more than one type of service provider. So, read and utilize them for the full benefit.

WIRELINE

Recommendation 1

Special attention should be given to utilizing applicable existing standards and implementing new standards addressing interconnection points between existing wireline and emerging local service providers.

Implementation Target Date
Incumbent Service Providers: Ongoing.
New Service Providers: During the service design/development phase of implementation.

Recommendation 2

The task group recommends that changes in network-to-network signaling standards and requirements (e.g., standards, fora, TR-905, etc.) be reviewed by the Network Operations Forum (NOF) and considered a) for inclusion in appropriate testing procedures, and b) development of additional operational guidelines.

Implementation Target Date
Incumbent Service Providers: Immediately for any TR-905 changes.
New Service Providers: During the service design/development phase of implementation.

Recommendation 3

Companies should appoint a Synchronization Coordinator for their company who will perform the responsibilities contained in SR-TSV-002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Implementation Target Date
Incumbent Service Providers: Now and as personnel changes occur.
New Service Providers: During the service design/development phase of implementation.

Recommendation 4

Companies should comply with the synchronization standards addressed in the ANSI Standard T1.101, entitled "Digital Network Synchronization"

Implementation Target Date
Incumbent Service Providers: Now.
New Service Providers: During the service design/development phase of implementation.

Recommendation 5

Companies should monitor and if applicable. consider active participation in standards development organizations and in industry fora.

Implementation Target Date
Incumbent Service Providers: Now.
New Service Providers: During the service design/development phase of implementation.

Recommendation 6

Bilateral agreements should be established between interconnecting network providers in accordance with the bilateral agreement template contained in Section 5.6.

Implementation Target Date
Incumbent Service Providers: Prepared in advance, implemented upon contact for interconnection.

New Service Providers: Prepare as part of service implementation planning.

Recommendation 7

Any future network interconnection interface should be developed by standards bodies and industry fora to ensure design compatibility and interoperability.

Implementation Target Date: Now.

Recommendation 8

Interoperability testing of all new/changed network interfaces having potential national PSTN reliability impacts should be performed via the IITP process to ensure continued network reliability.

Implementation Target Date
Incumbent Service Providers: Present to NOF/CTIA for determination of need as required.
New Service Providers: Present to NOF/CTIA during the network design phase of implementation.

Recommendation 9

Bilateral agreements between interconnecting networks should address the issue of fault isolation. At a minimum, these agreements should address the escalation procedures to be used when a problem occurs in one network. Second, the agreement should address which company will be in charge for initiating various diagnostic procedures. Finally, the agreement should address what information will be shared between the interconnected companies.

Implementation Target Date
Incumbent Service Providers: As part of bilateral interconnection discussions.
New Service Providers: As part of bilateral interconnection discussions.

Recommendation 10

The SS7 current "firewall" techniques should continue to be used to ensure network messaging integrity. For the future, these techniques should be used as a benchmark for "firewalls" that can be used for new technologies introductions.

Implementation Target Date
Incumbent Service Providers: Ongoing and with future design modifications.
New Service Providers: As part of the initial network design considerations.

Recommendation 11

To keep overflow traffic conditions from adversely affecting interconnected networks, interconnected network providers should utilize network surveillance and monitoring. In addition, companies should follow the guidelines for advanced notification of media-stimulated call-in events as outlined in Section 6 of the NOF Reference Document concerning Media Stimulated Call-in Events. Further, interconnecting companies should include a contact name for inclusion in the Media Stimulated Call-in Event Contact Directory. Finally, interconnecting companies should address the control of overflow conditions in their bilateral agreements.

Implementation Target Date
Incumbent Service Providers: With initial interconnection planning/ ongoing.
New Service Providers: With initial interconnection planning.

Recommendation 12

Information sharing should be utilized by all network providers to minimize recurrence of service disruptions. The guidelines contained in the NOF Reference Document can be used for this purpose. Additional requirements for the sharing of information between interconnected companies should be addressed in bilateral agreements.

Implementation Target Date
Incumbent Service Providers: Annually.
New Service Providers: With initial bilateral interconnection discussions.

Recommendation 13

New entrants should, at a minimum, have a communications structure in place for timely notification of affected parties in the event of disasters or emergencies.

Implementation Target Date
Incumbent Service Providers: N/A
New Service Providers: With initial bilateral interconnection discussions.

Recommendation 14

Companies should appoint and provide the name of a Mutual Aid Coordinator to the NOF for inclusion in the Mutual Aid Contact Directory which is published on a bi-annual basis.

Implementation Target Date
Incumbent Service Providers: Update twice yearly.
New Service Providers: During initial operations planning phase for service deployment.

WIRELESS "CELLULAR"

Recommendation 1

Companies should appoint a Synchronization Coordinator for their company who will perform the responsibilities contained in SR-TSV-002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Implementation Target Date
Incumbent Service Providers: Now and as personnel changes occur.
New Service Providers: During the service design/development phase of implementation.

Recommendation 2

Companies should comply with the synchronization standards addressed in the ANSI Standard T1.101, entitled "Digital Network Synchronization."

Implementation Target Date
Incumbent Service Providers: Now.
New Service Providers: During the network design phase of the business plan execution.

Recommendation 3

Industry standards should be the foundation for any network interconnections. Any carrier wishing to interconnect with another carrier should mutually agree upon industry specifications. See Section 5.6 for the recommended interface specification template.

Implementation Target Date
Incumbent Service Providers: NA
New Service Providers: Not later than the bilateral agreement development.

Recommendation 4

Wireless carriers should participate in, or be represented in, the standards process so that needs will be met in a timely and effective manner. Areas of particular interest to oversee include:

- Prioritize standards work efforts
- Ensure standards address reliability and performance concerns
- Increase velocity of standards development to meet service providers' needs
- Improve processes to ensure overall quality within and between standards bodies

Implementation Target Date
Incumbent Service Providers: Ongoing.
New Service Providers: During the network design phase of the business plan execution.

Recommendation 5

Within the wireless "cellular" industry, many interconnection standards and processes are already in place. They should be adapted or extended, as appropriate, to accommodate the needs of new PCS carriers.

Implementation Target Date
Incumbent Service Providers: NA
New Service Providers: During the network design phase of the business plan execution.

Recommendation 6

Interoperability testing by equipment suppliers and service providers should be performed prior to service turn up to ensure successful and reliable interconnections. See Section 5.6 - Templates for the recommended set of issues to be addressed in a bilateral agreement governing testing, implementation, operations coordination and related activities. Bilateral agreements governing test and turn up procedures are needed so that existing services are not interrupted when new interconnections are established. Bilateral agreements also help to ensure continuity of operations. Some issues to address in testing include:

- Product operation and functionality
- Interoperability to establish operation across an interface, per Standards
- Performance under stress and anomalies

Implementation Target Date
Incumbent Service Providers: Ongoing.
New Service Providers: Not later than the bilateral agreement development.

Recommendation 7

Some testing is applicable for nationally-coordinated efforts so that all carriers and equipment manufacturers benefit without an undue outlay of resources and time. Cellular carriers should participate directly or through representation by an industry association(s). Some of the nationally coordinated testing currently taking place includes:

- IITP (SS7 ISUP)
- AGNI (IS-41)

Implementation Target Date
Incumbent Service Providers: As the technology and industry indicates.
New Service Providers: As the technology and industry indicates.

Recommendation 8

Inter-company OAM&P processes should continue to evolve so that carriers can effectively establish and maintain service across a network interface. Key components of this recommendation include:

- Service Providers' key role (e.g., 24x7x52 surveillance center)
- Qualified individual(s) to maintain an SS7 node and an SS7 network, including IS-41 and ISUP as required. (See SNS Best Practices.)
- Existing fora and associations' assisting role in developing guidelines and practices for use by interconnecting networks to foster network reliability
- Up-to-date Disaster Recovery Plan (ref. NOF Reference Document Section VI Network Management Guidelines and Contact Directory and its Appendix A Emergency SS7 Restoration)
- Including contact information in the following Contact Directories of the NOF Reference Document Section VI Network Management Guidelines and Contact Directories
  - Network Management Contacts
  - Catastrophic SS7 Failure/Restoration Contacts
  - Media Stimulated Calling Event Contacts
  - LIDB Contacts
  - Mutual Aid Contacts

Implementation Target Date

002210

Incumbent Service Providers: Ongoing
New Service Providers: Not later than the bilateral agreement development.

SATELLITE

Recommendation 1

Each company should appoint a Synchronization Coordinator for its company who will perform the responsibilities contained in TR-NPL-0002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Implementation Target Date
Incumbent Service Providers: Now.
New Service Providers: During the network design stage of the new network.

Recommendation 2

Companies should comply with the synchronization standards addressed in ANSI Standard T1.101, entitled "Digital Network Synchronization."

Implementation Target Date
Incumbent Service Providers: Now and as personnel changes occur.
New Service Providers: During the network design stage of the new network.

Recommendation 3

Satellite service providers are encouraged to continue their reliance on existing standards and interface specifications, bilateral agreements and end-to-end testing to define and verify performance and reliability requirements.

Implementation Target Date
Incumbent Service Providers: N/A
New Service Providers: During the service design/development phase of implementation.

Recommendation 4

Satellite service providers are encouraged to participate in existing standards bodies and industry fora to ensure future standards accommodate their requirements.

Implementation Target Date
Incumbent Service Providers: Begin 1Q96.
New Service Providers: During the service design/development phase of implementation.

Recommendation 5

The newly-formed Satellite Industry Association (SIA) should be encouraged to interface with existing standards bodies and industry fora to ensure interoperability and reliability issues are properly addressed.

Implementation Target Date
During the service design/development planning phase by the first associated member.

CABLE

Recommendation 1

Appropriate safeguards or firewalls should be implemented so that problems from one network are not spread to another. Additionally, the creation of new network elements used to support the physical channel should meet current loop performance requirements.

Implementation Target Date
Incumbent Service Providers: Before the field trial of any new network interconnection.
New Service Providers: During the new network design stage.

Recommendation: 2

Cable telephony providers should comply with generally accepted industry standards and processes when connecting to the PSTN, as described in the wireline section of this report.

Implementation Target Date
Incumbent Service Providers: Now and continuously going forward.
New Service Providers: During the network design stage.

Recommendation 3

When interconnection begins between cable networks and the PSTN, appropriate safeguards should be developed to avoid propagation of OAM&P problems into each other's networks . Information sharing is essential.

Implementation Target Date
Incumbent Service Providers: Incorporate any changes before interconnection modification.
New Service Providers: During the network interconnection design phase.

Recommendation 4

Cable companies should appoint a Synchronization Coordinator for their company who will perform the responsibilities contained in TR-NPL-002275. Companies should provide the name of their Synchronization Coordinator to the ICCF for inclusion in its Synchronization Directory.

Implementation Target Date
Incumbent Service Providers: Now and as personnel changes occur.
New Service Providers: During the network design stage of the new network.

Recommendation 5

Companies should comply with the synchronization standards addressed in ANSI Standard T1.101, entitled "Digital Network Synchronization."

Implementation Target Date
Incumbent Service Providers: Now and as personnel changes occur.
New Service Providers: During the network design stage of the new network.

Recommendation 6

To control overflow traffic conditions from adversely impacting interconnected networks. interconnected network providers should utilize network surveillance and monitoring. In addition, companies should follow the guidelines for advanced notification of media-stimulated call-in events as outlined in Section 6 of the NOF Reference Document concerning Media Stimulated Call-in Events. Further, interconnecting companies should include a contact name for inclusion in the Media Stimulated Call-in Event Contact Directory. Finally, interconnecting companies should address the control of overflow conditions in their bilateral agreements.

Implementation Target Date
Incumbent Service Providers: Update information and process assurances annually.
New Service Providers: During the network implementation development stage.

Recommendation 7

Cable companies need to participate in industry fora such as ICCF and NOF and should appoint a mutual aid coordinator to be included in the "NOF" mutual aid contact directory. Engineering practices need to reflect the fact that they are interconnecting with other service providers and that overload conditions on their network can impact those to which they are interconnected.

Implementation Target Date
Incumbent Service Providers: Now and with annual reviews.
New Service Providers: During the network operations management plans development stage.

INDUSTRY STANDARDS

Recommendation 1

Use of a network interface specification template is advised when a new network interface is identified for standardization. Standards bodies should use this type of template in developing the initial Standards Project Plan(s) for new interfaces to address the important areas for interconnection reliability. An example template for standards development planning is contained in Section 5.6.

Implementation Target Date: Now.

Recommendation 2

Industry associations, such as ATIS and TIA, should consider the value of incorporating performance requirements for complex network elements with the interface standards requirements. Also, the associations should consider how such requirements should be developed and funded.

Implementation Target Date: Now

Recommendation 3

A careful technical and editorial review process, similar to and expanding upon the TIA/T1 JTC Validation and Verification process, should be utilized for all standards which have the potential for impacting network interconnection reliability to ensure technical clarity and consistency. This would be an appropriate method to validate technical adequacy in meeting the intent of the interconnection reliability template and project plan described in Recommendation 1. Exhibit 9 is the TIA/T1 JTC procedure.

Implementation Target Date: Now

Recommendation 4

Wherever appropriate, standards bodies should work with other industry groups that use standards, such as the ATM Forum, to more precisely define standards requirements and minimize complexity and optionality. Excessive optionality can be dealt with through an appropriate contribution to the affected standards committee. The Network Interface Specification, contained in Appendix 4 of this report, should also be used by industry forums to further define, detail and approve implementation for the industry.

Implementation Target Date: Now

Recommendation 5

Interconnecting network operators should consider using interface survivability designs with redundancy and diversity such as those outlined in "A Technical Report on Network Survivability Performance" (Committee T1 Report No. 24).

Implementation Target Date
Incumbent Service Providers: Now.
New Service Providers: During the design phase of the service implementation plan.

Recommendation 6

New network providers are encouraged to participate in existing telecommunications industry standards processes, either directly or through associations, via membership or contributions to Committee T1 or TIA.

Implementation Target Date: Prior to the design phase of the service implementation plan.

Recommendation 7

Where adequate network interface standards exist, suppliers should develop and evolve their products to meet those standards. If interface standards are not established, network service providers and network equipment suppliers should actively participate in the development of robust network interface standards.

Implementation Target Date: Now.

Recommendation 8

Interconnecting network providers should utilize industry-proven interconnection standards.

Implementation Target Date: Now.

Recommendation 9

While standards are generally voluntary, increased emphasis should be placed on the value of compliance in ensuring network interoperability and reliability. However, in the case of public safety concerns, standards are identified with a "mandatory" emphasis.

Implementation Target Date: Now.

002214

Recommendation 10

The most effective means to accelerate the standards development process is to ensure new standards work has sharp technical focus, clear standards deliverables, plus final and interim milestones for those deliverables. Exhibits 6 and 7 contain information on standards project proposals and project tracking based on this recommendation.

Implementation Target Date: Now.

Recommendation 11

By year end 1996 all telecommunications standards bodies should implement interactive electronic access methods to expedite the submission, creation, acceptance, review and finalization of technical standards. This is already underway but a completion date has not been specified.

Implementation Target Date: Year end 1996.

Recommendation 12

The Forum Process should be employed by the industry and companies/agencies to foster innovation and to produce contributions to the development of standards, not in lieu of standards. Industry forums have been instrumental in specifying implementation agreements.

Implementation Target Date: As identified.

Recommendation 13

Industry associations /fora, such as ATIS, TIA, ATM Forum, etc. should sponsor early (pre-standardization) industry interactions on emerging technology and service concepts. (It was agreed that an initial "industry needs" framework would provide parallel inputs to industry standards activities and the development of generic requirements for network elements.)

Implementation Target Date: Annually.

Recommendation 14

Industry associations, such as ATIS and TIA, should determine how the necessary generic requirements, described in Recommendation 13, should be developed, funded, approved and maintained. This approach will promote compatibility between standards and generic requirements.

Implementation Target Date: Year end 1997.

Recommendation 15

Bilateral agreements should be developed and put in place before networks interconnect in order to ensure reliable interconnection and interoperability. In addition, the forum process (e.g., NOF, ICCF) provides the framework for developing national technical and operational industry agreements for new network interconnections. Participants in these agreements should demonstrate compatibility with established industry standards, procedures and processes as a

condition for interconnection. Exhibit 8 provides a Model Process for SS7 Network Interconnection. Appendix 4 is a template for such a bilateral agreement.

Implementation Target Date: During the operational design phase of interconnection planning.

NETWORK INTEROPERABILITY TESTING and FUNDING

Recommendation 1

This task group reaffirms the NRC 1 recommendation to continue the IITP cooperative industry relationships. The interconnection management test coordination processes should be institutionalized to permit continual evolution to address national network testing requirements.

Implementation Target Date: Now and then continuing.

Recommendation 2

The existing industry fora (e.g., ATIS-Network Operations Forum and CTIA-Advisory Group for Network Issues) should continue to be used proactively by existing and new service providers and manufacturers for recommending and planning network interoperability testing to ensure service compatibility and reliability across common interfaces.

Implementation Target Date: Now and then continuing.

Recommendation 3

The existing IITP (Inter-network Interoperability Test Plan) program should evolve as the basis of the future IITC function. The present focus on interoperability vulnerabilities in the signaling networks should continue, but the focus should also be broadened to consider other high risk and critical interfaces resulting from the introduction of increased network interconnections and new technologies. (This recommendation is not meant to preclude the obvious need for industry specific or technology-specific testing where there is no logical reason for IITC nationally coordinated testing.)

Implementation Target Date: Transition to take place during 1996.

Recommendation 4

Once the IITC is operational, manufacturers and service providers will participate in the management and conduct of on-going nationally coordinated interconnection testing.

Implementation Target Date: Continuing under the IITP and then transition to IITC during 1996.

Recommendation 5

The telecommunications industry should fund and manage the IITC. (See Chart #2, National Interoperability Test Management and Section 7.5.) A Steering Committee will be staffed by industry executive volunteers, as outlined in Recommendation 6 of this section, to oversee this organization.

Implementation Target Date: 2Q96 start.

002216

Recommendation 6

The IITC should be made a financially self-supporting organization within the Alliance for Telecommunications Industry Solutions (ATIS) business structure, at least initially and be similar to the ATIS method now used for the Committee T1 and SONET Interoperability Forum (SIF) groups. ATIS administrative costs would be covered by a portion of the annual fees as outlined in recommendation 7. of this section.

Implementation Target Date: 2Q96 start.

Recommendation 7

A mandatory annual fee should be collected from telecommunications carriers and equipment manufacturers to support the interoperability test coordination function. (The fees would fund activities similar to those accomplished presently by Bellcore in its IITP role as coordinator and Hub Provider and the administrative costs indicated in section 7.5.) (See Sections 7.5.1 and 7.5.2 for the detailed funding and reporting presentation.)

Implementation Target Date: 2Q96 start.

Recommendation 8

The telecommunications industry associations should identify technical management representatives selected by their boards of directors or engineering committees to serve on a steering committee that would manage the IITC financial requirements, set IITC policy, prioritize testing activities and provide overall management guidance of this industry-wide program.

Implementation Target Date: 2Q96 start.

Recommendation 9

Bellcore and the industry organizations should continue their present responsibilities and financial support for the applicable IITP testing and coordination until the new IITC function is operational. (See Section 1.1.7)

Implementation Target Date: Continue through 1996 or until transferred to the industry.

Recommendation 10

The test coordination funding issue is believed to be one of several potential industry-wide initiatives driven by the evolving competitive environment. Therefore, the FCC should consider a more appropriate long-term method of IITC funding in the context of other additional industry funding requirements, e.g., NANPA administration, that will surface from increased network interconnection, if the recommended methods do not provide adequate funding.

Implementation Target Date: During 1996.

002217

Recommendation 11

Based on approval of this plan, the NRC chairman is requested to initiate the appropriate IITC formation processes necessary to establish the organization.

Implementation Target Date: Not later than second quarter 1996, in time to allow operational readiness for 1997.

TEMPLATES

Recommendation 1

The NOF is the suggested custodian of the Network Interconnection Bilateral Agreement Template. Other organizations may also find the processes that evolve from this template useful and are encouraged to make use of and enhance it.

Implementation Target Date: 2Q96 start.

Recommendation 2

The ICCF is the suggested custodian of the Network Interface Specification Template. Other organizations may also find the processes that evolve from this template useful and are encouraged to make use of and enhance it.

Implementation Target Date: 2Q96 start.

Appendix 4

INCREASED NETWORK INTER-CONNECTION

TASK GROUP II

MISSION STATEMENT

To research, develop, analyze and recommend technical and operational considerations to ensure continued reliability of interconnected networks and systems.

CHARTER

Utilizing a broad representation of communications companies, draw on past work and forecasts of knowledgeable people and research to determine current and possible future root cause issues affecting the reliability of interconnected networks and systems. Develop methods to ensure service reliability as more service providers become part of the evolving "national network." Investigate the reliability concerns arising from expanded interconnection of networks, particularly satellite, cable and wireless networks.

Determine and recommend methods to ensure reliability criteria are integrated into all components of the service and equipment design, standards, construction, implementation and on-going operation. (Integration testing to ensure inter-operability is one factor, compliance to hardware and software standards and conformance to operating conventions are others.)

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-17

Transmittal Cover Sheet for Hendrix Exhibit JDH-17

Which consists of 5 pages

May 29, 2001 Letter from Supra to BellSouth -

To Whom it may Concern

The following requested information was prepared to assist the production of documents required to satisfy the Increased Interconnection Task Group II recommendations on negotiating a bilateral interconnection agreement between carriers.

While it may be noticed that certain documentation steps were omitted the intent is to define the most reliable and efficient network interconnection between the parties. As such additional elements may be added to the final production of the Interconnection agreement. The data set defined below, and the documentation of that data within the Interconnection agreement should be considered a minimum requirement.

Reliability Criteria

1. The following Interconnection Provisioning information and guidelines:
    a. Interface Specifications - For CLEC Switch over traditional narrowband circuits, and ATM Tandem interfaces.
    b. Network Design - BellSouth network design criteria for reliability issues, diversity, direct end-office trunking for CLECs, Multi Tandem per LATA vs. single Tandem per LATA interconnections and routing, use of BellSouth network for routing intraLATA traffic
    c. Service Interworking Requirements and Suggestions - Standards and requirements to ensure proper interworking of telephone and data switches employed in the interconnection.
2. The following SS7 and Other Critical Interface Inter-network Compatibility. For CLEC Class 4 and Class 5 switches, and SS7 STP and SCP's.

a. Service Protocols/Message Sets. Standards adhered to. Deviations from documented standards. Effects of SS7 messaging between Supra and BellSouth, extent of mutual compliance with TCAP, and ISUP messages. Specific information on messages used by Supra Voicemail systems to annunciate Message waiting indicator on Supra customers provisioned via either BellSouth resale or UNE Combinations.

b. Testing Plans for all SS7 interconnected systems, Toll Free database, LIDB, CNAM, and all other Unbundled databases.

3. Protocol Implementation Agreements - To effect a more reliable:

a. Route set congestion messages.

b. Timer Values - Interconnection equipment.

c. Switch Parameters

d. BellSouth Compliance with TR246, T1.114, T1.116 GR 317, GR 394

e. Gateway Screening Information for network planning.

4. Diversity Requirements - BellSouth Interoffice Transport

a. Route identifications - Tandem to End Office Dedicated and Common transport routing.

b. Diversity definition

c. SS7 Diversity Verification and Validation - Test Plan

d. BellSouth adherence to Committee T1 Report No. 24 on Network Survivability Performance

5. Installation, Provisioning, Maintenance Guidelines and Responsibilities

a. Reference Documents

6. Network Admin/Ops Security Requirements - Between Supra Telecom and BellSouth systems.

   a. Access Methodology Documentation

   b. Functional Partitioning - Network and database issues

   c. Applicable tariffs on confidential information - Documented and complied with

   d. Password and encryption control - agreements on security methods employed to effect the above section.

7. Performance Service Level Agreements (PSLA)

   a. Interface specifications all UNE services, and resale shall contain PSLA guarantees.

   b. Performance Thresholds for all other products offered for sale.

8. In-depth Root Cause Analysis of Significant Failures

   a. Failure analysis procedures

   b. Service configuration

   c. FCC Outage Reporting Criteria defined.

9. Synchronization Design and Company - wide coordination contacts.

   a. Synchronization responsibilities (This issue seems to has reversed itself re: BellSouth policy in the past 4 years)

   b. Conformance Requirements.

   c. Contact Identifications

   d. Compliance with T1.101 Digital Facility Standard

10. Performance Requirements

   a. Standards included with each UNE / Interface defined

c. Standards for Interconnection Arrangement with CLEC owned Class 4 and 5 switches.

d. Performance Service Level Agreements (PSLA)

11. Network Rearrangement Management

a. Notification Procedures

12. Traffic Engineering Design Criteria and Capacity Management

a. Alternate routing designs - Document routing alternatives to collocated CLEC, to CLEC in offsite premises, UNE CLEC Provider.

b. Maximum acceptable Call blocking criteria

13. Explicit Forecasting Information - Supplied to CLEC for specific LATAs on a per LATA basis.

a. Direct Traffic

b. Subtending/transiting traffic

c. Performance Service Level Agreements (PSLA)

14. Network Transition Plans - Data of current status and inter company Policies for dealing with each of the below.

a. Growth/consolidation of network elements

b. NPA splits

c. Major rehoming, rearrangement plans

15. Responsibility Assignments - Policy and Procedures

a. Facility assignment

b. Network control

c. Automatic testing

d. Calling Party Number Privacy management

e. Performance Service Level Agreements (PSLA)

16. Tones and Announcements for Unsuccessful Call Attempts

    a. Network interface specifications

    b. Applicable Standards

    c. Reference Documents detailing each applicable one and announcement.

17. Billing Records Data Exchange

    a. Compliance with EMR standards - Documentation on any deviations

    b. Compliance with OBF Documentation - Documentation on any deviations.

18. Documentation Requirements

    a. Network configuration

    b. Contact numbers

    c. Service level agreements

    d. Implementation plan/milestones

    e. Interoperability test results

19. Pre-Cutover Inter-network Connectivity testing

    a. Specific Interconnection requirements for both parties

    b. Interconnection specification defined - Document required specification documentation.

    c. Test plan defined

Thank You

David A. Nilson
CTO
Supra Telecom

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-18

Transmittal Cover Sheet for Hendrix Exhibit JDH-18

Which consists of 735 pages

BELLSOUTH

BellSouth Interconnection Services
675 West Peachtree Street, NE
Room 34S91
Atlanta, Georgia 30375

Greg Follensbee
(404) 927-7198
Fax: (404) 529-7839

FILE COPY

July 9, 2001

Mr. David Nilson
Supra Telecom
2620 SW 27th Avenue
Miami, Florida 33133

Dear Mr. Nilson:

This is in response to your letter dated May 29, 2001, requesting information on various network topics. Attached is a spreadsheet listing Supra's requests and BellSouth's responses.

As stated in your letter, certain documentation steps were omitted, therefore, I used my best judgment to interpret which documentation would satisfy each request. In some cases, I was unable to interpret what documentation Supra desired and, in those instances, I requested clarification. Also enclosed are the documents referenced in the aforementioned spreadsheet.

Please contact me if you have any questions.

Sincerely,

GK Follensbee

Greg Follensbee
Senior Director
Customer Markets

Attachment

002228

Supra's Request	***BellSouth's Response***
1. The following Interconnection Provisioning information and guidelines:	1. BellSouth Collocation Handbook and BellSouth Guide to Interconnection
a. Interface Specifications For CLEC Switch over traditional narrowband circuits, and ATM Tandem Interfaces	a. See above
b. Network Design BellSouth network design criteria for reliablitiy issues, diversity, direct end-office trunking for CLECs, Multi Tandem per LATA vs. single Tandem per LATA interconnections and routing, use of BellSouth network for routing intraLATA traffic	b. See above
c. Service Interworking Requirements and Suggestions Standards and requirements to ensure proper interworking of telephone and data switches employed in the interconnection	c. See above
2. The following SS7 and Other Critical Interface Inter-network Compatibility. For CLEC Class 4 and Class 5 switches, SS7 STP and SCP's.	2. BellSouth Guidelines to Technical Publication GR-905-CORE (TR 73554). This is a guide to SS7 Interconnection with BellSouth. It provides Supra with everything it needs to know about SS7 from a technical perspective.
a. Service Protocols/Message Sets. Standards adhered to. Deviations from documented standards. Effects of SS7 messaging between Supra and BellSouth, extent of mutual compliance with TCAP and ISUP messages. Specific information on messages used by Supra Voicemail systems to annunciate Message waiting indicator on Supra customers provisioned via either BellSouth or UNE Combinations.	a. See above
b. Testing Plans for all SS7 interconnected systems, Toll Free database, LIDB, CNAM, and all other Unbundled Databases.	b. See above
3. Protocol Implementation Agreements-To effect a more reliable	3. BellSouth Guidelines to Technical Publication GR-905-CORE (TR 73554), referenced above. The answers to b and d are clearly in this guide. BellSouth is unsure what specific information Supra is requesting for a and c but information regarding these topics can be found in this guide.
a. Route set congestion messages	a. See above
b. Timer Values	b. See above
c. Switch Parameters	c. See above
d. BellSouth Compliance with TR246, T1.114, T1.116, GR 317, GR 394	d. See above
e. Gateway Screening Information for network planning.	e. Please clarify this request
4. Diversity Requirements-BellSouth Interoffice Transport a. Route identifications-Tandem to End Office Dedicated and Common Transport Routing	a. Attachment 3 of the current BellSouth Standard Interconnection Agreement. The language contained in this attachment of the BellSouth Standard agreement addresses Local Interconnection as well as the various access tandem architectures.
b. Diversity definition	b. BellSouth Guidelines to Technical Publication GR-905-CORE (TR 73554). Supra does not explain which element diversity applies to in their requested definition. The TR 73554 Guide discusses diversity in relation to SS7. Another helpful reference is "Newton's Telecom Dictionary". Please clarify this request if the attached information is not sufficient.

002229

Supra's Request	***BellSouth's Response***
c. SS7 Diversity Verification and Validation-Test Plan d. BellSouth adherence to Committee T1 Report No. 24 on Network Survivability Performance	c. BellSouth Guidelines to Technical Publication GR-905-CORE (TR 73554) d. The Abstract to the G16 Committee T1 Report No. 24 on Network Survivability Performance states that, "[a]lthough...parameters needed to study network survivability performance are defined, recommended parameter objectives are not established." Since parameter objectives are not established, it is unclear how BellSouth could adhere to this Report. A copy of that report is attached for your review.
5. Installation, Provisioning, Maintenance Guidelines and Responsibilities a. Reference Documents	a. BellSouth Start-Up Guide and BellSouth Guide to Interconnection. These guides contain information on working with BellSouth. They also makes reference to more detailed documentation. Specific installation, provisioning, and maintenance information for specific products can be found in the CLEC information package for each specific product, which can be found under the section "Products and Services" on the BellSouth Interconnection website. Another reference is the BellSouth Business Rules for Local Ordering Guide, which can be found at http://interconnection.bellsouth.com/guides/html/leo.html
6. Network Admin/Ops Security Requirements-Between Supra Telecom and BellSouth a. Access Methodology Documentation b. Functional Partitioning-Network and database issues c. Applicable tariffs on confidential information-Documented and complied with d. Password and encryption control-agreements on security methods employed to effect the above section	6. Please clarify this request. a. See above b. See above c. See above d. See above
7. Performance Service Level Agreements (PSLA) a. Interface specifications all UNE services, and resale shall contain PSLA guarantees b. Performance Thresholds for all other products offered for sale.	7. Carrier Notification Letter SN91082435 On April 23 and 24, 2001, BellSouth held an open CLEC conference to discuss the Georgia Ordered Performance Measurements. Several questions arose during this meeting. Listed in this Letter are the questions along with BellSouth's answers. Further information on Performance Measurements and Penalties in all states can be found at www.pmap.bellsouth.com. a. See above b. See above
8. In-depth Root Cause Analysis of Significant Failures a. Failure analysis procedures b. Service Configuration c. FCC Outage Reporting Criteria defined.	8. Carrier Notification SN 91082473. a. Please clarify your request. b. Please clarify your request. c. Report No. DC-2626; Order by the FCC dated June 19, 1998; 47 CFR 63.100.
9. Synchronization Design and Company-wide coordination contacts a. Synchronization responsibilites (This issue seems to has reversed itself re: BellSouth policy in the past 4 years) b. Conformance Requirements c. Contact Identifications d. Compliance with T1.101 Digital Facility Standard	9. Please clarify your request in regards to a through d. BellSouth complies with industry standards where applicable. Please forward a copy of the "T1.101 Digital Facility Standard" for BellSouth's review.
10. Performance Requirements a. Standards included with each UNE/Interface defined b. Standards for Interconnection Arrangement with CLEC owned Class 4 and 5 c. Performance Service Level Agreements (PSLA)	10. This was addressed in No. 7 above. a. See above b. See above c. See above

Supra's Request	***BellSouth's Response***
11. Network Rearrangement Management a. Notification Procedures	11. Please clarify this request. a. If BellSouth determines that its network must be rearranged in any way that would effect other carriers (Resale and/or Facility-Based), then BellSouth would post notification of such on its Interconnection website (www.interconnection.bellsouth.com)
12. Traffic Engineering Design Criteria and Capacity Management a. Alternate routing designs-Document routing alternative to collocated CLEC, to CLEC in offsite premises, UNE CLEC Provider b. Maximum acceptable Call Blocking Criteria	a. Please clarify your request. The Collocation Handbook, referenced in No. 15 below, may give the necessary information. b. Descriptions of various BellSouth call blocking services.
13. Explicit Forecasting Information-Supplied to CLEC for specific LATAs on a per LATA basis a. Direct Traffic b. Subtending/transiting traffic c. Performance Service Level Agreements (PSLA)	13. Please see the Attachment 3 referenced in 4a above. a. See above b. See above c. This was addressed in No. 7 above.
14. Network Transition Plans-Data of current status and intercompany Policies for dealing with each of the below. a. Growth/consolidation of network elements b. NPA splits c. Major rehoming, rearrangement plans	a. Please clarify this request. b. Information on NPA splits can be found at the North American Numbering Plan Administration website (www.nanpa.com). NPA information from the NANPA website is also included. c. If BellSouth determines that its network must be rearranged in any way that would effect other carriers (Resale and/or Facility-Based), then BellSouth would post notification of such on its Interconnection website (www.interconnection.bellsouth.com)
15. Responsibility Assignments-Policy and Procedures a. Facility assignment b. Network control c. Automatic testing d. Calling Party Number Privacy management e. Performance Service Level Agreements.	a. BellSouth Collocation Handbook. This handbook describes BellSouth's Collocation offerings, providing information regarding the terms and conditions, ordering process, provisioning and maintenance of BellSouth's Collocation Offerings. b. Attachment 3 referenced in 4a above. BellSouth Guide to Interconnection referenced in 5a above. c. Please clarify your request. d. Please clarify your request. e. This was addressed in No. 7 above.
16. Tones and Announcements for Unsuccessful Call Attempts a. Network interface specifications b. Applicable Standards c. Reference Documents detailing each applicable tone and announcement	16. The information requested below is proprietary. I would be glad to discuss Supra's reasons for requesting such information so that the parties can determine if other information could satisfy Supra's needs.
17. Billing Records Data Exchange a. Compliance with EMR standards-Documentation on any deviations b. Compliance with OBF Documentation-Documentation on any deviations	a. Please clarify this request. b. BellSouth Business Rules for Local Ordering can be found at http://interconnection.bellsouth.com/guides/html/leo.html. Pages 213 to 214 discuss OBF.

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Supra's Request	***BellSouth's Response***
18. Documentation Requirements a. Network configuration b. Contact numbers c. Service level agreements d. Implementation plan/milestones e. Interoperability test results	18. Please clarify this request. a. See above b. See above c. See above d. See above e. See above
19. Pre-Cutover Inter-network Connectivity testing a. Specific Interconnection requirements for both parties	a. Attachment 3 referenced in 4a above and BellSouth Guide to Interconnection.
b. Interconnection specification defined-Document required specification documentation	b. Please clarify this request.
c. Test plan defined	c. Please clarify this request.

NFA
SPLITS

FAQ - Frequently Asked Questions

FREQUENTLY ASKED QUESTIONS ABOUT THE NANPA

NANPA FAQ - November 1999

When a split takes place, some of the prefixes remain with the old area code and some move to the new area code. Where can that information be found?

When a new area code is assigned, NANPA issues a press release that provides an overview of how the new code will be used. If the new area code will be used for a split, and if the list of prefixes is available, it will be included in the press release. Check the "Press Releases" section of the web site. Details of each split, once finalized, are included in a planning letter on our web site. The planning letter typically contains prefix lists, maps, dialing plans, and key dates. Check the "Planning Letters" section of the web site.

With all of the area code splits that happen every year, how can phone number databases be kept up to date?

Some companies have aggregated split-related area code and prefix information to assist in updating phone number databases. One example is Telcordia's ACSED product, described at www.trainfo.com.

Who publishes LATA maps?

One company who published LATA maps is CCMI, 888-275-2264 or www.ccmi.com.

What is area code 700 used for?

Area code 700 was assigned in 1983 on the eve of the introduction of long distance competition in the US. The intent was that interexchange carriers could use 700 numbers to implement new services quickly. When a 700 number is dialed, the local exchange carrier processing the call routes it to the presubscribed interexchange carrier, unless the caller has overridden presubscription by dialing 101XXXX before the number. Thus each interexchange carrier has access to all 7.92 million 700 numbers. 700 numbers are different from all other North American Numbering Plan numbers because the destinations are not unique, and, in fact, depend on the network the caller has selected.

What are area codes 880, 881, and 882 used for?

These codes provide a way to extend toll-free calling beyond the borders of the country in which the party paying for the calls resides. These codes have been used primarily to allow Caribbean callers to reach toll free numbers in the US. With this arrangement, the caller pays for the international segment of the call (to the US gateway), and the called party pays for the remainder. In theory, this concept can be implemented between any of the countries sharing the NANP.

How does NANPA decide who is entitled to the assignment of a NANP numbering resource; e.g., central office code, carrier identification code?

NANPA follows assignment guidelines developed by the industry. These guidelines specify who is entitled to an how to apply, and what obligations the assignee must meet to retain the assignment. The guidelines and applications forms may be found on the Alliance for Telecommunications Industry Solutions (ATIS) web site. The URL is http://www.atis.org/atis/clc/inc/incdocs.htm.

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CALL
BLOCKING

4.1 Call Blocking

4.1.1 DESCRIPTION:

Basic Local Exchange Service provides access to the network for local and long distance calling. Occasionally, customers want to block access to specific types of local or long distance calls from an available telephone. There are several types of blocking available:

Service	Type of Blocking	Call Types Blocked
Customized Code Restriction	Blocks Outgoing Calls	Direct dialed, operator handled & 900, 976. Has various options
Selective Class of Call Screening	Blocks Outgoing Calls	Direct dialed 1+, 10XXX1+, 101XXXX1+, 900, 976, 011, 10XXXX011+
Toll Billing Exception	Blocks Incoming Calls	Third Number and Collect Calls
International Call Block	Blocks Outgoing Calls	011+, 10XXX011+, 101XXXX011+
PIC NONE	Blocks Outgoing Calls	1+InterLATA long distance calls
LPIC NONE	Blocks Outgoing Calls	1+IntraLATA long distance calls
Toll Restriction	Denies Access to Toll Network	Contact Account Team Representative

Customized Code Restriction gives customers the option to restrict billable outgoing calls. Customers who have Customized Call Restriction and make outgoing calls to numbers disallowed by the Customized Call Restriction dialing plan will be routed to an appropriate fixed recorded announcement. Customized Code Restriction options are provided on a per line basis.

Some calls will not be blocked regardless of the Customized Call Restriction option in place. These non-blocked calls include calls to such things as public emergency numbers (like 911) and 1+800 numbers.

Customized Call Restriction is ordered by placing the proper USOC in the Feature Field of the order and the proper FID' s, if any, in the Feature Detail Field of the LSR. On multiline accounts, each CREX+ usoc should be formatted individually.

Selective Class of Call Screening enables the customer to secure central office blocking of direct dialed long distance calls such as:

- 1+
- 101XXXX1+
- 10XXX1+
- 976 calls
- 900 calls,

and direct dialed international calls such as:

- 011+
- 10XXX011+
- 101XXXX011+

Additionally, specific screening information from the originating line is sent to the operator on Company handled intraLATA calls to prevent operator assisted calls from being billed to the subscriber's line. Information digits are also passed to long distance providers, other than the Company, to identify the line as requiring special operator handling.

Subscribing to this service does not relieve the subscriber of responsibility for calls, other than Company intraLATA calls, which originate from the number. Failure of other long distance providers to act on the information digits passed to them could result in charges being placed on the subscriber's number.

All local calls and calls to Company numbers such as repair service, Directory Assistance Service and public emergency service numbers such as 911 and 1+800 calls will be permitted .

This service is available to business and residence customers.

Selective Class of Call Screening is ordered by placing the proper USOC in the Feature Field of the Order and the proper FID's, if any, in the Feature Detail Field of the LSR.

Toll Bill Exception or Bill Number Screening, as it is sometimes called, allows customers to restrict incoming collect and/or third number calls carried by BellSouth. There may be some cases where calls carried by other companies will be charged to a number with Toll Bill Exception. There are three options available with this service:

- No collect or third number billing accepted
- No third number billing accepted
- No collect billing accepted

Toll Bill Exception is ordered by placing the **FID TBE** and correct data in the Feature Detail Field of the LSR following the proper line class of service **USOC**.

This service is available to business and residential customers.

International Call Block is to assist customers in combating fraudulent international calling. International Call Block is available to Basic Exchange customers purchasing business or residence flat, measured, or message rate service. It is an end-user service that blocks international direct-dialed calls prefixed by 011+, 10XXX+011+ or 101XXXX+011+.

Customers who make outgoing calls to numbers disallowed by International Call Blocking Service will be routed to an appropriate fixed recorded announcement.

International Call Block is ordered by placing the proper USOC in the Feature Field of the Order and the proper FID's, if any, in the Feature Detail Field of the LSR.

PIC None is when a customer chooses to have no interLATA long distance carrier. Since no carrier is assigned no 1+ calls outside the LATA can be completed. PIC **NONE** is ordered by placing data of **NONE** in the PIC Field.

PIC None is when a customer chooses to have no intraLATA long distance carrier. Since no carrier is assigned no 1+ lls inside the LATA can be completed. **LPIC NONE** is ordered by placing data of **NONE** in the LPIC Field.

Toll Restriction provides for denying access to the toll network by automatically routing users to an attendant, a busy tone, or a recording. At least one line or trunk must be made available to the long distance network. All lines/trunks

cannot be restricted. A proper Line Class Code is required for this service, so contact the Account Team for more information on this service.

ORDERING CONSIDERATIONS

Review the appropriate Tariffs and the Operational Understanding to obtain pertinent information when ordering a type of Call Blocking. Consideration should be given to be sure all conditions, such as Service Establishment: monthly rates, Non-recurring charges, and so fourth, are handled as necessary. It may be necessary to verify the availability of facilities and to obtain Service specific order information.

All applicable tariffs should be consulted for a complete information.

4.1.2 RESTRICTIONS:

Only one Customized Code Restriction, Selective Class of Call Screening, or International Call Block should be ordered per telephone number. Mixing types of restriction could result in over-billing the customer because some redundant blocking could occur.

These services are available only where facilities permit and Central Offices are equipped. Check P/SIMS for availability. 976 service can only be blocked within a customer' s home Area Code.

4.1.3 TARIFF REFERENCES:

General Subscriber Services Tariff A13

.1.4 USOC/FID REFERENCES:

See Call Block Service USOCs Table
See Call Block USOC/FID Table

Call Block Service USOCs

USOC	DESCRIPTION	AL	FL	GA	KY	LA	MS	NC	SC	TN
CREX1	RESTRICTS CALLS TO: 0, 101XXX+0+, 00, 0+, 0+900, 101XXXX+1+, 1+, 101XXXX+1+900, 1+555-1212, 1+NPA+555-1212, 411, 1+411, 0+411, 1+900, 976, 1+976, 011+, 01, N11 SERVICE	X	X	X	X	X	X	X	X	X
CREX2	RESTRICTS CALLS TO: 976 SERVICE, 1+976, 0, 101XXXX+0+, 00, 0+, 01	X	X	X	X	X	X	X	X	X
CREX3	RESTRICTS CALLS TO: 0, 00, 0+, 1+, 101XXXX+0+, 101XXXX+1+900, 101XXXX+1+, 0+900, 1+555-1212, 1+NPA+555-1212, 1+900, 011+, 01+	X	X	X	X	X	X	X	X	X
CREX4	RESTRICTS CALLS TO: 976 SERVICE, 1+976, 1+900, 0+900	X	X	X	X	X	X	X	X	X
CREX6	RESTRICTS CALLS TO N11 SERVICE, 1+900, 0+900, 976, 1+976	X	X	X		X				X

CREX7	Restricts calls to: 0, 0-, 00, 101XXXX-0+, 411, 1-411, 0-411, 1-555-1212, 1-NPA+555-1212, 1+900, 101XXXX-1-900, 0+900, 1+interlata, 976, 1+976, 011, 01, N11 service (* See note)	X	X	X	X	X	X	X		X
CREX9	This service combines INTERNATIONAL CALL BLOCKING AND 900 TYPE PAY PER CALL BLOCKING	X	X	X	X	X	X	X	X	X
CREXA	RESTRICTS CALLS TO: 0, 101XXXX+0+, 00, 0+, 1+, 101XXXX+1+, 101XXXX+1+900, 0+900, 1+555-1212, 1+NPA+555-1212, 411, 1+411, 0+411, 1+900, 976, 1+976, 011+, 01, 500 SERVICE AND EXPANDED LOCAL CALLING AREAS.		X					X		
CREXB	RESTRICTS CALLS TO: 0, 101XXXX+0+, 00, 0+, 101XXXX+1+900, 1+, 101XXXX+1+, 0+900, 1+555-1212, 1+NPA+555-1212, 1+900, 011+, 01, AND CALLS TO THE EXPANDED LOCAL CALLING AREA		X					X		
CREXC	RESTRICTS CALLS TO:900 PAY PER CALL SERVICE, 1+900, 0+900>	X	X	X	X	X	X	X	X	X
CREXD	RESTRICTS CALLS TO:900 PAY PER CALL SERVICE ON ESSX® SERVICE, 1+900, 0+900.	X	X	X	X	X	X	X	X	X
CREXN	RESTRICTS CALLS TO: 976, 1+976	X	X			X				
CREXV	RESTRICTS CALLS TO: 011, 10XXX+011+, 101XXXX+011+, and INTERNATIONAL CALL BLOCKING.	X	X	X	X	X	X	X	X	X
CREXW	RESTRICTS CALLS TO: 976 SERVICE, 1+976, 0, 00, 0+, 101XXXX+0+, 01, and INTERNATIONAL CALL BLOCKING	X	X	X	X	X	X	X	X	X
CREXX	RESTRICTS CALLS TO: 976 SERVICE, 1+976, and INTERNATIONAL CALL BLOCKING	X	X	X	X	X	X	X	X	X
CREXY	RESTRICTS CALLS TO: 976, 1+976, N11 SERVICE, 1+900, 0+900, INTERNATIONAL CALL BLOCKING	X	X	X		X				X
CREXZ	SELECTIVE CLASS OF CALL SCREENING RESTRICTS CALLS TO: 976, 1+976, and INTERNATIONAL CALL BLOCKING	X	X	X		X				
SRG	SELECTIVE CLASS OF CALL SCREENING RESTRICTS CALLS TO: 1+, 101XXXX1+, 011+, 10XXX011+, 101XXXX011+, 976, 900 SERVICE CALLS, PER CENTRAL OFFICE LINE, MULTISERV LINE, ESSX® SERVICE, DIGITAL ESSX®, CENTREX/MULTISERV PLUS, OR PBX TRUNK	X	X	X	X	X	X	X	X	X
	SELECTIVE CLASS OF CALL SCREENING									

SRGBB	RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS ON ESSX®, CENTREX, AND MULTISERV PLUS PER NAR		X		X	X	X	X	X	X
SRGBX	SELECTIVE CLASS OF CALL SCREENING FOR COMMUNITY CALLER PLUS ACCOUNTS. RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS, PLUS EXPANDED SERVICE AREA, PER PBX TRUNK		X					X		
SRGCO	SELECTIVE CLASS OF CALL SCREENING FOR COMMUNITY CALLER PLUS ACCOUNTS RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS, PLUS EXPANDED SERVICE AREA, PER LINE		X					X		
SRGM1	SELECTIVE CLASS OF CALL SCREENING FOR MOBILE SERVICE PROVIDERS. RESTRICTS CALLS TO: 1+, 101XXXX1+, 976 SERVICE, 900 SERVICE, PER CENTRAL OFFICE LINE, TRUNKS and TYPE 1 SERVICE.	X	X	X	X	X	X	X	X	X
SRGM2	SELECTIVE CLASS OF CALL SCREENING FOR MOBILE SERVICE PROVIDERS. ALLOWS ACCESS TO: 1+, 101XXXX1+, 900 and 976 SERVICE IS BLOCKED, PER CENTRAL OFFICE LINE, TRUNKS and TYPE 1 SERVICES	X	X	X	X	X	X	X	X	X
SRGM3	SELECTIVE CLASS OF CALL SCREENING FOR MOBILE SERVICE PROVIDERS. RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS, PER TYPE 1 MF TRUNK.	X	X	X	X	X	X	X	X	X
SRGM4	SELECTIVE CLASS OF CALL SCREENING FOR MOBILE SERVICE PROVIDERS. ALLOWS ACCESS TO: 1+, 101XXXX1+, 976 and 900 SERVICE CALLS ARE BLOCKED, PER TYPE 1 MF TRUNK	X	X	X	X	X	X	X	X	X
SRGMS	SELECTIVE CLASS OF CALL SCREENING FOR COMMUNITY CALLER PLUS ACCOUNTS. RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS ON ESSX, CENTREX, MULTISERV PLUS and EXPANDED SERVICE CALLS PER LINE.		X					X		
SRGNR	SELECTIVE CLASS OF CALL SCREENING FOR COMMUNITY CALLER PLUS ACCOUNTS. RESTRICTS CALLS TO: 1+, 101XXXX1+, 976, 900 SERVICE CALLS ON ESSX, CENTREX, and MULTISERV and, EXPANDED SERVICE AREA, PER NAR.		X					X		
SRGPL	SELECTIVE CLASS OF CALL SCREENING PROVISIONING USOC. RESTRICTS CALLS TO 1+, 101XXXX1+, 976, 900 SERVICE CALLS ON ESSX, CENTREX, and MULTISERV PLUS, PER LINE.		X		X	X	X	X	X	X

Call Blocking USOC / FID Table

USOC	CAS	CBK	TBE*	PROX*
CREX1				
CREX2				
CREX3				
CREX4		R		
CREX6				
CREX 7				R
CREX9				
CREXA				
CREXB				
CREXC				
CREXD				
CREXN				
CREXV				
CREXW				
CREXX				
CREXY				
CREXZ				
SRG	R			
SRGBB	R			

SRGBX	R
SRGCO	R
SRGM1	R
SRGM2	R
SRGM3	R
SRGM4	R
SRGNR	R
SRGPL	R

Note: 1: R = FID is required with USOC.
Note: 2: * = TBE and PROX follows a line class of service.
Note: 3: Valid screening code must follow the CAS FID.
Note: 4: CREX7 is only available to customers who subscribe to an expanded local calling area basic class of rvice. Not valid on UNE Ports nor Port Loop Combinations class of service accounts.

BellSouth Call Block

Billing Services

Data

Enhanced Solutions

Intelligent Network Services

Payphone Products

Resale

Technical References

Transport Services

Unbundled Network Element (UNE)

Wireless Products

Description

Call Block provides blocking of six numbers created on a screening list by the customer. The function of Call Block is to provide a screening list which is created by adding the last number (either incoming or outgoing), or by pre-selecting the number to be blocked. Callers who are on the list hear the following announcement:

"Your call has been properly delivered, but the number you are calling has its Call Block service activated. Calls from your number are not being accepted by the called party."

How to Use

To Activate/Deactivate Call Block, follow the steps below:

Step	Action
1	Hang up from unwanted call and pick up phone to get dial tone.
2	Dial *60 (1160 for dial pulse). (Dial 3 to activate your call block list-only done on first entry; if done again, will deactivate call block service.)
3	Listen for announcement followed by a beep.
4	Dial #01# (1201 for dial pulse).
5	This number will be considered a private entry and will be read back as Private (See Note).
6	Either continue to edit the list, or hang up

Note: Private does not mean non-published. This indicates a number added by dialing #01#, when the 7 digit telephone number is unknown.

To activate Call Block and edit numbers for the screening list, follow the steps below:

Step	Action

1	Pick up the phone and listen for dial tone.
2	Dial *60 (1160 for dial pulse).
3	To activate Call Block with existing screening list, hang up.
4	To establish or change screening list , listen for announcement with instructions followed by a beep.

To deactivate Call Block, follow the steps below:

Step	Action
1	Pick up the phone and listen for dial tone.
2	Dial *80 (1180 for dial pulse, *50 Prestige).
3	Listen for announcement with interaction instructions followed by a beep. (See screening list interactions.)

If a dialing error is made, dial * and start over. When adding or deleting a number, there is a tone heard after dialing the initial* or # (11 or 12 for dial pulse.)

For additional activation/deactivation codes on other TouchStar services see:

- 1A ESS
- 5 ESS/DCO
- DMS-100/DMS-10

Restrictions

- The restrictions of Call Block are as follows:
- On multi-line hunt lines, Call Block is added and billed on a per line basis.
- Not eligible for Franchise Concession.
- Not available on any Company provided coin/coinless telephone.
- Not available on Party Line service.
- Call Block will block a call from a number in a multi-line hunt group when terminal is Telephone Number identified. Special Billing Number (SBN) do not qualify.
- Only calls from within TouchStar®Service areas are blocked.
- Only main telephone number in multi-line hunt group can change the screening list.
- Can not have same number on Call Block screening list and the screening list for Preferred Call Forwarding or Call Selector.

- Prestige with TouchStar is not available in the DMS-100 office.
- Call Block will not work on Operator handled calls.
- Will not block calls from cellular telephones.

[AL, TN, MS, LA]

- Cannot input an 800 number to block; can block an 800 number by "private" entry only. See chart for additional information:

If Customer Activates	And Is In a	Then Customer Receives
Call Block to # which has Call Forwarding Feature activated	5ESS Office	Re-order Tone
	1AESS Office	Recorded Announcement
	DMS100 Office	Recorded Announcement

Feature Interactions

TouchStar Call Block interacts with the following features:

Preferred Call Forwarding

A number which is on the Call Block screen list should not be entered on the screening list for Preferred Call Forwarding as it will be blocked before it can be forwarded. If a customer wants the same number on another screening list, Call Block must be deactivated to allow a call to be processed by the other feature(s). Call Block overrides Preferred Call Forwarding.

Multi-line Hunting (MLH)

Call Block will not work if the incoming call is from a number in an MLH group, unless the number is a TN identified terminal of the group. Only a TN identified terminal may be put on the screen list. (Special Billing Number (SBN) does not qualify). Only the main number of the group can make changes to the list.

Call Forwarding

If a customer has both Call Block and Call Forwarding

activated, Call Block takes precedence and numbers on the screen list will be blocked and not forwarded. Call Block overrides Call Forwarding.

RingMaster

The Call Block screen list must contain the Main Telephone Number if the caller being blocked subscribes to RingMaster.

Call Return

Call Block customers cannot activate Call Return to numbers on their Call Block screen list. If a number on the Call Block screening list activates Call Return to the Call Block customer, they will be blocked and routed to the Call Block announcement.

Repeat Dialing

Call Block customers can use Repeat Dialing to numbers on their screen list.

Caller ID

Telephone numbers of callers on the Call Block screen list will not be delivered to a Caller ID display unit.

Call Selector

Telephone numbers on the Call Block screen list should not be on the Call Selector screen list. Calls will be blocked before the call can be forwarded. Call Block overrides Call Selector.

Call Waiting

A Call Block customer who has Call Waiting will not receive a Call Waiting tone from callers that are on the Call Block screen list. Call Block overrides Call Waiting.

Operator Calls

Operator assisted calls will bypass the Call Block capability.

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BellSouth Calling Number Delivery Blocking (Per Line)

Description

VALID FOR GEORGIA, NORTH CAROLINA, SOUTH CAROLINA AND TENNESSEE ONLY

[GA, NC, SC]

- Calling Number Delivery Blocking (CNDB) Per Line allows a customer to prevent delivery of their telephone number, on all outgoing calls, to a called party who subscribes to a Caller ID service.

[TN]

- Calling Number Delivery Blocking (CNDB) Per Line allows only a Non-Published or Non-Listed customer to prevent delivery of their telephone number, on all outgoing calls, to a called party who subscribes to a Caller ID service.

[GA, NC, SC, TN]

- Calling Number Delivery Blocking (CNDB) Per Line is in operation on a continuous basis and cannot be deactivated by the customer.

  Exception: If the access code (*82) is dialed on a line with CNDB-PER LINE, the line "toggles off" line blocking therefore, delivering the customer's telephone name and/or number on that particular call. The next call made will not transmit the telephone name an/or number unless (*82) is activated again.

  Customers with CNDB-PER LINE blocking must be aware of this access code, in order to turn off their PER LINE Blocking on a Per Call basis.

- Calling Number Delivery Blocking (CNDB) Per Line should only be discussed during customer contacts if the customer raises the issue.

[NC]

- A formal notice regarding the availability of CNDB-PER LINE Blocking will be provided on all new orders. This notice will be included in the existing confirmation letter.

Restrictions

VALID FOR GEORGIA, NORTH CAROLINA, SOUTH CAROLINA AND TENNESSEE ONLY

[GA, NC, SC, TN]

The restrictions for Calling Number Delivery Blocking (CNDB) Per Line are:

- Provided subject to availability of facilities where technically feasible
- Company assumes no liability and will be held harmless for any incompatibility of customer's premises equipment to perform satisfactorily with this feature

[TN]

- Only available to customers with Non-Pub or Non-List service

[SC]

- Will not be billed a monthly charge when service is suspended (vacation service)

[GA, NC, TN]

- In 1A ESS Central Office, this is group feature and provisioned on Multi-Line Hunt Group and can not be provisioned on an individual line

[SC]

- In 1A ESS Central Office, this is group feature and provisioned on Multi-Line Hunt Group and can not be provisioned on an individual line, however it is still billed on a PER LINE basis where applicable

[GA, NC, SC, TN]

- In 5 ESS and DMS-100 Central Offices, CNDB-PER LINE is a line feature and must be provisioned on each line
- PER LINE blocking does not block a customer's telephone number from being sent to an E911 operator
- Cannot be provisioned on:

Party Line service (2, 4 or 8)
Trunks
Outwats (DMS-100 only)
Coin/Coinless Phones
Hotel/Motel Service

[TN]

- 1A ESS Remote Switching System

[GA, NC, SC, TN]

Feature Interactions *VALID FOR GEORGIA, NORTH CAROLINA, SOUTH CAROLINA AND TENNESSEE ONLY*

The following are feature interactions with TouchStar Calling Number Delivery Blocking (CNDB) Per Line:

- **Call Return/Repeat Dialing**
  Both Call Return and Repeat Dialing can be activated to a caller who has activated CNDB-Per Line blocking. However, Call Return-Enhanced customer will not be voiced back the telephone number of a person who has activated CNDB-Per Line.

- **Call Tracing**
  Calls can be traced to a caller who has activated CNDB-Per Line.

- **All Call Forwarding Features**
  The telephone number of a caller who has activated CNDB-Per Line will not be displayed to the remote station of any Call Forwarding customer. This applies to Call Forwarding, Call Forwarding Busy Line, Call Forwarding Don't Answer and Preferred Call Forwarding.

- **Call Block, Call Selector, Preferred Call Forwarding**
  The telephone number of a person who has activated CNDB-Per Line customer will not be voiced back to a TouchStar Call Block, Call Selector or Preferred Call Forwarding customer when they edit their list.

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BellSouth Touchstar Calling Number Delivery Blocking (Per Call)

Billing Services

Data

Enhanced Solutions

Intelligent Network Services

Payphone Products

Resale

Technical References

Transport Services

Unbundled Network Element (UNE)

Wireless Products

Description

Calling Number Delivery Blocking (CNDB) Per Call allows all customers to temporarily change the public/private status of their directory name and/or number thus preventing or allowing it to be delivered to a called party who subscribes to a Caller ID service.

[FL]

EXCEPTION: Grande II and Biscayne - See local procedures for NXX's in Grande II and Biscayne.

- For access code information see How.To Use.

How To Use

- The public/private status of the line can be temporarily altered by dialing a preassigned access code prior to making a call.
- The access code for Calling Number Delivery Blocking (CNDB)-Per Call in the 1A ESS, DCO, DMS-100 and 5 ESS is

Service	Touchtone Access Code	Dial Pulse Access Code
POTS	*67	1167
Prestige	*67	1167

- This action must be repeated each time a call is made where the public/private status is to be changed.
- Once the call is completed, the customer's line resumes the normal public/private status.

Step	Action
1	Lift receiver.
2	Listen for dial tone.
3	Press *67 (touchtone), or dial 1167 (dial pulse/rotary).
4	Listen for confirmation tone (three short beeps) followed by dial tone. *

5	Dial the desired telephone number.

NOTE: * If a busy signal is returned (fast busy) the feature was not activated. The privacy status of the line was not changed.

There is no deactivation process required.

Depending on the display unit, "PRIVATE", "PRIVATE NUMBER" or "P" will display to the called party who subscribes to a Caller ID service.

Restrictions

The restrictions for Calling Number Delivery Blocking (CNDB) Per Call are:

- If line is equipped with Per Line Blocking, using the activation code for Per Call Blocking (*67) before placing a call will have no effect (blocking will not be turned off)
- Provided subject to availability of facilities where technically feasible.
- The Company assumes no liability and will be held harmless for any incompatibility of the customer's premises equipment to perform satisfactorily with this feature
- Will not block number delivery on calls to either an 800, 888 or 900 number that has Caller ID capabilities
- Provided to all eligible lines in equipped central offices
- Cannot be provisioned on:
  - Party Line service (2, 4 or 8)
  - Trunks
  - OutWATS (DMS-100)
  - Coin/Coinless Phones
  - Hotel/Motel Service
- Does not block a customer's telephone number from being sent to an E911 operator

Feature Interactions

The following are feature interactions with Calling Number Delivery Blocking (CNDB) Per Call:

Call Return/Repeat Dialing

- Both Call Return and Repeat Dialing can be activated to a caller who has activated CNDB-Per Call blocking.
- However, a Call Return-Enhanced customer will not be voiced back the telephone number of a person who has activated CNDB-Per Call.

Call Trace

- Calls can be traced to a caller who has activated CNDB-Per Call.

All Call Forwarding Features

- The telephone number of a caller who has activated CNDB-Per Call will not be displayed to the remote station of any Call Forwarding customer. This applies to Call Forwarding, Call Forwarding busy Line, Call Forwarding Don't Answer and Preferred Call Forwarding.

Call Block, Call Selector, Preferred Call Forwarding

- The telephone number of a CNDB-Per Call customer will not be voiced back to a TouchStar Call Block, Call Selector or Preferred Call Forwarding customer when they edit their list.

Per Line Blocking

[AL, FL, KY, LA, MS]

There is a per line blocking feature which allows Federal, State, & Local Law Enforcement and Domestic Violence Intervention Agencies the ability to prevent the delivery of their telephone name and/or number, on all outgoing calls, to a called party who subscribes to a Caller ID service. It is in operation on a continuous basis and cannot be deactivated by the customer by a service order request.

> **Exception:** If the access code (*82) is dialed on a line with Per Line, the line "toggles off" line blocking therefore, delivering the customer's telephone name and/or number on that particular call. The next call made will not transmit the telephone name an/or number unless (*82) is activated again.

Customers with Per Line blocking must be aware of this access code, in order to turn off their Per LineBlocking on a Per Call basis.

[GA, NC, SC, TN]

There is a per line blocking feature which allows Federal, State, & Local Law Enforcement Agencies, Domestic Violence Intervention Agencies, and eligible customers the ability to prevent the delivery of their telephone namE and/or number, on all outgoing calls, to a called party who subscribes to a Caller ID service. It is in operation on a continuous basis and cannot be deactivated by the customer except by a service order request.

Exception: If the access code (*82) is dialed on a line with Per Line, the line "toggles off" line blocking therefore, delivering the customer's telephone name and/or number on that particular call. The next call made will not transmit the telephone name an/or number unless (*82) is activated again.

Customers with Per Line blocking must be aware of this access code, in order to turn off their Per Line Blocking on a Per Call basis.

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OUTAGES

BELLSOUTH

BellSouth Interconnection Services
675 West Peachtree Street
Atlanta, Georgia 30375

Carrier Notification
SN91082473

Date: June 25, 2001

To: Competitive Local Exchange Carriers (CLECs)

Subject: CLECs - Notification to CLECs of Reportable Network Outages Report

Consistent with the Georgia Public Service Commission's (PSC) order dated January 16, 2001, in Docket No. 7892-U, BellSouth has developed a process designed to notify CLECs when major network outages have occurred and has developed a monthly Performance Measurement and Analysis Platform (PMAP) report to measure the mean time for delivery of these notifications. The notification is provided via a broadcast e-mail to Performance Measurement contacts of record.

Subscribing to the Notification E-Mail

An e-mail list entitled "Network Outage CLEC" has been developed and includes the names and e-mail addresses of all current primary CLEC contacts for Performance Measurement reports. This e-mail distribution list has been validated and updated to ensure the accuracy of the list. If additional CLEC representatives wish to be included on this notification list, the following steps should be taken:

1. From the requestor's mailbox an e-mail should be sent to the following BellSouth e-mail account:

   List.manager@bridge.bellsouth.com

2. In the Subject line of the above e-mail, the requestor should type SUBSCRIBE (followed by the e-mail distribution name) as shown in the following example:

   Subject: SUBSCRIBE Network Outage CLEC

3. It is not necessary to type any message in the body of the e-mail. The above indication will automatically add the requestor to the e-mail notification list.

4. To delete a name from the same list, the requestor should type in the Subject area, "UNSUBSCRIBE" followed by the e-mail distribution name as follows:

   Subject: UNSUBCRIBE Network Ou[illegible] CLEC

The indicated formats must be submitted exactly as shown for additions and deletions to be implemented automatically.

Please be aware that appropriate computer equipment and software are required for the service. Your company may incur additional costs for using the service associated with downloading, online time and subscription costs from Internet service providers and/or telecommunications companies. Rejected Electronic Delivery Notices will revoke this service if it remains unavailable after three (3) attempts. CLECs must maintain a valid e-mail address to receive electronic notifications.

Accessing the PMAP Report Entitled "M&R-7: Mean Time To Notify CLEC of Network Outages"

The monthly PMAP report that reflects BellSouth's measurement of the mean time for the notifications is accessible by the CLECs on the BellSouth Interconnection Services' Web site for Performance Measures at the following address:

https://pmap.bellsouth.com

This Web site provides secured access to the monthly Performance Measurement reports for each CLEC. CLECs requiring access to these reports should contact their BellSouth account team representative for instructions on acquiring a User Identification and Password. This report is found in the Miscellaneous Aggregate Reports folder on the Reports page of the Web site.

Questions or issues related to this process should be directed to the appropriate BellSouth account team representative.

Sincerely,

ORIGINAL SIGNED BY JIM BRINKLEY

Jim Brinkley – Senior Director
BellSouth Interconnection Services

Report No. DC-2626 ACTION IN DOCKET CASE July 14, 1994

TELEPHONE SERVICE OUTAGE REPORTING REQUIREMENTS STRENGTHENED
(CC DOCKET 91-273)

The Commission today adopted revised standards for reporting telephone service outages as part of its ongoing efforts to improve the reliability of the nation's telecommunications networks. Telephone outages are infrequent in this country, but when they occur, outages can cause the loss of telephone service to a large number of users and have a potentially devastating effect on the businesses and people involved. Telephone outages may disrupt the lives of millions of consumers, cause economic loss, or even threaten life and property.

In the order adopted today, the Commission amended its telephone service outage reporting requirements by reducing the number of potentially affected customers from 50,000 to 30,000 as the baseline for reporting telephone service outages lasting over 30 minutes to the FCC. Use of the lower threshold will triple the number of central offices that would be required to report outages. The Commission also required the reporting of outages affecting "special offices and facilities," such as major airports, 911 facilities, nuclear power plants, major military installations and key government facilities, regardless of the number of customers affected. The new rules also require that in their outage reports carriers list, and evaluate, the effectiveness of relevant industry best practices or standards that are described in the report issued June 10, 1993, by the Commission's Network Reliability Council (NRC).

In addition, the Commission will require carriers to notify the management of any 911 facility of an outage affecting the facility. It will also require the reporting of fire-related incidents affecting 1000 or more service lines.

Most of these changes were recommended by the NRC, a broad-based group that includes industry leaders and consumers. The Commission created the NRC to provide recommendations for avoiding or minimizing the impact of public telephone network outages. In January the Commission renewed and revised the NRC's charter to address emerging issues related to increased interconnection of new and different kinds of telecommunications service providers to the public telephone network, including cable television and wireless service providers.

(over)

The Commission asked the newly-expanded NRC to take under advisement the issues of whether reporting of outages affecting 911 and other special facilities should include other entities, such as satellite and cellular carriers; whether and how a funding structure for the Internetwork Interoperability Test Plan should be designed; and whether customers of carriers are adequately informed of service outages.

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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
Amendments to Parts 0 and 63 of the)
Commission's Rules to Change the)
Recipient of Final Telephone Network)
Outage Reports from the Chief of)
the Common Carrier Bureau to the)
Chief of the Office of Engineering)
Engineering and Technology)

ORDER

Adopted: June 19, 1998 Released: June 25, 1998

By the Commission:

1. Section 63.100 of the Commission's rules requires wireline common carriers to send fir reports of certain telephone network service outages to the Chief of the Common Carrier Bureau. order amends the rule so that carriers required to provide the Commission with final reports of outages will be directed to send them to the Chief of the Office of Engineering and Technology i

2. An outage is "a significant degradation in the ability of a customer to establish and maintain a channel of communications as a result of failure or degradation in the performance o network." Section 63.100 defines the types of outages that carriers must report to the Commissi deadlines for reporting, and the information required to be reported for each type of outage. requires that for each type of reportable outage:

> Not later than thirty days after the outage, the carrier shall file with the Chief, C Carrier Bureau, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disrupt Report and detailing specifically the root cause of the outage and listing and evaluating effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

3. Since February 13, 1996, the Office of Engineering and Technology has coordinated the meetings and other activities of the Network Reliability Council, now called the Network Reliabi Interoperability Council. Previously this coordinating function was carried out by the Common C Bureau. The receipt and tabulation of outage reports, however, continues to be carried out by t e Common Carrier Bureau. Since these outage reports are relied upon by the Council in the cor s research and since tabulation and any analysis that may be required is best conducted by th familiar with the best practice recommendations of the Council, the Council coordination functi receipt and tabulation function should be consolidated in the same office.

4. For the reasons set forth above, we are modifying the language in the relevant paragra of Section 63.100 to read as follows:

> Not later than thirty days after the outage, the carrier shall file with the Chief, Of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listi and evaluating the effectiveness and application in the immediate case of any best practice or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

5. To indicate that the functions of the Office of Engineering and Technology now include authority to formulate general policies with respect to Section 63.100, we are modifying the lan paragraph (j) of Section 0.31 to read as follows:

> (j) To perform all engineering and management functions of the Commission with respect to formulating rules and regulations, technical standards, and general policies for parts 1 18 and section 63.100 of this chapter, and for type approval and acceptance, and certification of radio equipment for compliance with the Rules.

6. We find that the notice and comment requirements of the Administrative Procedure Act d not apply here because we are changing a "rule of agency organization, procedure, or practice." reover, even if the rules at issue were not matters of agency organization, these requirements pply because they are unnecessary. Notice and comment on the change is unnecessary because t change, which merely substitutes one Bureau in the FCC with another does not affect any rights o obligations of the public.

7. The Regulatory Flexibility Act, 5 U.S.C. 601, et seq., does not apply to this proce because we are adopting this rule without notice and comment. See 5 U.S.C. 603(a) and 604(a)

8. The congressional review procedures of the Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, et seq., do not apply here because this revisi Section 63.100(b)(c)(d)(e) and (h) is not a rule within the meaning of 5 U.S.C. 804(3)(C) (exc from congressional review rules of agency organization, procedure, or practice that do not subst affect the rights or obligations of non-agency parties).

9. We find that good cause exists for requiring these rule changes to become effective up publication in the Federal Register. Section 63.100, by dividing closely related functions of among different Bureaus, complicates internal agency communication and is, therefore, inefficie Consolidation of these functions within a single Bureau at the earliest possible time is clearly interest. Moreover, the carriers should have no difficulty complying immediately with the rule because, as discussed above, they only change the location to which reports are sent from one o another within the same agency.

10. Accordingly, IT IS ORDERED, pursuant to Sections 1, 4(i), 201-205 and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154 (i), 201-205, and 303(r) and Sect 553(b)(A) of the Administrative Procedures Act, 5 U.S.C. 553(b)(A), that Part 63 of the Commis Rules, 47 C.F.R. 63.100 IS AMENDED as set forth in the Appendix below, effective on the date of publication in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas,
Secretary.

APPENDIX - Final Rules

1. Part 0 of Chapter I of Title 47 of the Code of Federal Regulations is amended as follows:

ART 0 -- COMMISSION ORGANIZATION

2. The authority citation for Part 0 continues to read as follows:

Authority: Secs. 5, 48 Stat. 1068, as amended; 47 U.S.C. 155.

3. Section 0.31 is amended as follows:
in paragraph (j) remove the only sentence and add one sentence in its place

Section 0.31 Functions of the Office

* * * * *

(j) To perform all engineering and management functions of the Commission with respect to formu rules and regulations, technical standards, and general policies for parts 15, 18 and section 6 chapter, and for type approval and acceptance, and certification of radio equipment for compli Rules.

* * * * *

4. Part 63 of Chapter I of Title 47 of the Code of Federal Regulations is amended as follows:

PART 63--EXTENSION OF LINES AND DISCONTINUANCE, REDUCTION, OUTAGE AND IMPAIRMENT OF SERVICE BY COMMON CARRIERS; AND GRANTS OF RECOGNIZED RIVATE OPERATING AGENCY STATUS

5. The authority citation for Part 63 continues to read as follows:
Authority: 47 U.S.C. 151, 154(i), 154(j), 201-205, 218, 403 and 533, unless otherwise noted.

6. Section 63.100 is amended as follows:

a. in paragraph (b) remove the last sentence and add one sentence in its place;
b. in paragraph (c) remove the last sentence and add one sentence in its place;
c. in paragraph (d) remove the last sentence and add one sentence in its place;
d. in paragraph (e) remove the ninth sentence of the introductory text and add one sentence in
e. in paragraph (h) remove the last sentence and add one sentence in its place.

63.100 Notification of service outage.

* * * * *

(b) * * * Not later than thirty days after the outage, the carrier shall file with the Chief, O Engineering and Technology, a Final Service Disruption Report providing all available informati service outage, including any information not contained in its Initial Service Disruption Repor detailing specifically the root cause of the outage and listing and evaluating the effectivenes application in the immediate case of any best practices or industry standards identified by the Reliability Council to eliminate or ameliorate outages of the reported type.

(c) * * * Not later than thirty days after the outage, the carrier shall file with the Chief, Engineering and Technology, a Final Service Disruption Report providing all available informati service outage, including any information not contained in its Initial Service Disruption Repor etailing specifically the root cause of the outage and listing and evaluating the effectivenes pplication in the immediate case of any best practices or industry standards identified by the Reliability Council to eliminate or ameliorate outages of the reported type.

(d) * * * Not later than thirty days after the outage, the carrier shall file with the Chief,

Engineering and Technology, a Final Service Disruption Report providing all available informati service outage, including any information not contained in its Initial Service Disruption Report detailing specifically the root cause of the outage and listing and evaluating the effectiveness application in the immediate case of any best practices or industry standards identified by the Reliability Council to eliminate or ameliorate outages of the reported type.

(e) * * * Not later than thirty days after the outage, the carrier shall file with the Chief, Engineering and Technology, a Final Service Disruption Report providing all available informati service outage, including any information not contained in its Initial Service Disruption Report detailing specifically the root cause of the outage and listing and evaluating the effectiveness application in the immediate case of any best practices or industry standards identified by the Reliability Council to eliminate or ameliorate outages of the reported type.

* * * * *

(h) * * * Not later than thirty days after the outage, the carrier shall file with the Chief, Engineering and Technology, a Final Service Disruption Report providing all available informati service outage, including any information not contained in its Initial Service Disruption Report detailing specifically the root cause of the outage and listing and evaluating the effectiveness application in the immediate case of any best practices or industry standards identified by the Reliability Council to eliminate or ameliorate outages of the reported type.

* * * * *

Federal Communications Commission

Office of Engineering and Technology

Network Outage Reports filed pursuant to 47 CFR § 63.100

Network Outage Reports

- 2001
- 2000
- 1999
- 1998
- 1997
- 1996

Outage reporting rules - 47 CFR § 63.100 - October 1998 (others)

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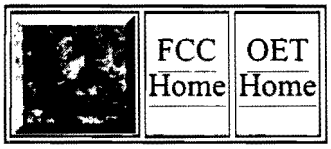

Last Update: December 7, 1999

(4) Any other information the Commission may require.

(c) The application to discontinue, reduce or impair service shall be automatically granted on the 31st day after its filing with the Commission without any Commission notification to the applicant unless the Commission has notified the applicant that the grant will not be automatically effective.

[45 FR 76169, Nov. 18, 1980]

§ 63.90 Publication and posting of notices.

(a) Immediately upon the filing of an application or informal request (except a request under § 63.71) for authority to close or otherwise discontinue the operation, or reduce the hours of service at a telephone exchange (except an exchange located at a military establishment), the applicant shall post a public notice at least 51 cm by 61 cm (20 inches by 24 inches), with letter of commensurate size, in a conspicuous place in the exchange affected, and also in the window of any such exchange having window space fronting on a public street at street level. Such notice shall be posted at least 14 days and shall contain the following information, as may be applicable:

(1) Date of first posting of notice;

(2) Name of applicant;

(3) A statement that application has been made to the Federal Communications Commission;

(4) Date when application was filed in the Commission;

(5) A description of the discontinuance, reduction, or impairment of service for which authority is sought including the address or other appropriate identification of the exchange or station involved;

(6) If applicant proposes to reduce hours of service, a description of present and proposed hours of service;

(7) A complete description of the substitute service, if any, to be provided if the application is granted.

(8) A statement that any member of the public desiring to protest or support the application may communicate in writing with the Federal Communications Commission, Washington, DC 20554, on or before a specified date which shall be 20 days from the date of first posting of the notice.

(b) Immediately upon the filing of an application or informal request of the nature described in paragraph (a) of this section, the applicant shall also cause to be published a notice of not less than 10 column centimeters (4 column inches) in size containing information similar to that specified in paragraph (a), at least once during each of 2 consecutive weeks, in some newspaper of general circulation in the community or part of the community affected.

(c) Immediately upon the filing of an application or informal request or upon the filing of a formal application to close a public toll station (except a toll station located at a military establishment), applicant shall post a public notice at least A3 (29.7 cm x 42.0 cm) or 11 in x 17 in (27.9 cm x 43.2 cm) in size as provided in paragraph (a) of this section or, in lieu thereof, applicant shall cause to be published a newspaper notice as provided in paragraph (b) of this section.

(d) Immediately upon the filing of any application or informal request for authority to discontinue, reduce, or impair service, or any notice of resumption of service under § 63.63(b), the applicant shall give written notice of the filing together with a copy of such application to the State Commission (as defined in section 3(t) of the Communications Act of 1934, as amended) of each State in which any discontinuance, reduction or impairment is proposed.

(e) When the posting, publication, and notification as required in paragraphs (a), (b), (c) and (d) of this section have been completed, applicant shall report such fact to the Commission, stating the name of the newspaper in which publication was made, the name of the Commissions notified, and the dates of posting, publication, and notification.

[45 FR 6585, Jan. 29, 1980, as amended at 45 FR 76169, Nov. 18, 1980; 58 FR 44907, Aug. 25, 1993; 60 FR 35510, July 10, 1995]

§ 63.100 Notification of service outage.

(a) As used in this section:

(1) *Outage* is defined as a significant degradation in the ability of a customer to establish and maintain a channel of communications as a result

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of failure or degradation in the performance of a carrier's network.

(2) *Customer* is defined as a user purchasing telecommunications service from a common carrier.

(3) *Special offices and facilities* are defined as major airports, major military installations, key government facilities, and nuclear power plants. 911 special facilities are addressed separately in paragraph (a)(4) of this section.

(4) *An outage which potentially affects a 911 special facility* is defined as a significant service degradation, switch or transport, where rerouting to the same or an alternative answering location was not implemented, and involves one or more of the following situations:

(i) Isolation of one or more Public Service Answering Points (PSAPs) for 24 hours or more, if the isolated PSAPs collectively serve less than 30,000 or more access lines, based on the carrier's database of lines served by each PSAP; or

(ii) Loss of call processing capabilities in the E911 tandem(s), for 30 minutes or more, regardless of the number of customers affected; or

(iii) Isolation of one or more PSAP(s), for 30 or more minutes, if the isolated PSAPs collectively serve 30,000 or more access lines, based on the carrier's database of lines served by each PSAP; or

(iv) Isolation of an end office switch or host/remote cluster, for 30 minutes or more, if the switches collectively serve, 30,000 or more access lines.

(5) *Major airports* are defined as those airports described by the Federal Aviation Administration as large or medium hubs. The member agencies of the National Communications System (NCS) will determine which of their locations are "major military installations" and "key government facilities."

(6) *An outage which "potentially affects" a major airport* is defined as an outage that disrupts 50% or more of the air traffic control links or other FAA communications links to any major airport, any outage that has caused an Air Route Traffic Control Center (ARTCC) or major airport to lose it radar, any ARTCC or major airport outage that has received any media attention of which the carrier's reporting personnel are aware, any outage that causes a loss of both primary and backup facilities at any ARTCC or major airport, and any outage to an ARTCC or major airport that is deemed important by the FAA as indicated by FAA inquiry to the carrier management personnel.

(7) *A mission-affecting outage* is defined as an outage that is deemed critical to national security/emergency preparedness (NS/EP) operations of the affected facility by the National Communications System member agency operating the affected facility.

(b) Any local exchange or interexchange common carrier or competitive access provider that operates transmission or switching facilities and provides access service or interstate or international telecommunications service, that experiences an outage which potentially affects 50,000 or more of its customers on any facilities which it owns, operates or leases, must notify the Commission if such outage continues for 30 or more minutes. Satellite carriers and cellular carriers are exempt from this reporting requirement. Notification must be served on the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served on the Commission's Watch Officer on duty at the FCC's Columbia Operations Center in Columbia, MD, or at such other facility designated by the Commission by regulation or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. The notification must be by facsimile or other record means delivered within 120 minutes of the carrier's first knowledge that the service outage potentially affects 50,000 or more customers, if the outage continues for 30 or more minutes. Notification shall identify a contact person who can provide further information, the telephone number at which the contact person can be reached, and what information is known at the time about the service outage including: the date and estimated time (local time at the location of the outage) of commencement of the outage; the geographic area affected;

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the estimated number of customers affected; the types of services affected (e.g. interexchange, local, cellular); the duration of the outage, i.e. time elapsed from the estimated commencement of the outage until restoration of full service; the estimated number of blocked calls during the outage; the apparent or known cause of the incident, including the name and type of equipment involved and the specific part of the network affected; methods used to restore service; and the steps taken to prevent recurrences of the outage. When specifying the types of services affected by any reportable outage, carriers must indicate when 911 service was disrupted and rerouting to alternative answering locations was not implemented. The report shall be captioned Initial Service Disruption Report. Lack of any of the above information shall not delay the filing of this report. Not later than thirty days after the outage, the carrier shall file with the Chief, Office of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

(c) Any local exchange or interexchange common carrier or competitive access provider that operates transmission or switching facilities and provides access service or interstate or international telecommunications service, that experiences an outage which potentially affects at least 30,000 and less than 50,000 of its customers on any facilities which it owns, operates or leases, must notify the Commission if such outage continues for 30 or more minutes. Satellite carriers and cellular carriers are exempt from this reporting requirement. Notification must be served on the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served on the Commission's Watch Officer on duty at the FCC's Columbia Operations Center in Columbia, MD, or at such other facility designated by the Commission by regulation or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. The notification must be by facsimile or other record means delivered within 3 days of the carrier's first knowledge that the service outage potentially affects at least 30,000 but less than 50,000 customers, if the outage continues for 30 or more minutes. Notification shall identify the carrier and a contact person who can provide further information, the telephone number at which the contact person can be reached, and what information is known at the time about the service outage including: the date and estimated time (local time at the location of the outage) of commencement of the outage; the geographic area affected; the estimated number of customers affected; the types of services affected (*e.g.* interexchange, local, cellular); the duration of the outage, *i.e.* time elapsed from the estimated commencement of the outage until restoration of full service; the estimated number of blocked calls during the outage; the apparent or known cause of the incident, including the name and type of equipment involved and the specific part of the network affected; methods used to restore service; and the steps taken to prevent recurrences of the outage. When specifying the types of services affected by any reportable outage, carriers must indicate when 911 service was disrupted and rerouting to alternative answering locations was not implemented. The report shall be captioned Initial Service Disruption Report. Lack of any of the above information shall not delay the filing of this report. Not later than thirty days after the outage, the carrier shall file with the Chief, Office of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the

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immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

(d) Any local exchange or interexchange carrier or competitive access provider that operates transmission or switching facilities and provides access service or interstate or international telecommunications service that experiences a fire-related incident in any facilities which it owns, operates or leases that impacts 1000 or more service lines must notify the Commission if the incident continues for a period of 30 minutes or longer. Satellite carriers and cellular carriers are exempt from this reporting requirement. Notification must be served on the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served on the Commission's Watch Officer on duty in the FCC's Columbia Operations Center in Columbia, MD, or at such other facility designated by the Commission by regulation or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. The notification must be by facsimile or other recorded means delivered within 3 days of the carrier's first knowledge that the incident is fire-related, impacting 1000 or more lines for thirty or more minutes. Notification shall identify the carrier and a contact person who can provide further information, the telephone number at which the contact person can be reached, and what information is known at the time about the service outage including: the date and estimated time (local time at the location of the outage) of commencement of the outage; the geographic area affected; the estimated number of customers affected; the types of services affected (*e.g.* interexchange, local cellular); the duration of the outage, *i.e.* time elapsed from the estimated commencement of the outage until restoration of full service; the estimated number of blocked calls during the outage; the apparent or known cause of the incident, including the name and type of equipment involved and the specific part of the network affected; methods used to restore service; and the steps taken to prevent recurrences of the outage. When specifying the types of services affected by any reportable outage, carriers must indicate when 911 service was disrupted and rerouting to alternative answering locations was not implemented. The report shall be captioned Initial Service Disruption Report. Lack of any of the above information shall not delay the filing of this report. Not later than thirty days after the outage, the carrier shall file with the Chief, Office of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

(e) Any local exchange or interexchange common carrier or competitive access provider that operates transmission or switching facilities and provides access service or interstate or international telecommunications service, that experiences an outage on any facilities which it owns, operates or leases which potentially affects special offices and facilities must notify the Commission if such outage continues for 30 or more minutes regardless of the number of customers affected. Satellite carriers and cellular carriers are exempt from this reporting requirement. Notification must be served on the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served on the Commission's Watch Officer on duty at the Columbia Operations Center in Columbia, MD, or at such other facility designated by the Commission by regulation or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. The notification must be by facsimile or other

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record means delivered within 120 minutes of the carrier's first knowledge that the service outage potentially affects a special facility, if the outage continues for 30 or more minutes. Notification shall identify a contact person who can provide further information, the telephone number at which the contact person can be reached, and what information is known at the time about the service outage including: the date and estimated time (local time at the location of the outage) of commencement of the outage; the geographic area affected; the estimated number of customers affected; the types of services affected (*e.g.* 911 emergency services, major airports); the duration of the outage, *i.e.* time elapsed from the estimated commencement of the outage until restoration of full service; the estimated number of blocked calls during the outage; the apparent or known cause of the incident, including the name and type of equipment involved and the specific part of the network affected; methods used to restore service; and the steps taken to prevent recurrences of the outage. When specifying the types of services affected by any reportable outage, carriers must indicate when 911 service was disrupted and rerouting to alternative answering locations was not implemented. The report shall be captioned Initial Service Disruption Report. Lack of any of the above information shall not delay the filing of this report. Not later than thirty days after the outage, the carrier shall file with the Chief, Office of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type. Under this rule, carriers are not required to report outages affecting nuclear power plants, major military installations and key government facilities to the Commission. Report at these facilities will be made according to the following procedures:

(1) When there is a mission-affecting outage, the affected facility will report the outage to the National Communications System (NCS) and call the service provider in order to determine if the outage is expected to last 30 minutes. If the outage is not expected to, and does not, last 30 minutes, it will not be reported to the FCC. If it is expected to last 30 minutes or does last 30 minutes, the NCS, on the advice of the affected special facility, will either:

(i) Forward a report of the outage to the Commission, supplying the information for initial reports affecting special facilities specified in this section of the Commission's Rules;

(ii) Forward a report of the outage to the Commission, designating the outage as one affecting "special facilities," but reporting it at a level of detail that precludes identification of the particular facility involved; or

(iii) Hold the report at the NCS due to the critical nature of the application.

(2) If there is to be a report to the Commission, a written or oral report will be given by the NCS within 120 minutes of an outage to the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served on the Commission's Watch Officer on duty at the FCC's Columbia Operations Center in Columbia, MD, or at such other facility designated by the Commission by regulation or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. If the report is oral, it is to be followed by a written report the next business day. Those carriers whose service failures are in any way responsible for the outage must consult with NCS upon its request for information.

(3) If there is to be a report to the Commission, the service provider will provide a written report to the NCS, supplying the information for final reports for special facilities required by this section of the Commission's rules. The service provider's final report to the NCS will be filed within 28 days after the outage, allowing the NCS to

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then file the report with the Commission within 30 days after the outage. If the outage is reportable as described in paragraph (e)(2) of this section, and the NCS determines that the final report can be presented to the Commission without jeopardizing matters of national security or emergency preparedness, the NCS will forward the report as provided in either paragraphs (e)(1)(i) or (e)(1)(ii) of this section to the Commission.

(f) If an outage is determined to have affected a 911 facility so as to be reportable as a special facilities outage, the carrier whose duty it is to report the outage to the FCC shall as soon as possible by telephone or other electronic means notify any official who has been designated by the management of the affected 911 facility as the official to be contacted by the carrier in case of a telecommunications outage at that facility. The carrier shall convey all available information to the designated official that will be useful to the management of the affected facility in mitigating the affects of the outage on callers to that facility.

(g) In the case of LEC end offices, carriers will use the number of lines terminating at the office for determining whether the criteria for reporting an outage has been reached. In the case of IXC or LEC tandem facilities, carriers must, if technically possible, use real-time blocked calls to determine whether criteria for reporting an outage have been reached. Carriers must report IXC and LEC tandem outages where more than 150,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the required 50,000 potentially affected customers threshold and must report such outages where more than 90,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold. Carriers may use historical data to estimate blocked calls when required real-time blocked call counts are not possible. When using historical data, carriers must report incidents where more than 50,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the required 50,000 potentially affected customers threshold and must report incidents where more than 30,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold.

(h)(1) Any local exchange or interexchange common carrier or competitive access provider that operates transmission or switching facilities and provides access services or interstate or international telecommunications services, the experiences an outage on any facilities that it owns, operates or leases that potentially affects 911 services must notify the Commission within the applicable period shown in the chart in this paragraph (h)(1) if such outage meets one of the following conditions, as defined in paragraph (a)(4) of this section:

Condition	Lines affected	Duration	Period
Loss of E911 Tandem capability	No limit	30 minutes or more	120 minutes.
Isolation of PSAP(s)	Under 30,000 access lines served	24 hours or more	120 minutes.
Isolation of PSAP(s)	50,000 or more access lines served	30 minutes or more	120 minutes.
Isolation of PSAP(s)	30,000 to 50,000 access lines served	30 minutes or more	3 days.
Isolation of EO switch, host/remotes from 911.	50,000 or more access lines served	30 minutes or more	120 minutes.
Isolation of EO switch, host/remotes from 911.	30,000 to 50,000 access lines served	30 minutes or more	3 days.

(2) Satellite carriers and cellular carriers are exempted from the reporting requirement in this paragraph (h). Notification must be served on the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communicaitons and Crisis Management Center in Washington, DC. Notification may be erved on the Commission's Watch Officer on duty at the Columbia Operations Center in COlumbia, MD, or at such other facility designated by the Commission by regulation or (at the time of thee emergency) by public announcement only if there

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is a telephone outage or similar emergency in Washington, DC. The notification must be by facsimile or other record means delivered within the notification period indicated above from the time of the carrier's first knowledge that the service outage "potentially affects a 911 special facility" as described in paragraph (a)(4) of this section and summarized in the chart in paragraph (h)(1) of this section and the service outage has continued for the duration indicated in paragraph (a)(4) of this section and summarized in the chart in paragraph (h)(1) of this section. Notification shall identify a contact person who can provide further information, the telephone number at which the contact person can be reached, and the information known at the time notification is made about the service outage including: the date and estimated time (local time at the location of the outage) of commencement of the outage; the geographic area affected; the estimated number of customers affected; the types of services affected; the duration of the outage, *i.e.* time elapsed from the estimated commencement of the outage until restoration of full service; the estimated number of blocked calls during the outage; the apparent or known cause of the incident, including the name and type of equipment involved and the specific part of the network affected; methods used to restore service; and the steps taken to prevent recurrences of the outage. The report shall be captioned Initial Service Disruption Report. Lack of any of the information in this paragraph (h)(2) shall not delay the filing of this report. Not later than thirty days after the outage, the carrier shall file with the Chief, Office of Engineering and Technology, a Final Service Disruption Report providing all available information on the service outage, including any information not contained in its Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type.

[59 FR 40266, Aug. 8, 1994, as amended at 60 FR 57196, Nov. 14, 1995; 62 FR 39452, July 23, 1997; 63 FR 37499, July 13, 1998]

CONTENTS OF APPLICATIONS; EXAMPLES

§ 63.500 Contents of applications to dismantle or remove a trunk line.

The application shall contain:

(a) The name and address of each applicant;

(b) The name, title, and post office address of the officer to whom correspondence concerning the application is to be addressed;

(c) Nature of proposed discontinuance, reduction, or impairment;

(d) Identification of community or part of community involved and date on which applicant desires to make proposed discontinuance, reduction, or impairment effective; if for a temporary period only, indicate the approximate period for which authorization is desired;

(e) Proposed new tariff listing, if any, and difference, if any, between present charges to the public and charges for the service to be substituted;

(f) Description of the service area affected including population and general character of business of the community;

(g) Name of any other carrier or carriers providing telegraph or telephone service to the community;

(h) Statement of the reasons for proposed discontinuance, reduction, or impairment;

(i) Statement of the factors showing that neither present nor future public convenience and necessity would be adversely affected by the granting of the application;

(j) Description of any previous discontinuance, reduction, or impairment of service to the community affected by the application, which has been made by the applicant during the 12 months preceding filing of application, and statement of any present plans for future discontinuance, reduction, or impairment of service to such community;

(k) A map or sketch showing:

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BellSouth Interconnection Services
675 West Peachtree Street
Atlanta, Georgia 30375

Carrier Notification
SN91082435

Date: June 13, 2001

To: Competitive Local Exchange Carriers (CLECs)

Subject: CLECs – April 2001 Conference on Georgia Ordered Performance Measurements

On April 23 and 24, 2001, BellSouth held an open CLEC conference to discuss the Georgia Ordered Performance Measurements. Several questions arose during this meeting. Listed below are the questions along with BellSouth's answers:

Q1: **Measurement: General – Raw Data**

What is the location of the Raw Data on the Performance Measurement Analysis Platform (PMAP) Web site? What does Raw Data look like?

A1: Raw Data is located in the Menu Folder on the PMAP Reporting Screen. There are 24 Raw Data files and each of the fields in these files is described in the Raw Data Users Guide.

Q2: **Measurement: Operations Support System (OSS)-1 – Average Response Time and Response Interval (Pre-Ordering/Ordering)**

For the new measurement points for Local Exchange Navigation System (LENS), Regional Ordering System (ROS) and Regional Negotiations System (RNS), in which data months will the new measurement points take effect?

A2: LENS – April 7, 2001; ROS – May 14, 2001; RNS – June 28; 2001; Telecommunications Access Gateway (TAG) data will be implemented no later than September 1, 2001. These dates are based on BellSouth collecting the appropriate data to capture and report the new measurement points.

Q3: **Measurement: PO-2 – *Loop Makeup Service (LMU) – Response Time - Electronic***

When will Raw Data be available?

A3: LMU Electronic Measurement is not a direct feed to PMAP. PMAP Raw Data files cannot be generated unless the data flows directly into the PMAP Processor. BellSouth is working on providing a PMAP Raw Data file, but no implementation date has been scheduled. On May 21, 2001, a manual Raw Data file was posted in the Miscellaneous folder for the month of April 2001. This file can be used until a PMAP Raw Data file is generated.

Q4: **Measurement: O-6 – CLEC Local Service Request (LSR) Information**

When will Raw Data for Local Number Portability (LNP) be available?

A4: LNP data will be migrated into the PMAP Processor in June 2001 and will become a part of the Raw Data fields at that time. The Telcordia Gateway does not produce the same level of detail on error files for the Flow Through Raw Data. This will require further development to produce and is being studied at this time.

Q5: **Measurement: O-6 – CLEC LSR Information**

Will there be a penalty for late posting of Raw Data?

A5: The order issued by the Georgia Public Service Commission (PSC) in Docket No. 7892-U obligates BellSouth to pay penalties based upon a progressive scale for "Late or Incomplete Performance Reports." However, the order does not require the payment of penalties for the late posting of "Raw Data."

Q6: **Measurement: O-7 – Percent Rejected Service Requests**

When will Raw Data be available?

A6: Raw Data currently exists for this report and can be found in the Raw Data folder on the PMAP Web site located at: https://www.pmap.bellsouth.com/. LNP Raw Data will be added in June 2001.

Q7: **Measurement: O-8 – Reject Interval**

For the use of business hours, was this an interpretation from Texas or a Georgia PSC Staff discussion? Does the Georgia PSC order approve excluding hours in calculating this measurement when the Local Carrier Service Center (LCSC) is closed?

A7: This was both a discussion with KPMG to make the Service Quality Measurement (SQM) more explicit, and a copy of the methods used by Southwestern Bell (SBC) in its SQM. BellSouth believes that the use of business hours is consistent with the Georgia PSC's order.

Q8: **Measurement: O-11 - Firm Order Confirmation (FOC) and Reject Response Completeness**

Please review and revise language as related to this CLEC measurement and to the exclusions. It is unclear that there are only two exclusions. The intent is that BellSouth will report on each mode of receipt; only calculating penalties on the Fully Mechanized.

A8: There is no mechanical version control mechanism in Local Order Number (LON), which is the reason BellSouth cannot currently include non-mechanized orders in this measurement. However, BellSouth will add the manual orders to this measurement in June 2001.

Q9: **Measurement: P-5 – Average Completion Notice Interval**

Explain the last exclusions: Exclude "disconnect and from" (D&F) orders (except "D" orders associated with LNP Standalone)

A9: The agreement to exclude D&F orders is appropriate in this report measurement due to the short completion intervals, except for LNP Standalone. The disconnect order is the only source to measure a ported telephone number of LNP. For this reason, the inclusion of disconnect orders for LNP Standalone is necessary for this report metrics.

Q10: **Measurement: General – Notification**

Will BellSouth continue the process of notifying CLECs if a report is reposted during the month and the CLEC has already pulled the report?

A10: Yes, the same procedures will continue to be followed.

Q11a: **Measurement: OSS-2 – Interface Availability**

What is the impact of one server going down when four are available as in the TAG example provided during the conference?

A11a: One server going down may result in slow response time but would not result in total service outage.

Q11b: **Measurement: OSS-2 – Interface Availability**

Should there be a correlation between the system outage report and the OSS Availability Report?

A11b: ***CLEC*** reported outages are posted on the BellSouth Web site and include loss of functionality, full outages and degraded service. The Interface Availability Report includes only full outages as described in the SQM.

Q12: **Measurement: General - Format**

What about the location of folders and disaggregations? What will the GA SQM folders look like on the Web?

A12: There will be no GA folders. GA data will be in the regular Ordering, Provisioning, Maintenance and Repair (M&R), Billing, and etc., folders because it represents the standards BellSouth is offering in the region.

Q13: **Measurement: P-3 – Percent Missed Installation Appointments**

Which metric shows the impact of BellSouth's change in the original due date for facilities, etc?

A13: Missed Installation Appointments (MIA). BellSouth never changes the original due date, therefore, the due date will show up as a MIA for "Company Reasons."

BellSouth trusts that these answers clarify the issues that were discussed during the April 23 and 24, 2001 conference.

Sincerely,

ORIGINAL SIGNED BY MATEO CAYMOL FOR JIM BRINKLEY

Jim Brinkley – Senior Director
BellSouth Interconnection Services

COLLOCATION
HANDBOOK

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BELLSOUTH

Customer Guide
CG-COLH-001
Issue 9.2, November, 2000

BellSouth Collocation Handbook

Interconnection Services

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February, 1998 - November, 2000

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Notice

This handbook is updated with version 9.2 effective November 1, 2000 in order to make the following changes to the Central Office Physical Collocation Contract: Inclusion of PSC rules from all states in order to consolidate all states into one contract. Deletion of a separate Florida Central Office Physical Collocation contract. This update also makes the following corrections to the Remote Site Collocation Contract : Inclusion of PSC rules from all states in order to consolidate all states into one contract; addition of a rate element chart per state.

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Introduction

Purpose

BellSouth offers Virtual Expanded Interconnection Service, or Virtual Collocation, as a tariffed service offering and Physical Collocation (Caged, Shared-Caged, Cageless and Adjacent) as a contract service offering in all BellSouth states and as a tariffed service offering in some states. BellSouth will negotiate Physical Collocation on an individual contract basis. Both Virtual and Physical collocation will be made available on a first come, first served basis, depending on space availability for interconnection to unbundled network elements for use by telecommunications service providers in providing telecommunications services. Included for your convenience you will find a list of contacts to obtain more information on interconnecting services to BellSouth's collocation offerings.

Version Information

Table A Revision History

Chapter	Action Request #	Date/Issue	Description
All	N/A	November 2000 / 9.2	General Revisions to Contracts
All	N/A	August 2000 / 9.1	Addition of Draft Rate Chart for Remote Site Collocation Contract
All	N/A	July, 2000 / 9	General Update and Revision
All	N/A	July, 1999 / 8	General Update and Revision
All	N/A	January, 1999 / 7.1.2	General Update and Revision
All	N/A	February, 1998 / 7	Initial Issue for On-line viewing.

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1. Preface

1.1 BellSouth Collocation Offerings

This handbook describes BellSouth's Collocation offerings, providing information regarding the terms and conditions, ordering process, provisioning and maintenance of BellSouth's Collocation Offerings. If a collocator orders collocation service pursuant to BellSouth's Statement of Generally Available Terms and Conditions (SGAT), the terms and conditions provided herein become a legally binding agreement. However, to the extent that the CLEC enters into a separate agreement with BellSouth for physical collocation, the terms and conditions of that agreement will apply. The terms and conditions of BellSouth Virtual Collocation offering are described in BellSouth's FCC # 1 Tariff, section 20 or BellSouth's Florida Access Tariff (E-20).

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2. Service Descriptions

2.1 Virtual Expanded Interconnection Service (VEIS)

VEIS, or Virtual Collocation, is a tariffed service offering which provides for the placement of collocator-owned transmission equipment and facilities in BellSouth Central Offices for the interconnection to the BellSouth network. Such equipment must be necessary for the provision of telecommunications services and may include, but not be limited to, optical terminating equipment and multiplexers, digital subscriber line access multiplexers (DSLAM), routers, asynchronous transfer mode (ATM) multiplexers, and remote switching modules. Collocation arrangements may interconnect to designated BellSouth tariffed services, local interconnection trunks and/or unbundled network elements.

With VEIS, the collocator places fiber optic cable from outside the central office to an interconnection point designated by BellSouth, (e.g. a serving manhole). The entrance facility is pulled into the central office cable vault by BellSouth, spliced into pre-terminated, fire-retardant riser cable and connected to the collocated equipment. Multiple entrance facility points will be made available where such entrances exist and capacity is available. The collocator must directly contract with its selected BellSouth Certified vendor for engineering and installation of the collocation equipment arrangement.

To ensure the compatibility of the facilities and equipment used to provision Virtual Collocation, collocated equipment and cabling facilities will be provided by the collocator. This includes, but is not limited to, all equipment placed within the arrangement and associated plug-ins/line cards, software, test equipment, the pre-terminated, fire-retardant riser cable, cabling from the equipment arrangement to the BellSouth cross-connect demarcation point, cabling from the arrangement to the BellSouth-provided power source, and any unique tools required to provision, maintain or repair the arrangement.

With Remote Site VEIS, the collocator may opt to place fiber optic entrance facilities from outside the site into an interconnection point designated by BellSouth.

BellSouth will lease the collocator's entrance fiber, cabling and equipment arrangement for the nominal fee of one dollar. BellSouth will perform all maintenance and repair on VEIS equipment once the collocator requests such work. For this reason, VEIS equipment arrangements are most commonly located in the BellSouth equipment line-up. Performance monitoring and alarming of the collocated equipment is the responsibility of the collocator and must be performed remotely. For additional information regarding BellSouth's Virtual Expanded Interconnection Service, please reference Section 20 of BellSouth's FCC #1 tariff or section 20 of BellSouth's Florida Dedicated Access Tariff.

2.2 Physical Collocation

Physical Collocation is a negotiated contract arrangement in all BellSouth states and also a tariffed service in some states for the placement of collocator-owned facilities and equipment in BellSouth Central Premises. BellSouth permits the collocation of any type of equipment that is directly related to and thus necessary, required or indispensable for interconnection to BellSouth's network or for access to unbundled network elements in the provision of telecommunications services. Physical Collocation is

available at Central Offices, Serving Wire Centers and at Remote Sites and may be offered in the following types: Caged, Shared, Cageless or Adjacent. Equipment ownership, maintenance and insurance are the responsibility of the collocator or their approved agent.

The standard agreement for Physical Collocation in BellSouth Central Offices and Remote Site Locations are attached to this handbook. These attachments contain the standard rates, terms and conditions for Physical Collocation.

For additional information on BellSouth Physical Collocation Service in Florida, please see the Florida Access Services Tariff, Section E20.2, Physical Expanded Interconnection Service (PEIS)

3. General Terms and Conditions

3.1 Contract Negotiations

In any state where BellSouth offers Physical Collocation through a tariff, Physical Collocation may be requested by submitting an Application pursuant to that Tariff as through an Agreement executed between the parties. In any state where BellSouth does not offer Physical Collocation through a tariff, an agreement must be entered into between the collocator and BellSouth. This agreement may be a separately negotiated collocation agreement or the adoption of BellSouth's SGAT. To initiate the negotiations process, the collocator submits a Request for Negotiations letter to BellSouth. A sample request letter is included in this Handbook. Contract negotiations may take place concurrently with the Application Inquiry phase described below. However, an agreement must be executed with BellSouth before the collocator may proceed with a Bona Fide Firm Order for Physical Collocation.

3.2 Application Process

The application process for collocation is a two-phase process consisting of the Application Inquiry phase and the Bona Fide Firm Order phase. Both phases use BellSouth Expanded Interconnection forms (BSTEI forms).

For the Application Inquiry phase, a collocator must submit a complete and accurate BSTEI-1 Application Inquiry document, with the appropriate Application Fee, for review and planning by BellSouth equipment engineers, space planners and facility planners. A proposed equipment layout, an estimate of the square footage or bay space required and an application fee must accompany each application inquiry as indication of a bona fide request. BellSouth will inform the CLEC within ten (10) business days of receipt of an Application whether the Application is denied as a result of space availability and whether the Application is considered Bona Fide, or if it is not Bona Fide, the items necessary to cause the Application to be Bona Fide.

For physical collocator requests, BellSouth will provide a comprehensive written response ("Application Response") within thirty (30) business days of receipt of the complete application and Application Fee. When multiple applications are submitted within a fifteen business day window, BellSouth will respond to the applications as soon as possible, but no later than the following: Within thirty (30) business days for applications 1–5; thirty six (36) business days for applications 6–10; within forty two (42) business days for applications (11–15). Response intervals for applications in the same state in excess of 15 must be negotiated. For virtual collocation requests, BellSouth will provide an Application Response within twenty (20) business days of receipt of the complete application and Application Fee. When multiple applications are submitted within a fifteen day window, BellSouth will respond to the applications as soon as possible, but no later than the following: Within twenty (20) business days for applications 1–5; within twenty six (26) business days for applications 6–10; within thirty two (32) business days for applications 11–15. Response intervals for applications in the same state exceeding 15 must be negotiated. All negotiations will consider the total volume of all requests from telecommunications companies for collocation. The Application Response will detail whether the amount of space requested

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is available or, if the amount of space requested is not available, the amount of space that is available. The response will also include the configuration of the space.

As stated above, requesting collocators may begin the Application Inquiry process prior to the execution of Physical Collocation agreement with BellSouth. However, the agreement must be executed prior to proceeding to the Firm Order phase. A collocator may contact their BellSouth Interconnection Services Account Team contact noted in Section 5 of this Handbook for copies of BellSouth's Request for Negotiations, BSTEI forms and BSTEI line by line instructions.

The process described under this Section varies by state. SeeBellSouth Standard Central Office Collocation Agreement (Attachment 4 of Interconnection Agreement — Chapter 6 of this document) for actual intervals by state.

3.3 Assignment of Facilities

BellSouth assigns and pre-wires interconnection facilities from within its network to the collocation demarcation point. These facilities will be named as TIE cables or cable and pair. These facilities will be named as TIE cables or cable and pair. Physical Collocation interconnection facilities are built between the BellSouth frame, DSX or LGX and the point of demarcation. The interconnection facilities for Virtual Collocation are built between the BellSouth's frame, DSX or LGX and the collocator's equipment. BellSouth provides the facility interconnection information on the Design Layout Record (DLR) for DS1 and DS3 interconnection and on the Cable and Pair Assignment Matrix for 2-wire and 4-wire (DS0) and fiber optic interconnection. The customer must specify interconnection facility information as a Circuit Facility Assignment (CFA) or cable and pair/channel assignment, respectively, on the Access Service Request or Local Service Request when ordering cross-connects to unbundled network elements or tariffed services.

3.4 Combining UNEs via Collocation

When a collocator orders unbundled network elements (UNEs) in order to recombine them within the collocation space, the facility designation described in the previous section (Assignment of Facilities) must be used to facilitate this combination. An example of how a collocator might combine individual unbundled network elements is the combination of an unbundled loop and an unbundled switch port. BellSouth will wire each UNE to the cable and pair or TIE pair designated by the collocator on the UNE order. Both the loop and the switch port are terminated on the Distributing Frame within the BellSouth central office. Upon request of the collocator, BellSouth will wire the loop to the cable and pair facility designation indicated on the unbundled loop order. BellSouth will also wire the unbundled switch port to the cable and pair facility designation indicated on the unbundled switch port order.

For Physical Collocation, BellSouth's wiring of the UNEs to the cable and pair interconnection facilities designated by the collocator correlates to a pre-designated position(s) at the point of demarcation. The collocator may complete the combination via connections within their collocated equipment either manually or electronically.

To facilitate combinations in Virtual Collocation, the collocator may employ one of several options which may include, but not be limited to: Pre-wired terminations on their transmission equipment, electronic digital cross-connects or other means of performing cross-connects remotely, or connections on a per request basis. An example of using pre-wired terminations might include the collocator arranging the pre-wiring of "position 100" to "position 200", "position 101" to "position 201" and etc. Should the collocator wish to combine two elements, such as combining an unbundled loop with an unbundled switch port, the collocator would specify the BellSouth cable and pair assignment correlating to slot 100 on the unbundled loop order and would specify the BellSouth cable and pair assignment correlating to slot 200 for the unbundled switch port. With slot 100 and slot 200 being pre-connected by the BellSouth Certified Supplier, the elements are automatically combined once BellSouth completes its connection of each of the elements to the designated interconnection facility cable and pair assignments.

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4. Contacts

4.1 Physical Collocation Contract Negotiation:

Contact Name	Telephone
Jerry Hendrix	404-927-7503

4.2 New Accounts or Accounts that have not been assigned a Collocation Coordinator

Call 1–888–560–CLEC (2532) for assistance

4.3 Accounts that have been assigned a Collocation Coordinator

Please contact your BellSouth Account Team Representative, or call **1–888–560–CLEC (2532)**for assistance.

To obtain a copy of BellSouth's current Application/Inquiry document:

Contact your Account Representative

or

Visit BellSouth's Interconnect website at:

www.interconnection.bellsouth.com

4.4 BellSouth Certified Transmission Vendor List — Engineering and Installation of Collocation Arrangements

Vendor	Contact	Phone
ADC Communications	Product - Ken Reeves	800-223-9773
	Product - Doug Guildry	318-684-2860
	EFI Services-Gary Lester	678-355-2461

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Vendor	Contact	Phone
	EFI Svcs-Randy Dunagan	706-375-1633
AG Communications System	Dave Petersen	815-784-7742
Alcatel	Ed Boatwright	770-270-8335
	Alex Barber	800-869-4869
Atlantic & Pacific Tel com, Inc.	Edward G. Elliot	540-389-9330
Blue Star - Field Trial (CLEC)	Sherry Hariri	615-346-3845
Cellular One -Field Trial (CLEC)	Rick Jorgensen	601-549-9138
Comm. Tet Design, Inc.	Vernol Purcell	770-621-0399
E F & I Services Co.	Reed Tillis	904-355-7930
Fujitsu Network Communications, Inc., * Certified – Collocation (Original Equipment Manufacturer)	Gery Whaley	770-246-4102
Hugh O'Kane Datacom	Manny Pisana	212-431-6007
Internet Communications, Corp.	Doug Moseley	303-414-7209
LISN	Lamar Steal	440-984-2511
Lucent Technologies, Inc.	(SC) Adrian Dye	803-926-5213
	(MS)Larry Montgomery	601-949-8277
	GA) Mike Chancey	404-573-6521
	(NFL) Wayne Stricklen	407-636-1421
	(NC) Abe Jenkins	704-529-0693
	(NC)	910-299-0326
	(AL) Marc Haze	334-265-1291
	(S/SEFL) Charles Barrett	561-837-9649
Marconia	Woordy Bell	770-449-0840
Ma Tec Technologies	Anthony M. Vale	678-323-2301

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Vendor	Contact	Phone
Mintel	Glenn Liephart	770-923-0304
NextLink - Field Trial (CLEC)	Kevin Keoper	615-777-7777
Nortel * Field Trial - Collocation (OEM) Physical Collocation only	Joe Salazar	972-685-7587
Pacific Access	Doreen A. Stringer	252-635-9300
QMW	Kent Gicker	813-763-0850
Quality Telecommunications, Inc.	John Hardin	205-426-0100
Rapid Response Comm.	Ted Pellaux	423-546-2886
Six "R" Comm., Inc.	Dick Phillips	704-289-5522
SRI Telecomm	Shane Breaux	800-801-4515
TAD Telecomm, Inc.	Bob Aramini	800-453-6848
Tele-Tech Company	Larry Richard	770-389-3043
Telpro Technologies, Inc.	Robert West, Jr.	404-629-1093
Thornton Communications, Inc.	Kurt Denmann	423-274-8307
T-One, Inc.	Steve Maloone	770-413-3009
Trans Global Comm.	Dale White	407-290-1453
Volt Information Science	George Maquieira	908-245-0100

Note: The certification status of any listed vendor is subject to change monthly, therefore please ensure you have current information by contacting your BellSouth Collocation Coordinator. @ This indicates a Certified Vendor is temporarily unavailable for collocation selection.

4.5 BellSouth Certified Switch Vendors Engineering and Installation for Physical Collocation

Vendor	Contact	Phone
DSC Corporation (STP)	John Mastoras	214-491-1870
Ericsson (STP)	Karen A Caulk	972-583-5158

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Vendor	Contact	Phone
Fujitsu Network Communications, Inc. Certified – Collocation (OEM) Broadband	Gerry Whaley	770-246-4102
Lucent Technologies, Inc	(SC) Adrian Dye	803-926-5213
	(MS)Larry Montgomery	601-949-8277
	(GA) Mike Chancey	404-573-6521
	NFL) Dan Wolbright	407-636-1421
	(NC) Abe Jenkins	704-529-0693
	(NC)	910-299-0326
	AL) Marc Haze	334-265-1291
	(S/SEFL) Charles Barrett	561-837-9649
	(LA,TN,KY) Unknown	Use a number above
Nortel	Margaret Skeen	770-661-4303
Siemens Telecom Network	Manfred Schmidtk - Installation	407-942-5665
	Karl Hoskins - Engineering	561-955-8621

Note: The certification status of any listed vendor is subject to change monthly, therefore please ensure you have current information by contacting your BellSouth Collocation Coordinator. @ This indicates a Certified Vendor is temporarily unavailable for collocation selection.

4.6 BellSouth Certified Power Vendors Engineering and Installation for Physical Collocation

Note: Installation of Power equipment requires special BellSouth conditions and approval.

Vendor	Contact	Phone
Charles E. Singleton	Jeff Allen	305-960-0158
Marconia	Bob Dietz	216-353-2070
Six R Communications	Dick Phillips	704-535-7607

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Lucent Technologies, Inc.	(SC) Adrian Dye	803-926-5213
	(MS)Larry Montgomery	601-949-8277
	(GA) Mike Chancey	404-573-6521
	NFL) Dan Woolbright	407-636-1421
	(NC) Abe Jenkins	704-529-0693
	(NC)	910-299-0326
	(AL) Marc Haze	334-265-1291
	(S/SEFL) Charles Barrett	561-837-9649

Note: The certification status of any listed vendor is subject to change monthly, therefore please ensure you have current information by contacting your BellSouth Collocation Coordinator. @ This indicates a Certified Vendor is temporarily unavailable for collocation selection.

5. Exhibits

5.1 Example Letter: Request for Negotiations

(Date)

Mr. Jerry Hendrix
Director - Marketing Interconnection Services
BellSouth Telecommunications, Inc.
675 W. Peachtree Street N.E.
Room 34S91
Atlanta, Georgia 30375

Dear Mr. Hendrix:

(Company name) hereby requests to begin the negotiations process to reach a mutually acceptable Physical Collocation Agreement with BellSouth Telecommunications, Inc. in the state(s) of _____.

Please contact ***(name of your contact)*** at your earliest convenience to establish the appropriate company contacts and the desired procedural schedule necessary to implement the negotiation process.

Sincerely,

Contact Name and Title
Company Name and Address
Contact Phone Number, Fax Number

Figure 1 Request for Negotiations

5.2 Virtual Collocation Example Schematic

This schematic shows the placement of the Virtual Collocation equipment within the BellSouth line-up. The interconnection point between the collocator's equipment arrangement and BellSouth's network occurs at the frame (TMDF) or DSX (DSX1 or DSX3), depending on the service being interconnected. The "local channel" is shown as an example of the type of connection which can be made between a collocation arrangement and BellSouth's network but does not constitute the only option for such interconnection.

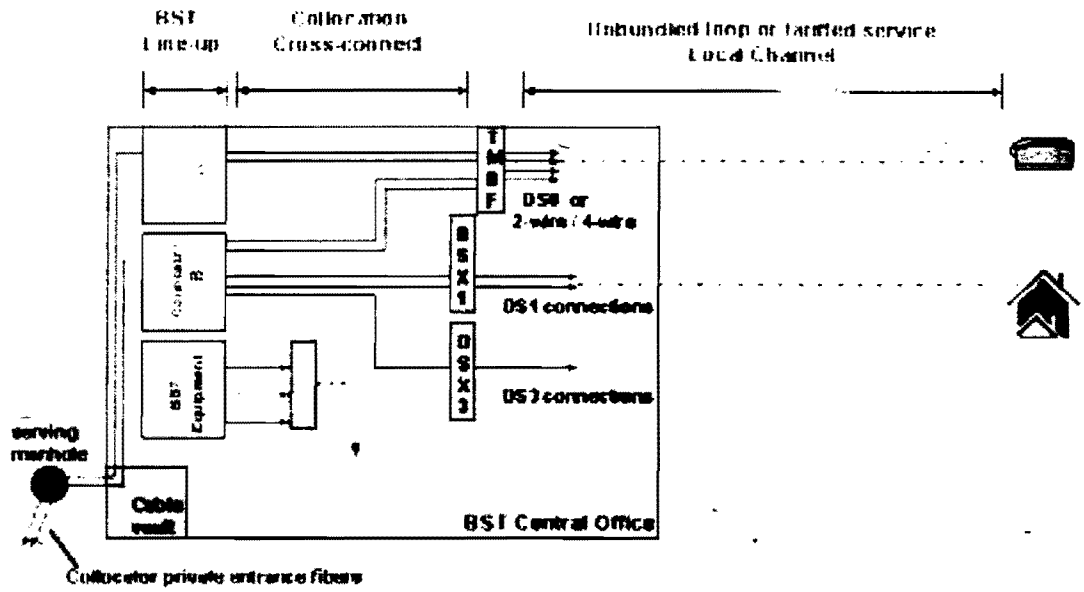

Figure 2 Virtual Collocation Example Schematic

5.3 Physical Collocation Example Schematic

The example below illustrates the two types of Physical Collocation offered by BellSouth: Service Interconnection with Collocator "A" and Expanded Interconnection Service with Collocator "B". This Schematic shows the POT bay interconnection point between the collocator's equipment arrangement and BellSouth's network. The "local channel" is shown as an example of the type of connection which can be made between a collocation arrangement and BellSouth's network.

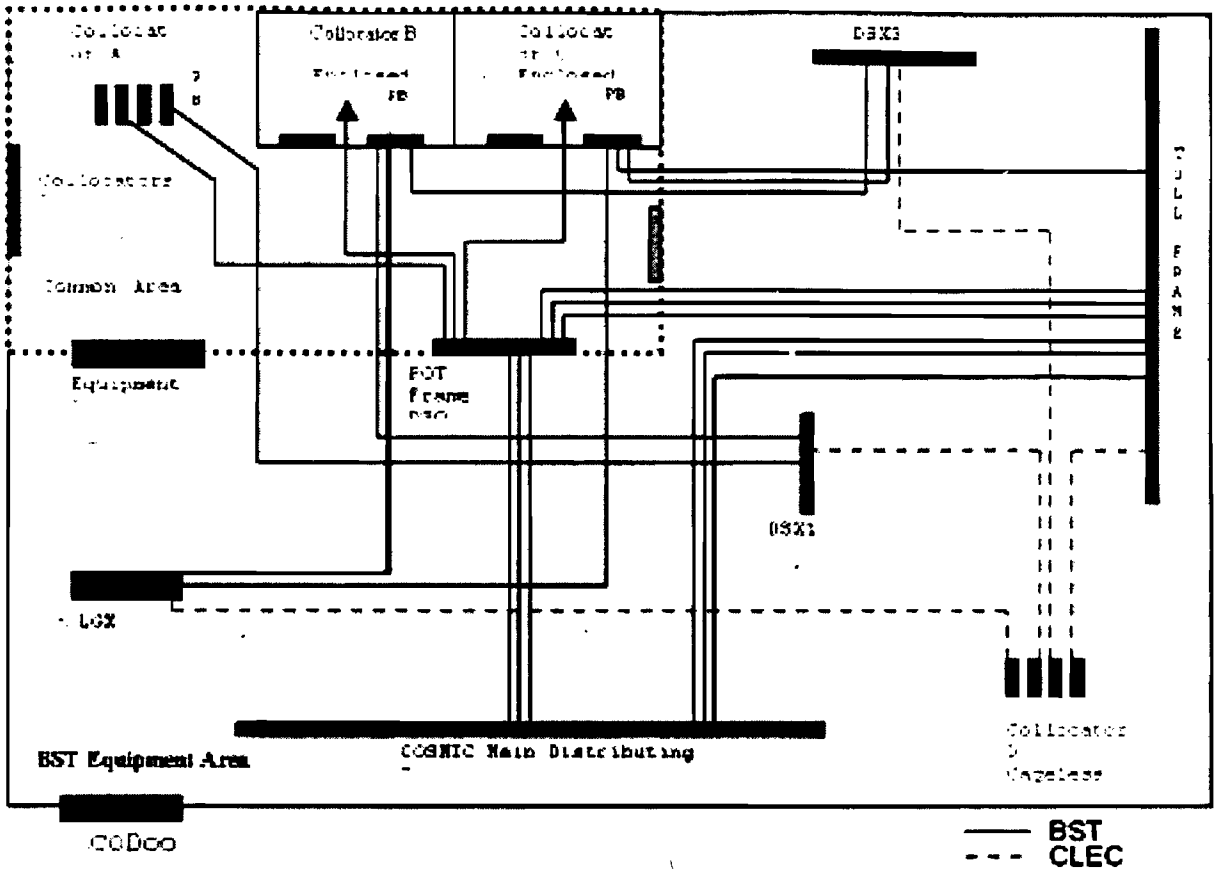

Figure 3 Physical Collocation Example Schematic

The example below illustrates the two types of Physical Collocation offered by BellSouth: Caged (enclosed) and Cageless (unenclosed). This Schematic shows the POT bay (PB) as an interconnection point for installations prior to June 1, 1999 and the distributing frame/DSX/LGX as the interconnection point for installations following June 1, 1999.

5.4 Remote Site Physical Collocation Schematic

Remote Sites Collocation will include Remote Terminal Cabinets, Controlled Environmental Vaults (CEVs) Huts, or other remote serving terminals and will follow the rules of C.O. Collocation. The point of Interconnection is the entry into the Remote Site.

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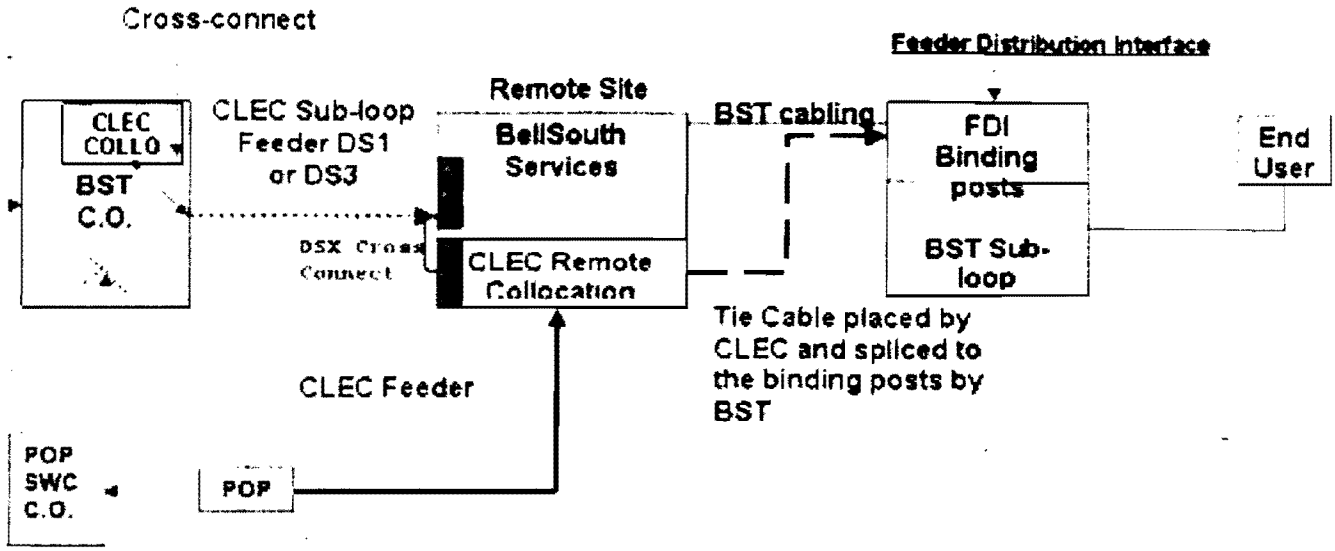

NOTE: Remote Site collocation will include Remote Terminal cabinets, Controlled Environmental Vaults (CEV's), Huts, or other remote serving terminals and will follow the rules for C.O. collocation. The Point of Interconnection is the entry into the Remote Site.

Figure 4 Remote Site Physical Collocation Schematic

5.5 Documentation

- BellSouth Standard Central Office Collocation Agreement — See Attached
- BellSouth Remote Site Collocation Agreement — See Attached
- BSTEI Ordering Documents and Line by Line Instructions
- BellSouth Provisioning Process Flow Diagram
- Consideration of Environmental Conditions Guidelines

* See the contacts Section to obtain copies of the above.

6. BellSouth Standard Central Office Collocation Agreement

6.1 Scope of Attachment

1.1 Scope of Attachment. The rates, terms and conditions contained within this Attachment shall only apply when CLEC is occupying the Collocation Space as a sole occupant or as Host within a Premises location pursuant to Section 4. This Attachment is applicable to Premises owned or leased by BellSouth. However, if the premises occupied by BellSouth is leased by BellSouth from a third party, special considerations and intervals may apply in addition to the terms and conditions of this Attachment.

All the negotiated rates, terms and conditions set forth in this Attachment pertain to collocation and the provision of Collocation Space.

1.2 Right to Occupy. BellSouth shall offer to CLEC collocation on rates, terms and conditions that ae just, reasonable. non-discriminatory and consistent with the rules of the Federal Communications Commission ("FCC"). Subject to Section 4 of this Attachment, BellSouth allows CLEC to occupy that certain area designated by BellSouth within a BellSouth Premises, or on BellSouth property upon which the BellSouth Premises is located, of a size which is specified by CLEC and agreed to by BellSouth (herein "Collocation Space"). BellSouth Premises include BellSouth Central Offices and Serving Wire Centers. The necessary rates, terms and conditions for BellSouth locations other than BellSouth Premises shall be negotiated upon request for collocation at such location(s). Neither BellSouth nor any of BellSouth's affiliates may reserve space for future use on more preferential terms than those set forth above.

1.2.1 In all states other than Florida, the size specified by CLEC may contemplate a request for space sufficient to accommodate CLEC's growth within a two year period.

1.2.2 In the state of Florida, the size specified by CLEC may contemplate a request for space sufficient to accommodate CLEC's growth within an eighteen (18) month period.

1.3 Space Reclamation. In the event of space exhaust within a Central Office Premises, BellSouth may include in its documentation for the Petition of Waiver filing any unutilized space in the Central Office Premises. CLEC will be responsible for any justification of unutilized space within its space, if such justification is required by the appropriate state commission.

1.4 Use of Space. CLEC shall use the Collocation Space for the purposes of installing, maintaining and operating CLEC's equipment (to include testing and monitoring equipment) necessary for interconnect with BellSouth services and facilities, including access to unbundled network elements, for the provision of telecommunications services. Pursuant to Section 5 following, CLEC may, at its option, place CLEC-owned fiber entrance facilities to the Collocation Space. The Collocation Space may be used for no other purposes except as specifically described herein or authorized in writing by BellSouth.

1.5 Rates and Charges. CLEC agrees to pay the rates and charges identified in Exhibit A attached hereto.

1.6 Due Dates. If any due date contained in this Attachment falls on a weekend or National holiday, then the due date will be the next business day thereafter

1.7 The parties agree to comply with all applicable federal, state, county, local and administrative laws, rules, ordinances, regulations and codes in the performance of their obligations hereunder.

6.2 Space Notification

2.1 Availability of Space. Upon submission of an Application pursuant to Section 6, BellSouth will permit CLEC to physically collocate, pursuant to the terms of this Attachment, at any BellSouth Premises unless BellSouth has determined that there is no space available due to space limitations or that physical collocation is not practical for technical reasons.

2.1.1. Unless otherwise specified, BellSouth will respond to an application within ten (10) calendar days as to whether space is available or not available within a BellSouth Premises. If the amount of space requested is not available, This interval excludes National Holidays. If the amount of space is not available, BellSouth will notify CLEC of the amount of space that is available.

2.1.2 BellSouth will respond to a Florida Application within fifteen (15) calendar days as to whether space is available or not available within a BellSouth Premises. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount of space that is available.

2.1.3 BellSouth will respond to a Louisiana Application within ten (10) calendar days for space availability for one (1) to ten (10) Applications; fifteen (15) calendar days for eleven (11) to twenty (20) Applications; and for more than twenty (20) Applications, it is increased by five (5) calendar days for every five additional Applications received within five (5) business days. If the amount of space requested is not available, BellSouth will notify CLEC of the amount of space that is available.

2.1.4 BellSouth will respond to a Mississippi Application within ten (10) business days as to whether space is available or not available within a BellSouth Premises. If the amount of space requested is not available, BellSouth will notify CLEC of the amount of space that is available.

2.2 Report. Upon request from CLEC, BellSouth will provide a written report ("Space Availability Report") specifying the amount of Collocation Space available at the premises requested, the number of collocators present at the Premises, any modifications in the use of the space since the last report on the Premises requested and the measures BellSouth is taking to make additional space available for collocation arrangements.

2.2.1 The request from CLEC for a Space Availability Report must be written and must include the Premises and Common Language Location Identification ("CLLI") code of the Premises. Such information regarding Premises and CLLI code is located in the National Exchange Carriers Association (NECA) Tariff FCC No. 4.

2.2.2 BellSouth will respond to a request for Space Availability Report for a particular Premises within ten (10) calendar days of such a request. BellSouth will make best efforts to respond in ten (10) calendar days to such a request when the request includes from two (2) to five (5) Premises within the same state. The response time for requests of more than five (5) Premises shall be negotiated between

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the Parties. If BellSouth cannot meet the ten calendar day response time, BellSouth shall notify CLEC and inform CLEC of the time frame under which it can respond.

2.2.2.1 In Mississippi, BellSouth will respond to a request for a Space Availability Report for a particular Premises within ten (10) calendar days of receipt of such request. BellSouth will make best efforts to respond in ten (10) calendar days to such a request when the request includes from two (2) to five (5) calendar within the same state. The response time for requests of more than five (5) Premises shall be negotiated between the Parties. If BellSouth cannot meet the ten business day response time, BellSouth shall notify CLEC-1 and inform CLEC of the time frame under which it can respond.

2.3 Denial of Application. After notifying CLEC that BellSouth has no available space in the requested Premises ("Denial of Application"), BellSouth will allow CLEC, upon request, to tour the entire Premises within ten (10) calendar days of such Denial of Application. In order to schedule said tour within ten (10) calendar days the request for a tour of the Premises must be received by BellSouth within five (5) calendar days of the Denial of Application.

2.3.1 Denial of Application. In Mississippi, after notifying CLEC-1 that BellSouth has no available space in the requested Premises ("Denial of Application"), BellSouth will allow CLEC-1, upon request, to tour the entire Premises within ten (10) business days of such Denial of Application. In order to schedule said tour within ten (10) business days, the request for a tour of the Premises must be received by BellSouth within five (5) business days of the Denial of Application

2.4 Filing of Petition for Waiver. Upon Denial of Application BellSouth will timely file a petition with the Commission pursuant to 47 U.S.C.sect § 251(c)(6). BellSouth shall provide to the Commission any information requested by that Commission. Such information shall include which space, if any, BellSouth or any of BellSouth's affiliates have reserved for future use and a detailed description of the specific future uses for which the space has been reserved. Subject to an appropriate nondisclosure agreement or provision, BellSouth shall permit CLEC-1 to inspect any floor plans or diagrams that BellSouth provides to the Commission.

2.5 Waiting List. Unless otherwise specified, on a first-come, first served basis governed by the date of receipt of an Application or Letter of Intent, BellSouth will maintain a waiting list of requesting carriers who have either received a Denial of Application or, where it is publicly known that the Premises is out of space, have submitted a Letter of Intent to collocate. BellSouth will notify the telecommunications carriers on the waiting list when space becomes available and the position of telecommunications carrier in said waiting list. CLEC must submit an updated, complete, and correct Application to BellSouth within 30 calendar days (in Mississippi, 30 business days) of such notification or notify BellSouth in writing within that time that CLEC wants to maintain its place on the waiting list either without accepting such space or accepting an amount of space less than its original request. If CLEC does not submit such an Application or notify BellSouth in writing as described above, BellSouth will offer such space to the next CLEC on the waiting list and remove CLEC from the waiting list. Upon request, BellSouth will advise CLEC as to its position on the list.

2.5.1 In Florida, on a first-come, first-served basis governed by the date of receipt of an Application or Letter of Intent, BellSouth will maintain a waiting list of requesting carriers who have either received a Denial of Application or, where it is publicly known that the Premises is out of space, have submitted a Letter of Intent to collocate. Sixty (60) days prior to space becoming available, if known, BellSouth

will notify the Florida PSC and the telecommunications carriers on the waiting list by mail when space becomes available according to the position of telecommunications carrier on said waiting list. If not known sixty (60) days in advance, BellSouth shall notify the Florida PSC and the telecommunications carriers on the waiting list within two days of the determination that space is available.

2.6 Public Notification. BellSouth will maintain on its Interconnections Services website a notification document that will indicate all Central Offices that are without available space. BellSouth shall update such document within ten (10) calendar days (in Mississippi, 10 business days) of the Denial of Application due to Space Exhaust. BellSouth will also post a document on its Interconnection Services website that contains a general notice where space has become available in a Central Office previously on the space exhaust list. BellSouth shall allocate said available space pursuant to the waiting list referenced in Section 2.5.

2.7 Regulatory Agency Procedures. Notwithstanding the foregoing, should any state or federal regulatory agency impose procedures or intervals available to CLEC that are different from procedures or intervals set forth in this section, whether now in effect or that become effective after execution of this Agreement, those procedures or intervals shall supersede the requirements set forth herein for that jurisdiction for all applications submitted for the first time after the effective date thereof.

6.3 Collocation Options

3.1 Cageless. BellSouth shall allow CLEC to collocate CLEC's equipment and facilities without requiring the construction of a cage or similar structure. BellSouth shall allow CLEC to have direct access to its equipment and facilities. BellSouth shall make cageless collocation available in single bay increments pursuant to Section 7. Except where CLEC requires special technical considerations (e.g., special cable racking, isolated ground plane), BellSouth shall assign cageless Collocation Space in conventional equipment rack lineup where feasible. For equipment layout, including spatial dimensions for such equipment pursuant to generic requirements contained in BellCore (Telcordia) GR-63-Core and shall be responsible for constructing all spacial technical requirements associated with such equipment pursuant to Section 6 following.

3.2 Cages. BellSouth shall construct enclosures in compliance with CLEC's collocation request. At CLEC's request BellSouth shall permit CLEC to subcontract the construction of physical collocation arrangements with a contractor certified by BellSouth ("BellSouth Certified Contractors"), provided however, that BellSouth shall not unreasonably withhold approval of contractors.

3.3 When CLEC subcontract the construction, CLEC must arrange with a BellSouth Certified Contractor to construct a collocation arrangement enclosure in accordance with BellSouth's guidelines and specifications prior to starting equipment installation and at CLEC's sole expense. BellSouth will provide guidelines and specifications upon request. Where local building codes require enclosure specifications more stringent than BellSouth's standard enclosure specification, CLEC and CLEC's BellSouth Certified Contractor must comply with the more stringent local building code requirements. CLEC's BellSouth Certified Contractor shall be responsible for code requirements. CLEC's BellSouth Certified Contractor shall be responsible for filing and receiving any and all necessary permits and/or licenses for such construction. BellSouth shall cooperate with CLEC and provide, at CLEC's expense, the documentation, including architectural drawings, necessary for CLEC to obtain the zoning permits

and/or other licenses. BellSouth shall pass on the CLEC the costs of providing the documentation. The BellSouth Certified Contractor shall bill CLEC directly for all work performed for CLEC pursuant to this Attachment and BellSouth shall have no responsibility for nor responsibility to pay such charges imposed by the BellSouth Certified Contractor. CLEC must provide the local BellSouth building contact with two Access Keys used to enter the locked enclosure. Except in case of emergency, BellSouth will not access CLEC's locked enclosure prior to notifying CLEC.

3.3.1 BellSouth may elect to review CLEC's plans and specifications prior to allowing construction to start to ensure compliance with BellSouth's guidelines and specifications. BellSouth shall complete its review within fifteen (15) calendar days. CLEC shall be able to design caged enclosures in amounts as small as sufficient to house and maintain a single rack or bay of equipment. If BellSouth reviews CLEC's plans and specifications prior to construction, then BellSouth will have the right to inspect the enclosure after construction to make sure it is constructed according to the submitted plans and specifications. If BellSouth elects not to review CLEC's plans and specifications prior to construction, CLEC will be entitled to request BellSouth to review; and in the event CLEC does not request a BellSouth review, BellSouth shall have the right to inspect the enclosure after construction to make sure it is constructed according to BellSouth's guidelines and specifications. BellSouth may require CLEC to remove or correct within seven (7) calendar days at CLEC's expense any structure that does not meet these plans and specifications or, where applicable, BellSouth guidelines and specifications.

3.4 Shared (Subleased) Collocation. CLEC-1 may allow other telecommunications carriers to share CLEC's caged collocation arrangement pursuant to terms and conditions agreed to by CLEC ("Host") and other telecommunications carriers ("Guests") and pursuant to this section, except where the BellSouth Premises is located within a leased space and BellSouth is prohibited by said lease from offering such an option. CLEC-1 shall notify BellSouth in writing upon execution of any agreement between the Host and its Guest within ten (10) calendar days (in Mississippi, ten (10) business days) of its execution and prior to any Firm Order. Further, such notice shall include the name of the Guest(s) and the term of the agreement, and shall contain a certification by CLEC-1 that said agreement imposes upon the Guest(s) the same terms and conditions for Remote Collocation Space as set forth in this Attachment between BellSouth and CLEC.

3.4.1 CLEC, as the host CLEC shall be the sole interface and responsible Party to BellSouth for the assessment and billing of rates and charges contained within this Attachment; and for the purposes of ensuring that the safety and security requirements of this Attachment are fully complied with by the Guest, its employees and agents. BellSouth shall prorate the costs of the collocation space based on the number of collocators and the space used by each. In all states other than Florida, and in addition to the foregoing, CLEC shall be the responsible party to BellSouth for the purpose of submitting Applications for initial and additional equipment placement of Guest. In the event the Host and Guest jointly submit an initial Application, only one Application Fee will be assessed. A separate initial Guest Application shall require the assessment of a Subsequent Application Fee, as set forth in Exhibit A, if this Application is not the initial Application made for the arrangement. Notwithstanding the foregoing, Guest may arrange directly with BellSouth for the provision of the interconnecting facilities between BellSouth and Guest and for the provision of the services and access to unbundled network elements.

3.4.2 CLEC-1 shall indemnify and hold harmless BellSouth from any and all claims, actions, causes of action, of whatever kind or nature arising out of the presence of CLEC-1's Guests in the Collocation

Space except to the extent caused by BellSouth's sole negligence, gross negligence, or willful misconduct.

3.5 Adjacent Collocation. BellSouth will permit adjacent collocation arrangements ("Adjacent Arrangement") on the Premises' property where space within the Premises is legitimately exhausted, subject to technical feasibility, where the Adjacent Arrangement does not interfere with access to existing or planned structures or facilities on the Premises property and where permitted by zoning and other applicable state and local regulations. The Adjacent Arrangement shall be constructed or procured by CLEC and in conformance with BellSouth's design and construction specifications. Further, CLEC shall construct, procure, maintain and operate said Adjacent Arrangement(s) pursuant to all of the terms and conditions set forth in this Attachment. Rates shall be negotiated at the time of the request for the Adjacent Arrangement.

3.5.1 Should CLEC-1 elect such option, CLEC-1 must arrange with a BellSouth Certified Contractor to construct an Adjacent Arrangement structure in accordance with BellSouth's guidelines and specifications. BellSouth will provide guidelines and specifications upon request. Where local building codes require enclosure specifications more stringent than BellSouth's standard specification, CLEC-1 and CLEC-1's BellSouth Certified Contractor must comply with the more stringent local building code requirements. CLEC-1's BellSouth Certified Contractor shall be responsible for filing and receiving any and all necessary zoning, permits and/or licenses for such construction. CLEC-1's BellSouth Certified Contractor shall bill CLEC-1 directly for all work performed for CLEC-1 pursuant to this Attachment and BellSouth shall have no liability for nor responsibility to pay such charges imposed by the BellSouth Certified Contractor. CLEC-1 must provide the local BellSouth building contact with two cards, keys or other access device used to enter the locked enclosure. Except in cases of emergency, BellSouth shall not access CLEC-1's locked enclosure prior to notifying CLEC-1.

3.5.2 CLEC-1 must submit its plans and specifications to BellSouth with its Firm Order. BellSouth may elect to review CLEC-1's plans and specifications prior to construction of an Adjacent Arrangement(s) to ensure compliance with BellSouth's guidelines and specifications. BellSouth shall complete its review within fifteen (15) calendar days. If BellSouth reviews CLEC-1's plans and specifications prior to construction, then BellSouth will have the right to inspect the Adjacent Arrangement after construction to make sure it is constructed according to the submitted plans and specifications. If BellSouth elects not to review CLEC-1's plans and specifications prior to construction, CLEC-1 will be entitled to request BellSouth to review; and in the event CLEC-1 does not request a BellSouth review, BellSouth shall have the right to inspect the Adjacent Arrangement after construction to make sure it is constructed according to BellSouth's guidelines and specifications. BellSouth may require CLEC-1 to remove or correct within seven (7) calendar days at CLEC-1's expense any structure that does not meet these plans and specifications or, where applicable, BellSouth's guidelines and specifications

3.5.3 CLEC shall provide a concrete pad, the structure housing the arrangement, heating/ventilation/air conditioning ("HVAC"), lighting, and all facilities that connect the structure (i.e. racking, conduits, etc.) to the BellSouth point of demarcation. At CLEC's option, and where the local authority having jurisdiction permits, BellSouth shall provide an AC power source and access to physical collocation services and facilities subject to the same nondiscriminatory requirements as applicable to any other physical collocation arrangement. CLEC's BellSouth Certified Contractor shall be responsible for filing and receiving any and all necessary zoning, permits and/or licenses for such arrangement.

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3.5.4 BellSouth shall allow Shared (Subleased) Caged Collocation within an Adjacent Arrangement pursuant to the terms and conditions set forth in Section 3.4 preceding.

6.4 Occupancy

4.1 Commencement Date. The "Commencement Date" shall be the day CLEC's equipment becomes operational as described in Article 4.2, following

4.2 Occupancy. BellSouth will notify CLEC-1 in writing that the Collocation Space is ready for occupancy. CLEC-1 must notify BellSouth in writing that collocation equipment installation is complete and is operational with BellSouth's network. BellSouth may, at its option, not accept orders for interconnected service until receipt of such notice. For purposes of this paragraph, CLEC-1's telecommunications equipment will be deemed operational when cross-connected to BellSouth's network for the purpose of service provision.

4.3 Termination of Occupancy. In addition to any other provisions addressing Termination of Occupancy in this Attachment, Termination of Occupancy may occur in the following circumstances:

4.3.1 CLEC-1 may terminate occupancy in a particular Collocation Space by submitting a Subsequent Application requesting termination of occupancy.

4.3.2 Upon termination of such occupancy, CLEC-1 at its expense shall remove its equipment and other property from the Collocation Space. CLEC-1 shall have thirty (30) calendar days from the termination date to complete such removal, including the removal of all equipment and facilities of CLEC-1's Guests, unless CLEC's guest has assumed responsibility for the collocation space housing the guest equipment and executed the documentation required by BellSouth prior to such removal date. CLEC shall continue payment of monthly fees to BellSouth until such date as CLEC has fully vacated the Collocation Space. Should CLEC or CLEC's Guest fail to vacate the Collocation Space within thirty (30) calendar days from the termination date, BellSouth shall have the right to remove the equipment and other property of CLEC-1 or CLEC-1's Guest at CLEC-1's expense and with no liability for damage or injury to CLEC or CLECs Guest's property unless caused by the gross negligence or intentional misconduct of BellSouth. Upon termination of CLEC-1's right to occupy Collocation Space, CLEC shall surrender such Collocation Space to BellSouth in the same condition as when first occupied by CLEC except for ordinary wear and tear, unless otherwise agreed to by the Parties. CLEC shall be responsible for the cost of removing any enclosure, together with all support structures (e.g., racking, conduits), at the termination of occupancy and restoring the grounds to their original condition.

6.5 Use of Collocation Space

5.1 Equipment Type. BellSouth permits the collocation of any type of equipment that is necessary for interconnection to BellSouth's network or for access to unbundled network elements in the provision of telecommunications services.

5.1.1 Such equipment must at a minimum meet the following BellCore (Telcordia) Network Equipment Building Systems (NEBS) General Equipment Requirements: Criteria Level 1 requirements as outlined in the BellCore (Telcordia) Special Report SR-3580, Issue 1; equipment design spatial requirements per GR-63-CORE, Section 2; thermal heat dissipation per GR-063-CORE, Section 4, Criteria 77-79; acoustic noise per GR-063-CORE, Section 4, Criterion 128, and National Electric Code standards. Except where otherwise required by a Commission, BellSouth shall comply with the applicable FCC rules relating to denial of collocation based on CLEC's failure to comply with this section.

5.1.2 CLEC shall not request more DS0, DS1, DS3 and optical terminations for a collocation arrangement than the total port or termination capacity of the transmission equipment physically installed in the arrangement. The total capacity of the transmission equipment collocated in the arrangement will include equipment contained in the application in question as well as equipment already placed in the arrangement. Collocated cross-connect devices are not considered transmission equipment. If full network termination capacity of the transmission equipment being installed is not requested in the application, additional network terminations for the installed equipment will require the submission of another application. In the event that CLEC submits an application for terminations that exceed the total capacity of the collocated equipment, CLEC will be informed of the discrepancy and will be required to submit a revision to the application.

5.1.3 CLEC shall not use the Collocation Space for marketing purposes nor shall it place any identifying signs or markings in the area surrounding the Collocation Space or on the grounds of the Premises.

5.1.4 CLEC shall place a plaque or other identification affixed to CLEC-1's equipment necessary to identify CLEC-1's equipment, including a list of emergency contacts with telephone numbers.

5.2 Entrance Facilities. CLEC-1 may elect to place CLEC-1-owned or CLEC-1-leased fiber entrance facilities into the Collocation Space. BellSouth will designate the point of interconnection in close proximity to the Premises building housing the Collocation Space, such as an entrance manhole or a cable vault which are physically accessible by both Parties. CLEC-1 will provide and place fiber cable at the point of entrance of sufficient length to be pulled through conduit and into the splice location. CLEC-1 will provide and install a sufficient length of fire retardant riser cable, to which the entrance cable will be spliced, which will extend from the splice location to CLEC-1's equipment in the Collocation Space. In the event CLEC-1 utilizes a non-metallic, riser-type entrance facility, a splice will not be required. CLEC-1 must contact BellSouth for instructions prior to placing the entrance facility cable in the manhole. CLEC-1 is responsible for maintenance of the entrance facilities. At CLEC-1's option BellSouth will accommodate where technically feasible a microwave entrance facility pursuant to separately negotiated terms and conditions. In the case of adjacent collocation, unless BellSouth determines that limited space is available for the entrance facilities, copper facilities may be used between the adjacent collocation arrangement and the central office termination point.

5.2.1 Dual Entrance. BellSouth will provide at least two interconnection points at each Premises where there are at least two such interconnection points available and where capacity exists. Upon receipt of a request for physical collocation under this Attachment, BellSouth shall provide CLEC-1 with information regarding BellSouth's capacity to accommodate dual entrance facilities. If conduit in the serving manhole(s) is available and is not reserved for another purpose for utilization within 12 months of the receipt of an application for collocation, BellSouth will make the requested conduit space

available for installing a second entrance facility to CLEC-1's arrangement. The location of the serving manhole(s) will be determined at the sole discretion of BellSouth. Where dual entrance is not available due to lack of capacity, BellSouth will so state in the Application Response.

5.2.2 Shared Use. CLEC-1 may utilize spare capacity on an existing interconnector entrance facility for the purpose of providing an entrance facility to another CLEC-1 collocation arrangement within the same BellSouth Premises. CLEC-1 must arrange with BellSouth for BellSouth to splice the utilized entrance facility capacity to CLEC-1-provided riser cable.

5.3 Demarcation Point. BellSouth will designate the point(s) of demarcation between CLEC-1's equipment and/or network and BellSouth's network. Each Party will be responsible for maintenance and operation of all equipment/facilities on its side of the demarcation point. For 2-wire and 4-wire connections to BellSouth's network, the demarcation point shall be a common block on the BellSouth designated conventional distributing frame. CLEC-1 shall be responsible for providing, and a supplier certified by BellSouth ("CLEC-1's BellSouth Certified Supplier") shall be responsible for installing and properly labeling/stenciling, the common block, and necessary cabling pursuant to Section 6.5. For all other terminations BellSouth shall designate a demarcation point on a per arrangement basis. CLEC-1 or its agent must perform all required maintenance to equipment/facilities on its side of the demarcation point, pursuant to Section 5.3, following, and may self-provision cross-connects that may be required within the Collocation Space to activate service requests. At CLEC-1's option and expense, a Point of Termination ("POT") bay or frame may be placed in the Collocation Space, but will not serve as the demarcation point. CLEC-1 must make arrangements with a BellSouth Certified Supplier for such placement.

5.3 Demarcation Point. BellSouth will designate the point(s) of demarcation between CLEC-1's equipment and/or network and BellSouth's network. Each Party will be responsible for maintenance and operation of all equipment/facilities on its side of the demarcation point. For 2-wire and 4-wire connections to BellSouth's network, the demarcation point shall be a common block on the BellSouth designated conventional distributing frame. CLEC-1 shall be responsible for providing, and a supplier certified by BellSouth ("CLEC-1's BellSouth Certified Supplier") shall be responsible for installing and properly labeling/stenciling, the common block, and necessary cabling pursuant to Section 6.5. For all other terminations BellSouth shall designate a demarcation point on a per arrangement basis. CLEC-1 or its agent must perform all required maintenance to equipment/facilities on its side of the demarcation point, pursuant to Section 5.3, following, and may self-provision cross-connects that may be required within the Collocation Space to activate service requests. At CLEC-1's option and expense, a Point of Termination ("POT") bay or frame may be placed in the Collocation Space, but will not serve as the demarcation point. CLEC-1 must make arrangements with a BellSouth Certified Supplier for such placement. 5.4 CLEC-1's Equipment and Facilities. CLEC-1, or if required by this Attachment, CLEC-1's BellSouth Certified Supplier, is solely responsible for the design, engineering, installation, testing, provisioning, performance, monitoring, maintenance and repair of the equipment and facilities used by CLEC-1 which must be performed in compliance with all applicable BellSouth policies and guidelines. Such equipment and facilities may include but are not limited to cable(s); equipment; and point of termination connections. CLEC-1 and its selected BellSouth Certified Supplier must follow and comply with all BellSouth requirements outlined in BellSouth's TR 73503, TR 73519, TR 73572, and TR 73564.

5.4 CLEC's Equipment and Facilities. CLEC, or if required by this Attachment, CLEC's BellSouth Certified Supplier, is solely responsible for the design, engineering, installation, testing, provisioning, performance, monitoring, maintenance and repair of the equipment and facilities used by CLEC which must be performed in compliance with all applicable BellSouth policies and guidelines. Such equipment and facilities may include but are not limited to cable(s); equipment; and point of termination connections. CLEC and its selected BellSouth Certified Supplier must follow and comply with all BellSouth requirements outlined in BellSouth's TR 73503, TR 73519, TR 73572, and TR 73564.

5.5 BellSouth's Access to Collocation Space. From time to time BellSouth may require access to the Collocation Space. BellSouth retains the right to access such space for the purpose of making BellSouth equipment and building modifications (e.g., running, altering or removing racking, ducts, electrical wiring, HVAC cables). BellSouth will give notice to CLEC-1 at least 48 hours before access to the Collocation Space is required. CLEC-1 may elect to be present whenever BellSouth performs work in the Collocation Space. The Parties agree that CLEC-1 will not bear any of the expense associated with this work.

5.6 Access. Pursuant to Section 11, CLEC shall have access to the Collocation Space twenty-four (24) hours a day, seven (7) days a week. CLEC agrees to provide the name and social security number or date of birth or driver's license number of each employee, contractor, or agents of CLEC-1 or CLEC's Guests provided with access keys or devices ("Access Keys") prior to the issuance of said Access Keys. . Key acknowledgement forms must be signed by CLEC-1 and returned to BellSouth Access Management within 15 calendar days of CLEC-1's receipt. Failure to return properly acknowledged forms will result in the holding of subsequent requests until acknowledgements are current. Access Keys shall not be duplicated under any circumstances. CLEC agrees to be responsible for all Access Keys and for the return of all said Access Keys in the possession of CLEC-1 employees, contractors, Guests, or agents after termination of the employment relationship, contractual obligation with CLEC-1 or upon the termination of this Attachment or the termination of occupancy of an individual collocation arrangement.

5.6.1 Lost or Stolen Access Keys. CLEC-1 shall notify BellSouth in writing within 24 hours of becoming aware in the case of lost or stolen Access Keys. Should it become necessary for BellSouth to re-key buildings or deactivate a card as a result of a lost Access Key(s) or for failure to return an Access Key(s), CLEC-1 shall pay for all reasonable costs associated with the re-keying or deactivating the card

5.7 Interference or Impairment. Notwithstanding any other provisions of this Attachment, CLEC-1 shall not use any product or service provided under this Agreement, any other service related thereto or used in combination therewith, or place or use any equipment or facilities in any manner that 1) significantly degrades, interferes with or impairs service provided by BellSouth or by any other entity or any person's use of its telecommunications service; 2) endangers or damages the equipment, facilities or other property of BellSouth or of any other entity or person; 3) compromises the privacy of any communications; or 4) creates an unreasonable risk of injury or death to any individual or to the public. If BellSouth reasonably determines that any equipment or facilities of CLEC-1 violates the provisions of this paragraph, BellSouth shall give written notice to CLEC-1, which notice shall direct CLEC-1 to cure the violation within forty-eight (48) hours of CLEC-1's actual receipt of written notice or, at a minimum, to commence curative measures within 24 hours and to exercise reasonable diligence to complete such measures as soon as possible thereafter. After receipt of the notice, the Parties agree to consult immediately and, if necessary, to inspect the arrangement.

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5.7.1 Except in the case of the deployment of an advanced service which significantly degrades the performance of other advanced services or traditional voice band services, if CLEC-1 fails to take curative action within 48 hours or if the violation is of a character which poses an immediate and substantial threat of damage to property, injury or death to any person, or any other significant degradation, interference or impairment of BellSouth's or another entity's service, then and only in that event BellSouth may take such action as it deems appropriate to correct the violation, including without limitation the interruption of electrical power to CLEC-1's equipment. BellSouth will endeavor, but is not required, to provide notice to CLEC-1 prior to taking such action and shall have no liability to CLEC-1 for any damages arising from such action, except to the extent that such action by BellSouth constitutes willful misconduct.

5.7.2 For purposes of this Section 5.7, the term significantly degrade shall mean an action that noticeably impairs a service from a user's perspective. In the case of the deployment of an advanced service which significantly degrades the performance of other advanced services or traditional voice band services and CLEC-1 fails to take curative action within 48 hours then BellSouth will establish before the relevant Commission that the technology deployment is causing the significant degradation. Any claims of network harm presented to CLEC-1 or, if subsequently necessary, the relevant Commission, must be supported with specific and verifiable information. Where BellSouth demonstrates that a deployed technology is significantly degrading the performance of other advanced services or traditional voice band services, CLEC-1 shall discontinue deployment of that technology and migrate its customers to technologies that will not significantly degrade the performance of other such services. Where the only degraded service itself is a known disturber, and the newly deployed technology satisfies at least one of the criteria for a presumption that is acceptable for deployment under section 47 C.F.R. 51.230, the degraded service shall not prevail against the newly-deployed technology.

5.8 Personalty and its Removal. Facilities and equipment placed by CLEC-1 in the Collocation Space shall not become a part of the Collocation Space, even if nailed, screwed or otherwise fastened to the Collocation Space, but shall retain their status as personal property and may be removed by CLEC-1 at any time. Any damage caused to the Collocation Space by CLEC-1's employees, agents or representatives during the removal of such property shall be promptly repaired by CLEC-1 at its expense.

5.9 Alterations. In no case shall CLEC-1 or any person acting on behalf of CLEC-1 make any rearrangement, modification, improvement, addition, repair, or other alteration which could affect in any way space, power, HVAC, and/or safety considerations to the Collocation Space or the BellSouth Premises without the written consent of BellSouth, which consent shall not be unreasonably withheld. The cost of any such specialized alterations shall be paid by CLEC-1. Any material rearrangement, modification, improvement, addition, repair, or other alteration shall require a Subsequent Application and Subsequent Application Fee, pursuant to sub-section 6.2.2.

5.10 Janitorial Service. CLEC-1 shall be responsible for the general upkeep of the Collocation Space. CLEC-1 shall arrange directly with a BellSouth Certified Contractor for janitorial services applicable to Caged Collocation Space. BellSouth shall provide a list of such contractors on a site-specific basis upon request.

6.6 Ordering and Preparation of Collocation Space

6.1 Should any state or federal regulatory agency impose procedures or intervals applicable to CLEC-1 that are different from procedures or intervals set forth in this section, whether now in effect or that become effective after execution of this Agreement, those procedures or intervals shall supersede the requirements set forth herein for that jurisdiction for all applications submitted for the first time after the effective date thereof.

6.2 Application for Space. CLEC-1 shall submit an application document when CLEC-1 or CLEC-1's Guest(s), as defined in Section 3.4, desires to request or modify the use of the Collocation Space.

6.2.1 Initial Application. For CLEC-1 or CLEC-1's Guest(s) initial equipment placement, CLEC-1 shall submit to BellSouth a Physical Expanded Interconnection Application Document ("Application"). The Application is Bona Fide when it is complete and accurate, meaning that all required fields on the application are completed with the appropriate type of information. The Bona Fide Application shall contain a detailed description and schematic drawing of the equipment to be placed in CLEC-1's Collocation Space(s) and an estimate of the amount of square footage required.

6.2.2 Subsequent Application. In the event CLEC or CLEC's Guest(s) desires to modify the use of the Collocation Space ("Augmentation"), CLEC-1 shall complete an Application detailing all information regarding the modification to the Collocation Space. The minimum Subsequent Application Fee shall be considered a partial payment of the applicable Subsequent Application Fee which shall be calculated as set forth below. BellSouth shall determine what modifications, if any, to the Premises are required to accommodate the change requested by CLEC-1 in the Application. Such necessary modifications to the Premises may include but are not limited to, floor loading changes, changes necessary to meet HVAC requirements, changes to power plant requirements, equipment additions, etc. The fee paid by CLEC-1 for its request to modify the use of the Collocation Space shall be dependent upon the level of assessment needed for the modification requested. Where the Subsequent Application does not require assessment for provisioning or construction work by BellSouth, no Subsequent Application Fee will be required and the pre-paid fee shall be refunded to CLEC-1. The fee for an Application where the modification requested has limited effect (e.g., does not require assessment related to capital expenditure by BellSouth) shall be the Subsequent Application Fee as set forth in Exhibit A. If the modification requires capital expenditure assessment, a full Application Fee shall apply. In the event such modifications require the assessment of a full Application Fee as set forth in Exhibit A, the outstanding balance shall be due by CLEC-1 within 30 calendar days following CLEC-1's receipt of a bill or invoice from BellSouth. The Subsequent Application is Bona Fide when it is complete and accurate, meaning that all required fields on the application are completed with the appropriate type of information and the appropriate fees, described in Exhibit A, have been remitted.

6.3 Application Response. In Alabama, North Carolina and Tennessee. in addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. Sufficient detail will be provided to permit CLEC-1 a reasonable opportunity to correct each deficiency. CLEC-1 must correct any deficiencies in its Application and resubmit a Bona Fide Application within ten (10) calendar days of being notified of the deficiencies in the original Application. If CLEC-1 fails to resubmit its Application as Bona Fide within this ten (10) day period, CLEC-1 will lose its place in the

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collocation queue. When space has been determined to be available, BellSouth will provide a written response ("Application Response"), which will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7.

6.3.1 Application Response. Except as otherwise provided, for all States that have ordered provisioning intervals but not application response intervals, the following will apply. In addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7. When multiple applications are submitted in a state within a fifteen (15) calendar day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) calendar days for Bona Fide Applications 1-5; within thirty-six (36) calendar days for Bona Fide Applications 6-10; within forty-two (42) calendar days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation.

6.3.2 Application Response (Florida). Within fifteen (15) calendar days of receipt of a Bona Fide Application, BellSouth will respond as to whether space is available or not available within a particular Premises. Additionally, when space has been determined to be available or when a lesser amount of space than that requested is available, then with respect to the space available, BellSouth will provide a written response ("Application Response") including sufficient information to enable CLEC-1 to place a Firm Order. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7. When CLEC-1 submits ten (10) or more Applications within ten (10) calendar days, the initial fifteen (15) day response period will increase by ten (10) days for every additional ten (10) Applications or fraction thereof.

6.3.3 Application Response (Georgia) In addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available for caged or cageless arrangements, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7.

6.3.4 Application Response (Kentucky) In addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7. When multiple applications are submitted in a state within a fifteen (15) calendar day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no

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later than the following: within thirty (30) calendar days for Bona Fide Applications 1-5; within thirty-six (36) calendar days for Bona Fide Applications 6-10; within forty-two (42) calendar days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation.

6.3.5 Application Response (Louisiana). In addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. BellSouth will respond as to whether space is available or not available within a particular Premises in accordance with Section 2. Additionally, when space has been determined to be available or when a lesser amount of space than that requested is available, then with respect to the space available, BellSouth will provide a written response ("Application Response") including sufficient information to enable CLEC-1 to place a Firm Order. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7. BellSouth will respond with a full Application Response within 30 calendar days for one to ten Applications; 35 calendar days for eleven to twenty Applications; and for requests of more than twenty Application it is increased by five calendar days for every five Applications received within five business days.

6.3.6 Application Response (Mississippi). In addition to the notice of space availability pursuant to Section 2. BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) business days of receipt of a Bona Fide Application. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7. When multiple applications are submitted in a state within a fifteen (15) business day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) business days for Bona Fide Applications 1-5; within thirty-six (36) business days for Bona Fide Applications 6-10; within forty-two (42) business days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation

6.4 Application Modifications. In Alabama, North Carolina, and Tennessee, if a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, said Application shall be considered a new Application and shall be handled as a new Application for purposes of the provisioning interval and BellSouth shall charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding equipment may require CLEC-1 to submit the Application with an Application Fee.

6.4.1 Application Modifications. For all States that have ordered provisioning intervals but not application response intervals, and except as otherwise specified, the following will apply: If a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications

to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth receives such revised application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC-1's original application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.4.2 Application Modifications (Florida). If a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within fifteen (15) calendar days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC-1's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.4.3 Application Modifications (Kentucky & Georgia). If a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.4.4 Application Modifications (Mississippi). If a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) business days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.4.5 Application Modifications (Louisiana). If a modification or revision is made to any information in the Bona Fide Application for Physical Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth

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receives such revised application or at such other date as the Parties agree. BellSouth will respond to such modifications or revisions within 30 calendar days for one to ten revised Applications; 35 calendar days for eleven to twenty revised Applications; and for requests of more than twenty revised Applications it is increased by five calendar days for every five revised Applications received within five business days. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the application with an Application Fee.

6.5 Bona Fide Firm Order. In Alabama, North Carolina, and Tennessee, CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Premises by submitting a Physical Expanded Interconnection Firm Order document ("Firm Order") to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.2, preceding, and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than seven (7) calendar days after BellSouth's Application Response to CLEC-1's Bona Fide Application, unless BellSouth provides an Application Response on or before the ten-day response interval set forth in section 2.1, in which case CLEC-1 must submit its Bona Fide Firm Order to BellSouth within seventeen (17) calendar days of BellSouth's receipt of the Bona Fide Application. If CLEC-1 fails to submit its Bona Fide Firm Order to BellSouth within the time frames set forth above, the provisioning intervals set forth in section 6.6 shall apply from the date of receipt of the Bona Fide Firm Order and not from the date of the Bona Fide Application. If CLEC-1 fails to submit a Bona Fide Firm Order within fifteen (15) days of receipt of An Application Response, the Application will expire.

6.5.1 Bona Fide Firm Order. Except as otherwise provided, in all States that have ordered provisioning intervals but not addressed Firm Order intervals, the following shall apply. CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Premises by submitting a Physical Expanded Interconnection Firm Order document ("Firm Order") to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.2, preceding and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than thirty (30) calendar days after BellSouth's Application Response to CLEC-1's Bona Fide Application or the Application will expire.

6.5.2 Bona Fide Firm Order (Kentucky & Mississippi). CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Premises by submitting a Physical Expanded Interconnection Firm Order document ("Firm Order") to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.2, preceding and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than thirty (30) calendar days (in Mississippi 30 business days) after BellSouth's Application Response to CLEC-1's Bona Fide Application or the Application will expire.

6.5.3 BellSouth will establish a firm order date based upon the date BellSouth is in receipt of a Bona Fide Firm Order. BellSouth will acknowledge the receipt of CLEC-1's Bona Fide Firm Order within seven (7) calendar days of receipt indicating that the Bona Fide Firm Order has been received. A

BellSouth response to a Bona Fide Firm Order will include a Firm Order Confirmation containing the firm order date. No revisions will be made to a Bona Fide Firm Order.

6.5.4 BellSouth will permit one accompanied site visit to CLEC-1's designated collocation arrangement location after receipt of the Bona Fide Firm Order without charge to CLEC-1.

6.5.5 CLEC-1 must submit to BellSouth the completed Access Control Request Form for all employees or agents requiring access to the BellSouth Premises a minimum of 30 calendar days prior to the date CLEC-1 desires access to the Collocation Space. CLEC-1 may submit such a request at any time subsequent to BellSouth's receipt of the Bona Fide Firm Order. In the event CLEC-1 desires access to the Collocation Space after submitting such a request but prior to access being approved, BellSouth shall permit CLEC-1 to access the Collocation Space, accompanied by a security escort at CLEC-1's expense. CLEC-1 must request escorted access at least three (3) business days prior to the date such access is desired.

6.6 Construction and Provisioning Interval. In Alabama, North Carolina, and Tennessee, BellSouth will complete construction for collocation arrangements within a maximum of 90 calendar days from receipt of an Application or as agreed to by the Parties. Under extraordinary conditions, BellSouth may elect to renegotiate an alternative provisioning interval with CLEC-1 or seek a waiver from this interval from the Commission. Examples of extraordinary conditions include, but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.6.1 Construction and Provisioning Interval (Florida). BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. For changes to collocation space after initial space completion, BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 45 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. If BellSouth does not believe that construction will be completed within the relevant time frame and BellSouth and CLEC-1 cannot agree upon a completion date, within 45 calendar days of receipt of the Bona Fide Firm Order for an initial request, and within 30 calendar days for Augmentations, BellSouth may seek an extension from the Florida PSC.

6.6.2 Construction and Provisioning Interval (Georgia). BellSouth will use best efforts to complete construction for caged collocation arrangements under ordinary conditions as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. BellSouth will use best efforts to complete construction for cageless collocation arrangements under ordinary conditions as soon as possible and within a maximum of 60 calendar days from receipt of a Bona Fide Firm Order and 90 calendar days for extraordinary conditions or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Extraordinary conditions are defined to include but are not limited to major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length. Under extraordinary conditions, BellSouth

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may elect to renegotiate an alternative provisioning interval with CLEC-1 or seek a waiver from this interval from the Commission.

6.6.3 Construction and Provisioning Interval (Louisiana). BellSouth will complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 120 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). BellSouth will complete construction of all other Collocation Space ("extraordinary conditions") within 180 calendar days of the receipt of a Bona Fide Firm Order. Examples of extraordinary conditions include but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.6.4 Construction and Provisioning Interval (Mississippi). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 120 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will complete construction of all other Collocation Space ("extraordinary conditions") within 180 calendar days of the receipt of a Bona Fide Firm Order. Examples of extraordinary conditions include but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.6.5 Construction and Provisioning Interval (Kentucky). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction of all other Collocation Space ("extraordinary conditions") within 130 calendar days of the receipt of a Bona Fide Firm Order. Extraordinary conditions are defined to include but are not limited to major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.6.6 Construction and Provisioning Interval (South Carolina). BellSouth will complete the construction and provisioning activities for cageless and caged collocation arrangements as soon as possible, but no later than 90 calendar days from receipt of a bona fide firm order.

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6.7 Joint Planning. Joint planning between BellSouth and CLEC-1 will commence within a maximum of twenty (20) calendar days from BellSouth's receipt of a Bona Fide Firm Order. BellSouth will provide the preliminary design of the Collocation Space and the equipment configuration requirements as reflected in the Bona Fide Application and affirmed in the Bona Fide Firm Order. The Collocation Space completion time period will be provided to CLEC-1 during joint planning.

6.8 Permits. Each Party or its agents will diligently pursue filing for the permits required for the scope of work to be performed by that Party or its agents within ten (10) calendar days of the completion of finalized construction designs and specifications.

6.9 Acceptance Walk Through. CLEC-1 will contact BellSouth within seven (7) days of collocation space being ready to schedule an acceptance walk through of each Collocation Space requested from BellSouth by CLEC-1. BellSouth will correct any deviations to CLEC-1's original or jointly amended requirements within seven (7) calendar days after the walk through, unless the Parties jointly agree upon a different time frame.

6.10 Use of BellSouth Certified Supplier. CLEC-1 shall select a supplier which has been approved as a BellSouth Certified Supplier to perform all engineering and installation work. CLEC-1 and CLEC-1's BellSouth Certified Supplier must follow and comply with all BellSouth requirements outlined in BellSouth's TR 73503, TR 73519, TR 73572, and TR 73564. In some cases, CLEC-1 must select separate BellSouth Certified Suppliers for transmission equipment, switching equipment and power equipment. BellSouth shall provide CLEC-1 with a list of BellSouth Certified Suppliers upon request. The BellSouth Certified Supplier(s) shall be responsible for installing CLEC-1's equipment and components, extending power cabling to the BellSouth power distribution frame, performing operational tests after installation is complete, and notifying BellSouth's equipment engineers and CLEC-1 upon successful completion of installation, etc. The BellSouth Certified Supplier shall bill CLEC-1 directly for all work performed for CLEC-1 pursuant to this Attachment and BellSouth shall have no liability for nor responsibility to pay such charges imposed by the BellSouth Certified Supplier. BellSouth shall consider certifying CLEC-1 or any supplier proposed by CLEC-1. All work performed by or for CLEC-1 shall conform to generally accepted industry guidelines and standards.

6.11 Alarm and Monitoring. BellSouth shall place environmental alarms in the Premises for the protection of BellSouth equipment and facilities. CLEC-1 shall be responsible for placement, monitoring and removal of environmental and equipment alarms used to service CLEC-1's Collocation Space. Upon request, BellSouth will provide CLEC-1 with applicable tariffed service(s) to facilitate remote monitoring of collocated equipment by CLEC-1. Both Parties shall use best efforts to notify the other of any verified environmental hazard known to that Party.

6.12 Basic Telephone Service. Upon request of CLEC-1, BellSouth will provide basic telephone service to the Collocation Space under the rates, terms and conditions of the current tariff offering for the service requested.

6.13 Virtual to Physical Collocation Relocation. In the event physical Collocation Space was previously denied at a location due to technical reasons or space limitations, and that physical Collocation Space has subsequently become available, CLEC-1 may relocate its virtual collocation arrangements to physical collocation arrangements and pay the appropriate non-recurring fees for physical collocation

and for the rearrangement or reconfiguration of services terminated in the virtual collocation arrangement, as outlined in the appropriate BellSouth tariffs. In the event that BellSouth knows when additional space for physical collocation may become available at the location requested by CLEC-1, such information will be provided to CLEC-1 in BellSouth's written denial of physical collocation. To the extent that (i) physical Collocation Space becomes available to CLEC-1 within 180 calendar days of BellSouth's written denial of CLEC-1's request for physical collocation, (ii) BellSouth had knowledge that the space was going to become available, and (iii) CLEC-1 was not informed in the written denial that physical Collocation Space would become available within such 180 calendar days, then CLEC-1 may transition its virtual collocation arrangement to a physical collocation arrangement and will receive a credit for any nonrecurring charges previously paid for such virtual collocation. CLEC-1 must arrange with a BellSouth Certified Supplier for the relocation of equipment from its virtual Collocation Space to its physical Collocation Space and will bear the cost of such relocation.

6.14 Cancellation. If, at anytime prior to space acceptance, CLEC-1 cancels its order for the Collocation Space(s), CLEC-1 will reimburse BellSouth in the following manner: BellSouth will ascertain how far preparation work has progressed. CLEC-1 will be billed the applicable non recurring rate for any and all work processes for which work has begun.

6.15 Licenses. CLEC-1, at its own expense, will be solely responsible for obtaining from governmental authorities, and any other appropriate agency, entity, or person, all rights, privileges, and licenses necessary or required to operate as a provider of telecommunications services to the public or to occupy the Collocation Space.

6.16 Environmental Compliance. The Parties agree to utilize and adhere to the Environmental Hazard Guidelines identified as Exhibit B attached hereto.

6.7 Rates and Charges

7.1 BellSouth shall assess an Application Fee via a service order which shall be issued at the time BellSouth responds that space is available pursuant to section 2.1. Payment of said Application Fee will be due as dictated by CLEC-1's current billing cycle and is non-refundable.

7.2 Space Preparation. Space preparation fees consist of a nonrecurring charge for Firm Order Processing and monthly recurring charges for Central Office Modifications, assessed per arrangement, per square foot, and Common Systems Modifications, assessed per arrangement, per square foot for cageless and per cage for caged collocation. CLEC-1 shall remit payment of the nonrecurring Firm Order Processing Fee coincident with submission of a Bona Fide Firm Order. The recurring charges for space preparation apply beginning on the date on which BellSouth releases the Collocation Space for occupancy or on the date CLEC-1 first occupies the Collocation Space, whichever is sooner. The charges recover the costs associated with preparing the Collocation Space, which includes survey, engineering of the Collocation Space, design and modification costs for network, building and support systems. In the event CLEC-1 opts for cageless space, the space preparation fees will be assessed based on the total floor space dedicated to CLEC-1 as prescribed in Section 7.7.

7.3 Space Preparation Fee in Florida. Space preparation fees include a nonrecurring charge for Firm Order Processing and monthly recurring charges for Central Office Modifications, assessed per

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arrangement, per square foot, and Common Systems Modifications, assessed per arrangement, per square foot for cageless and per cage for caged collocation. CLEC-1 shall remit payment of the nonrecurring Firm Order Processing Fee coincident with submission of a Bona Fide Firm Order. The recurring charges for space preparation apply beginning on the date on which BellSouth releases the Collocation Space for occupancy or on the date CLEC-1 first occupies the Collocation Space, whichever is sooner. The charges recover the costs associated with preparing the Collocation Space, which includes survey, engineering of the Collocation Space, design and modification costs for network, building and support systems. In the event CLEC-1 opts for cageless space, space preparation fees will be assessed based on the total floor space dedicated to CLEC-1 as prescribed in Section 7.7

7.4 Space Preparation Fee in Georgia. In Georgia, the Space Preparation Fee is a one-time fee, assessed per arrangement, per location. It recovers a portion of costs associated with preparing the Collocation Space, which includes survey, engineering of the Collocation Space, design and modification costs for network, power, building and support systems. This is a set fee of $100 per square foot as established by the Georgia Public Service Commission Order in Docket No. 7061-U. In the event CLEC-1 opts for non-enclosed space, the space preparation fee will be assessed based on the total floor space dedicated to CLEC-1 as prescribed in Section 7.7.

7.5 Space Preparation Fee in North Carolina. In North Carolina, space preparation fees consist of monthly recurring charges for Central Office Modifications, assessed per arrangement, per square foot; Common Systems Modifications, assessed per arrangement, per square foot for cageless and per cage for caged collocation; and Power, assessed per the nominal -48V DC ampere requirements specified by CLEC-1 on the Bona Fide Application. The space preparation charges apply beginning on the date on which BellSouth releases the Collocation Space for occupancy or on the date CLEC-1 first occupies the Collocation Space, whichever is sooner. The charges recover the costs associated with preparing the Collocation Space, which includes survey, engineering of the Collocation Space, design and modification costs for network, building and support systems. In the event CLEC-1 opts for cageless space, the space preparation fees will be assessed based on the total floor space dedicated to CLEC-1 as described in Section 7.7.

7.6 Cable Installation. Cable Installation Fee(s) are assessed per entrance cable placed.

7.7 Floor Space. The Floor Space Charge includes reasonable charges for lighting, HVAC, and other allocated expenses associated with maintenance of the Premises but does not recover any power-related costs incurred by BellSouth. When the Collocation Space is enclosed, CLEC-1 shall pay floor space charges based upon the number of square feet so enclosed. When the Collocation Space is not enclosed, CLEC-1 shall pay floor space charges based upon the following floor space calculation: [(depth of the equipment lineup in which the rack is placed) + (0.5 x maintenance aisle depth) + (0.5 x wiring aisle depth)] X (width of rack and spacers). For purposes of this calculation, the depth of the equipment lineup shall consider the footprint of equipment racks plus any equipment overhang. BellSouth will assign unenclosed Collocation Space in conventional equipment rack lineups where feasible. In the event CLEC-1's collocated equipment requires special cable racking, isolated grounding or other treatment which prevents placement within conventional equipment rack lineups, CLEC-1 shall be required to request an amount of floor space sufficient to accommodate the total equipment arrangement. Floor space charges are due beginning with the date on which BellSouth releases the Collocation Space for occupancy or on the date CLEC-1 first occupies the Collocation Space, whichever is sooner.

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7.8 Power. BellSouth shall make available -48 Volt (-48V) DC power for CLEC-1's Collocation Space at a BellSouth Power Board or BellSouth Battery Distribution Fuse Bay ("BDFB") at CLEC-1's option within the Premises.

7.8.1 Recurring charges for -48V DC power will be assessed per ampere per month based upon the BellSouth Certified Supplier engineered and installed power feed fused ampere capacity. Rates include redundant feeder fuse positions (A&B) and common cable rack to CLEC-1's equipment or space enclosure. When obtaining power from a BDFB, fuses and power cables (A&B) must be engineered (sized), and installed by CLEC-1's BellSouth Certified Supplier. When obtaining power from a BellSouth power board, power cables (A&B) must be engineered (sized), and installed by CLEC-1's BellSouth Certified power Supplier. CLEC-1 is responsible for contracting with a BellSouth Certified Supplier for power distribution feeder cable runs from a BellSouth BDFB or power board to CLEC-1's equipment. Determination of the BellSouth BDFB or BellSouth power board as the power source will be made at BellSouth's sole, but reasonable, discretion. The BellSouth Certified Supplier contracted by CLEC-1 must provide BellSouth a copy of the engineering power specification prior to the day on which CLEC-1's equipment becomes operational ("Commencement Date"). BellSouth will provide the common power feeder cable support structure between the BellSouth BDFB or power board and CLEC-1's arrangement area. CLEC-1 shall contract with a BellSouth Certified Supplier who will be responsible for the following: dedicated power cable support structure within CLEC-1's arrangement; power cable feeds; terminations of cable. Any terminations at a BellSouth power board must be performed by a BellSouth Certified power Supplier. CLEC-1 shall comply with all applicable National Electric Code (NEC), BellSouth TR73503, Telcordia (BellCore) and ANSI Standards regarding power cabling.

7.8.2 If BellSouth has not previously invested in power plant capacity for collocation at a specific site, CLEC-1 has the option to add its own dedicated power plant; provided, however, that such work shall be performed by a BellSouth Certified Supplier who shall comply with BellSouth's guidelines and specifications. Where the addition of CLEC-1's dedicated power plant results in construction of a new power plant room, upon termination of CLEC-1's right to occupy collocation space at such site, CLEC-1 shall have the right to remove its equipment from the power plant room, but shall otherwise leave the room intact.

7.8.3 If CLEC-1 elects to install its own DC Power Plant, BellSouth shall provide AC power to feed CLEC-1's DC Power Plant. Charges for AC power will be assessed per breaker ampere per month. Rates include the provision of commercial and standby AC power. When obtaining power from a BellSouth service panel, protection devices and power cables must be engineered (sized), and installed by CLEC-1's BellSouth Certified Supplier except that BellSouth shall engineer and install protection devices and power cables for Adjacent Collocation. CLEC-1's BellSouth Certified Supplier must also provide a copy of the engineering power specification prior to the Commencement Date. Charges for AC power shall be assessed pursuant to the rates specified in Exhibit A. AC power voltage and phase ratings shall be determined on a per location basis. At CLEC-1's option, CLEC-1 may arrange for AC power in an Adjacent Collocation arrangement from a retail provider of electrical power.

7.9 Security Escort. A security escort will be required whenever CLEC-1 or its approved agent desires access to the entrance manhole or must have access to the Premises after the one accompanied site visit allowed pursuant to Section 6.5.2 prior to completing BellSouth's Security Training requirements and/or

prior to Space Acceptance. Rates for a security escort are assessed according to the schedule appended hereto as Exhibit A beginning with the scheduled escort time. BellSouth will wait for one-half (1/2) hour after the scheduled time for such an escort and CLEC-1 shall pay for such half-hour charges in the event CLEC-1 fails to show up.

7.10 Cable Record charges. These charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.

7.11 Rate "True-Up". The Parties agree that the prices reflected as interim herein shall be "trued-up" (up or down) based on final prices either determined by further agreement or by final order, including any appeals, in a proceeding involving BellSouth before the regulatory authority for the state in which the services are being performed or any other body having jurisdiction over this Agreement (hereinafter "Commission"). Under the "true-up" process, the interim price for each service shall be multiplied by the volume of that service purchased to arrive at the total interim amount paid for that service ("Total Interim Price"). The final price for that service shall be multiplied by the volume purchased to arrive at the total final amount due ("Total Final Price"). The Total Interim Price shall be compared with the Total Final Price. If the Total Final Price is more than the Total Interim Price, CLEC-1 shall pay the difference to BellSouth. If the Total Final Price is less than the Total Interim Price, BellSouth shall pay the difference to CLEC-1. Each Party shall keep its own records upon which a "true-up" can be based and any final payment from one Party to the other shall be in an amount agreed upon by the Parties based on such records. In the event of any disagreement as between the records or the Parties regarding the amount of such "true-up," the Parties agree that the Commission shall be called upon to resolve such differences.

7.12 Other. If no rate is identified in the contract, the rate for the specific service or function will be negotiated by the Parties upon request by either Party. Payment of all other charges under this Attachment shall be due as dictated by CLEC-1's current billing cycle. CLEC-1 will pay a late payment charge as specified in the current State Tariff.

6.8 Insurance

8.1 Insurance. CLEC-1 shall, at its sole cost and expense, procure, maintain, and keep in force insurance as specified in this Section 8 and underwritten by insurance companies licensed to do business in the states applicable under this Attachment and having a Best's Insurance Rating of A-.

8.2 CLEC-1 shall maintain the following specific coverage:

8.2.1 Commercial General Liability coverage in the amount of ten million dollars ($10,000,000.00) or a combination of Commercial General Liability and Excess/Umbrella coverage totaling not less than ten million dollars ($10,000,000.00). BellSouth shall be named as an Additional Insured on the Commercial General Liability policy as specified herein.

8.2.2 Statutory Workers Compensation coverage and Employers Liability coverage in the amount of one hundred thousand dollars ($100,000.00) each accident, one hundred thousand dollars ($100,000.00) each employee by disease, and five hundred thousand dollars ($500,000.00) policy limit by disease.

8.2.3 All Risk Property coverage on a full replacement cost basis insuring all of CLEC-1's real and personal property situated on or within BellSouth's Central Office location(s).

8.2.4 CLEC-1 may elect to purchase business interruption and contingent business interruption insurance, having been advised that BellSouth assumes no liability for loss of profit or revenues should an interruption of service occur.

8.3 The limits set forth in Section 8.2 above may be increased by BellSouth from time to time during the term of this Attachment upon thirty (30) days notice to CLEC-1 to at least such minimum limits as shall then be customary with respect to comparable occupancy of BellSouth structures.

8.4 All policies purchased by CLEC-1 shall be deemed to be primary and not contributing to or in excess of any similar coverage purchased by BellSouth. All insurance must be in effect on or before the date equipment is delivered to BellSouth's Premises and shall remain in effect for the term of this Attachment or until all CLEC-1's property has been removed from BellSouth's Premises, whichever period is longer. If CLEC-1 fails to maintain required coverage, BellSouth may pay the premiums thereon and seek reimbursement of same from CLEC-1.

8.5 CLEC-1 shall submit certificates of insurance reflecting the coverage required pursuant to this Section a minimum of ten (10) calendar days prior to the commencement of any work in the Collocation Space. Failure to meet this interval may result in construction and equipment installation delays. CLEC-1 shall arrange for BellSouth to receive thirty (30) calendar days' advance notice of cancellation from CLEC-1's insurance company. CLEC-1 shall forward a certificate of insurance and notice of cancellation/non-renewal to BellSouth at the following address: BellSouth Telecommunications, Inc. Attn.: Risk Management Coordinator 17H53 BellSouth Center 675 W. Peachtree Street Atlanta, Georgia 30375

8.6 CLEC-1 must conform to recommendations made by BellSouth's fire insurance company to the extent BellSouth has agreed to, or shall hereafter agree to, such recommendations.

8.7 Self-Insurance. If CLEC-1's net worth exceeds five hundred million dollars ($500,000,000), CLEC-1 may elect to request self-insurance status in lieu of obtaining any of the insurance required in Sections 8.2.1 and 8.2.3. CLEC-1 shall provide audited financial statements to BellSouth thirty (30) days prior to the commencement of any work in the Collocation Space. BellSouth shall then review such audited financial statements and respond in writing to CLEC-1 in the event that self-insurance status is not granted to CLEC-1. If BellSouth approves CLEC-1 for self-insurance, CLEC-1 shall annually furnish to BellSouth, and keep current, evidence of such net worth that is attested to by one of CLEC-1's corporate officers. The ability to self-insure shall continue so long as the CLEC-1 meets all of the requirements of this Section. If the CLEC-1 subsequently no longer satisfies this Section, CLEC-1 is required to purchase insurance as indicated by Sections 8.2.1 and 8.2.3.

8.8 The net worth requirements set forth in Section 8.7 may be increased by BellSouth from time to time during the term of this Attachment upon thirty (30) days' notice to CLEC-1 to at least such minimum limits as shall then be customary with respect to comparable occupancy of BellSouth structures.

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8.9 Failure to comply with the provisions of this Section will be deemed a material breach of this Attachment.

6.9 Mechanics Liens

9.1 If any mechanics lien or other liens shall be filed against property of either Party (BellSouth or CLEC-1), or any improvement thereon by reason of or arising out of any labor or materials furnished or alleged to have been furnished or to be furnished to or for the other Party or by reason of any changes, or additions to said property made at the request or under the direction of the other Party, the other Party directing or requesting those changes shall, within thirty (30) business days after receipt of written notice from the Party against whose property said lien has been filed, either pay such lien or cause the same to be bonded off the affected property in the manner provided by law. The Party causing said lien to be placed against the property of the other shall also defend, at its sole cost and expense, on behalf of the other, any action, suit or proceeding which may be brought for the enforcement of such liens and shall pay any damage and discharge any judgment entered thereon.

6.10 Inspections

10.1 BellSouth may conduct an inspection of CLEC-1's equipment and facilities in the Collocation Space(s) prior to the activation of facilities between CLEC-1's equipment and equipment of BellSouth. BellSouth may conduct an inspection if CLEC-1 adds equipment and may otherwise conduct routine inspections at reasonable intervals mutually agreed upon by the Parties. BellSouth shall provide CLEC-1 with a minimum of forty-eight (48) hours or two (2) business days, whichever is greater, advance notice of all such inspections. All costs of such inspection shall be borne by BellSouth.

6.11 Security and Safety Requirements

11.1 Security and Safety Requirements. The security and safety requirements set forth in this section are as stringent as the security requirements BellSouth maintains at its own premises either for their own employees or for authorized contractors. Only BellSouth employees, BellSouth Certified Contractors and authorized employees, authorized Guests, pursuant to Section 3.4, preceding, or authorized agents of CLEC-1 will be permitted in the BellSouth Premises. CLEC-1 shall provide its employees and agents with picture identification which must be worn and visible at all times while in the Collocation Space or other areas in or around the Premises. The photo Identification card shall bear, at a minimum, the employee's name and photo, and the CLEC-1 name. BellSouth reserves the right to remove from its premises any employee of CLEC-1 not possessing identification issued by CLEC-1 or who have violated any of BellSouth's policies as outlined in the CLEC Security Training documents. CLEC-1 shall hold BellSouth harmless for any damages resulting from such removal of its personnel from BellSouth premises. CLEC-1 shall be solely responsible for ensuring that any Guest of CLEC-1 is in compliance with all subsections of this Section 11.

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11.1.1 CLEC-1 will be required, at its own expense, to conduct a statewide investigation of criminal history records for each CLEC-1 employee being considered for work on the BellSouth Premises, for the states/counties where the CLEC-1 employee has worked and lived for the past five years. Where state law does not permit statewide collection or reporting, an investigation of the applicable counties is acceptable. CLEC-1 shall not be required to perform this investigation if an affiliated company of CLEC-1 has performed an investigation of the CLEC-1 employee seeking access, if such investigation meets the criteria set forth above. This requirement will not apply if CLEC-1 has performed a pre-employment statewide investigation of criminal history records, or where state law does not permit an investigation of the applicable counties for the CLEC-1 employee seeking access, for the states/ counties where the CLEC-1 employee has worked and lived for the past five yearshn.

11.1.2 CLEC-1 will be required to administer to their personnel assigned to the BellSouth Premises security training either provided by BellSouth, or meeting criteria defined by BellSouth.

11.1.3 CLEC-1 shall not assign to the BellSouth Premises any personnel with records of felony criminal convictions. CLEC-1 shall not assign to the BellSouth Premises any personnel with records of misdemeanor convictions, except for misdemeanor traffic violations, without advising BellSouth of the nature and gravity of the offense(s). BellSouth reserves the right to refuse building access to any CLEC-1 personnel who have been identified to have misdemeanor criminal convictions. Notwithstanding the foregoing, in the event that CLEC-1 chooses not to advise BellSouth of the nature and gravity of any misdemeanor conviction, CLEC-1 may, in the alternative, certify to BellSouth that it shall not assign to the BellSouth Premises any personnel with records of misdemeanor convictions (other than misdemeanor traffic violations).

11.1.4 CLEC-1 shall not knowingly assign to the BellSouth Premises any individual who was a former employee of BellSouth and whose employment with BellSouth was terminated for a criminal offense whether or not BellSouth sought prosecution of the individual for the criminal offense.

11.1.5 CLEC-1 shall not knowingly assign to the BellSouth Premises any individual who was a former contractor of BellSouth and whose access to a BellSouth Premises was revoked due to commission of a criminal offense whether or not BellSouth sought prosecution of the individual for the criminal offense.

11.1.6 For each CLEC-1 employee requiring access to a BellSouth Premises pursuant to this Attachment, CLEC-1 shall furnish BellSouth, prior to an employee gaining such access, a certification that the aforementioned background check and security training were completed. The certification will contain a statement that no felony convictions were found and certifying that the security training was completed by the employee. If the employee's criminal history includes misdemeanor convictions, CLEC-1 will disclose the nature of the convictions to BellSouth at that time. In the alternative, CLEC-1 may certify to BellSouth that it shall not assign to the BellSouth Premises any personnel with records of misdemeanor convictions other than misdemeanor traffic violations.

11.1.7 At BellSouth's request, CLEC-1 shall promptly remove from the BellSouth's Premises any employee of CLEC-1 BellSouth does not wish to grant access to its premises 1) pursuant to any investigation conducted by BellSouth or 2) prior to the initiation of an investigation in the event that an employee of CLEC-1 is found interfering with the property or personnel of BellSouth or another CLEC, provided that an investigation shall promptly be commenced by BellSouth.

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11.2 Notification to BellSouth. BST reserves the right to interview CLEC-1's employees, agents, or contractors in the event of wrongdoing in or around BellSouth's property or involving BellSouth's or another CLEC's property or personnel, provided that BellSouth shall provide reasonable notice to CLEC-1's Security contact of such interview. CLEC-1 and its contractors shall reasonably cooperate with BellSouth's investigation into allegations of wrongdoing or criminal conduct committed by, witnessed by, or involving CLEC-1's employees, agents, or contractors. Additionally, BellSouth reserves the right to bill CLEC-1 for all reasonable costs associated with investigations involving its employees, agents, or contractors if it is established and mutually agreed in good faith that CLEC-1's employees, agents, or contractors are responsible for the alleged act. BellSouth shall bill CLEC-1 for BellSouth property which is stolen or damaged where an investigation determines the culpability of CLEC-1's employees, agents, or contractors and where CLEC-1 agrees, in good faith, with the results of such investigation. CLEC-1 shall notify BellSouth in writing immediately in the event that the CLEC discovers one of its employees already working on the BellSouth premises is a possible security risk. Upon request of the other Party, the Party who is the employer shall discipline consistent with its employment practices, up to and including removal from the BellSouth Premises, any employee found to have violated the security and safety requirements of this section. CLEC-1 shall hold BellSouth harmless for any damages resulting from such removal of its personnel from BellSouth premises.

11.4 Use of Official Lines. Except for non-toll calls necessary in the performance of their work, neither Party shall use the telephones of the other Party on the BellSouth Premises. Charges for unauthorized telephone calls may be charged to the offending Party, as may be all associated investigative costs.

11.5 Accountability. Full compliance with the Security requirements of this section shall in no way limit the accountability of either Party to the other for the improper actions of its employees.

6.12 Destruction of Collocation Space

12.1 In the event a Collocation Space is wholly or partially damaged by fire, windstorm, tornado, flood or by similar causes to such an extent as to be rendered wholly unsuitable for CLEC-1's permitted use hereunder, then either Party may elect within ten (10) business days after such damage, to terminate its occupancy of the damaged Collocation Space, and if either Party shall so elect, by giving the other written notice of termination, both Parties shall stand released of and from further liability under the terms hereof. If the Collocation Space shall suffer only minor damage and shall not be rendered wholly unsuitable for CLEC-1's permitted use, or is damaged and the option to terminate is not exercised by either Party, BellSouth covenants and agrees to proceed promptly without expense to CLEC-1, except for improvements not the property of BellSouth, to repair the damage. BellSouth shall have a reasonable time within which to rebuild or make any repairs, and such rebuilding and repairing shall be subject to delays caused by storms, shortages of labor and materials, government regulations, strikes, walkouts, and causes beyond the control of BellSouth, which causes shall not be construed as limiting factors, but as exemplary only. CLEC-1 may, at its own expense, accelerate the rebuild of its collocated space and equipment provided however that a BellSouth Certified Contractor is used and the necessary space preparation has been completed. Rebuild of equipment must be performed by a BellSouth Certified Vendor. If CLEC-1's acceleration of the project increases the cost of the project, then those additional charges will be incurred by CLEC-1. Where allowed and where practical, CLEC-1 may erect a temporary facility while BellSouth rebuilds or makes repairs. In all cases where the Collocation Space

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shall be rebuilt or repaired, CLEC-1 shall be entitled to an equitable abatement of rent and other charges, depending upon the unsuitability of the Collocation Space for CLEC-1's permitted use, until such Collocation Space is fully repaired and restored and CLEC-1's equipment installed therein (but in no event later than thirty (30) business days after the Collocation Space is fully repaired and restored). Where CLEC-1 has placed an Adjacent Arrangement pursuant to Section 3.5, CLEC-1 shall have the sole responsibility to repair or replace said Adjacent Arrangement provided herein. Pursuant to this section, BellSouth will restore the associated services to the Adjacent Arrangement.

6.13 Eminent Domain

13.1 If the whole of a Collocation Space or Adjacent Arrangement shall be taken by any public authority under the power of eminent domain, then this Attachment shall terminate with respect to such Collocation Space or Adjacent Arrangement as of the day possession shall be taken by such public authority and rent and other charges for the Collocation Space or Adjacent Arrangement shall be paid up to that day with proportionate refund by BellSouth of such rent and charges as may have been paid in advance for a period subsequent to the date of the taking. If any part of the Collocation Space or Adjacent Arrangement shall be taken under eminent domain, BellSouth and CLEC-1 shall each have the right to terminate this Attachment with respect to such Collocation Space or Adjacent Arrangement and declare the same null and void, by written notice of such intention to the other Party within ten (10) business days after such taking.

6.14 Nonexclusivity

14.1 CLEC-1 understands that this Attachment is not exclusive and that BellSouth may enter into similar agreements with other Parties. Assignment of space pursuant to all such agreements shall be determined by space availability and made on a first come, first served basis.

Table B ALABAMA RATES - PHYSICAL COLLOCATION

- -ALABAMA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,760.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,134.00 Minimum
SPACE PREPARATION FEES				

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Table B ALABAMA RATES - PHYSICAL COLLOCATION (continued)

- -ALABAMA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1SJ	Firm Order Processing*			$1,211.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.24	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$3.01	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$102.16	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$178.65	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$17.52	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$3.68	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,751.00
PE1PM	Cable Support Structure	Per Entrance Cable	$19.67	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$9.00	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.63	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.26	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.89	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.99	
CROSS CONNECTS				First/Add'l

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Table B ALABAMA RATES - PHYSICAL COLLOCATION (continued)

- -ALABAMA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1P2	2-Wire	Per Cross Connect	$0.031	$33.68/$31.79
PE1P4	4-Wire	Per Cross Connect	$0.062	$33.63/$31.67
PE1P1	DS-1	Per Cross Connect	$1.28	$52.93/$39.87
PE1P3	DS-3	Per Cross Connect	$16.27	$51.99/$38.59
PE1F2	2-Fiber	Per Cross Connect	$3.23	$52.00/$38.60
PE1F4	4-Fiber	Per Cross Connect	$5.73	$64.54/$51.14
PEIAX	Security Access System	Per Central Office	$52.27	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.059	$55.57
PE1AA	Administrative Charge, Existing Card	Per Card		$15.58
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.56
PE1AK	Initial Key	Per Key	N/A	$26.19
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.19
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,150
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				

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Table B ALABAMA RATES - PHYSICAL COLLOCATION (continued)

- -ALABAMA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.08	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.17	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.69	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$4.74	N/A
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$32.02	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$40.48	N/A
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,708/$1,166
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$923.51/$923.51
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.02/$18.02
PE1C1	DS1	Per T1 TIE	N/A	$8.44/$8.44
PE1C3	DS3	Per T3 TIE	N/A	$29.53/$29.53
PE1CB	Fiber Cable	Per Cable Record	N/A	$278.95/$278.95
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.85/$21.45
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.09/$27.71
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.33/$33.96

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Table B ALABAMA RATES - PHYSICAL COLLOCATION (continued)

- -ALABAMA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table C . FLORIDA RATES - PHYSICAL COLLOCATION-

- - -FLORIDA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request		$3,791.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,160.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,211.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.58	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$2.96	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$100.66	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				

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Table C FLORIDA RATES - PHYSICAL COLLOCATION- (continued)

- - -FLORIDA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$205.93	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$20.20	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$6.57	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,826.00
PE1PM	Cable Support Structure	Per Entrance Cable	$21.66	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$8.86	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.62	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.26	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.88	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.98	
CROSS CONNECTS				First/Add'l
	2-Wire	Per Cross Connect	$0.074	$34.53/$32.51
	4-Wire	Per Cross Connect	$0.148	$34.54/$32.53
	DS-1	Per Cross Connect	$1.29	$54.15/$40.94
	DS-3	Per Cross Connect	$17.48	$53.28/$39.65

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Table C FLORIDA RATES - PHYSICAL COLLOCATION- (continued)

- - -FLORIDA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
	2-Fiber	Per Cross Connect	$2.96	$53.28/$39.66
	4-Fiber	Per Cross Connect	$5.66	$66.08/$52.47
PEIAX	Security Access System	Per Central Office	$89.48	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.06	$56.03
PE1AA	Administrative Charge, Existing Card	Per Card		$15.71
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.93
PE1AK	Initial Key	Per Key	N/A	$26.41
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.41
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,168.00
	POT BAY (NOTE 1)			
CABLE RECORDS (Note 2)				(Note 3) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,709/$1,166
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$923.86/$923.86
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.03/$18.03

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Table C FLORIDA RATES - PHYSICAL COLLOCATION- (continued)

- - -FLORIDA RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1C1	DS1	Per T1 TIE	N/A	$8.44/$8.44
PE1C3	DS3	Per T3TIE	N/A	$29.54/$29.54
PE1CB	Fiber Cable	Per Cable Record	N/A	$279.05/$279.05
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/4 Hr	N/A	$10.89
PE1OT	Overtime	Per 1/4 Hr	N/A	$13.64
PE1PT	Premium Time	Per 1/4 Hr	N/A	$16.40
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: POT Bays: BellSouth's Florida specific rates were established in the Florida Service Commission Docket No. 960833. The Commission did not set permanent rates for POT Bays, given the assumption by the Parties to the Proceeding that they will always provide their own POT Bays. It will be necessary for CLEC-1 to provide its own POT Bays per BellSouth specifications and provide the necessary information from which BellSouth can inventory.				
Note 2: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 3: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table D GEORGIA RATES - PHYSICAL COLLOCATION

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
2	H.0	**Collocation**			
	H.1	**Physical Collocation**			

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Table D GEORGIA RATES - PHYSICAL COLLOCATION (continued)

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.1.1	Physical collocation - Application cost			3,850.00
		Physical collocation - space preparation (per sq. ft.) - min 100 sq. ft. , add'l space callculated in 50 ft. increments.			100.00
	H.1.3	Physical collocation - space construction cost per square foot			45.00
	H.1.5	Physical collocation - cable installation cost per cable			2,750.00
	H.1.6	Physical collocation - floor space, per square feet - zone A	7.50		
	H.1.6	Physical collocation - floor space, per square feet - zone B	6.75		
	H.1.7	Physical collocation - cable support structure, per entrance cable	13.35		
	H.1.8	Physical collocation - power, per ampere	5.00		
	H.1.9	Physical collocation - 2-wire cross connects	.30	12.60 12.60	12.60 12.60
	H.1.10	Physical collocation - 4-wire cross connects	.50	12.60 12.60	12.60 12.60
	H.1.11	Physical collocation - DS1 cross connects	8.00	155.00 27.00	155.00 27.00
	H.1.12	Physical collocation - DS3 cross connects	72.00	155.00 27.00	155.00 27.00
	H.1.13	Physical collocation - 2-wire POT Bay	.40		
	H.1.14	Physical collocation - 4-wire POT Bay	1.20		

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Table D GEORGIA RATES - PHYSICAL COLLOCATION (continued)

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.1.15	Physical collocation - DS1 POT Bay	1.20		
	H.1.16	Physical collocation - DS3 POT Bay	8.00		
	H.1.17	Physical collocation - security escort - basic, per half hour and additional			41.00 25.00
	H.1.18	Physical collocation - security escort - overtime, per 1/2 hour and additional 1/2 hour			48.00 30.00
	H.1.19	Physical collocation - security escort - premium, per 1/2 hour and additional 1/2 hour			55.00 35.00
	H.1.37	Physical collocation - Security Access System, Security System, per Central Office	54.14		
	H.1.38	Physical collocation - Security Access System - New Access Card Activation, per Card	.0607		46.20
	H.1.39	Physical collocation - Security Access System - Administrative Charge, Existing Card, per Card			15.40
	H.1.40	Physical collocation - Security Access System - Replace Lost or Stolen Card, per Card			45.02
	H.1.3899	Physical collocation - Security Access System - New Access Card Deactivation, Per Card			8.72
	H.2	**Virtual Collocation**			
	H.2.1	Virtual collocation - application cost			2,843.30

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Table D GEORGIA RATES - PHYSICAL COLLOCATION (continued)

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.2.2	Virtual collocation - cable installation cost per cable			2,750.00
	H.2.3	Virtual collocation - floor space per square feet	3.20		
	H.2.4	Virtual collocation - floor space power, per ampere	3.48		
	H.2.5	Virtual collocation - cable support structure, per entrance cable	13.35		
	H.2.8	Virtual collocation - DS1 cross connects	7.50	155.00 14.00	155.00 14.00
	H.2.9	Virtual collocation - Ds3 cross connects	56.25	151.90 11.83	151.90 11.83
	H.2.10	Virtual collocation - security escort - basic, per half hour			41.00 25.00
	H.2.11	Virtual collocation - security escort, overtime, per half hour			48.00 30.00
	H.2.12	Virtual Collocation - security escort, premium, per half hour			55.00 35.00
	H.4	**Adjacent Collocation**			
	H.4.1	Adjacent Collocation - Space Cost per Sq. Ft.	.2542		
	H.4.2	Adjacent Collocation - Electrical Facility Cost per Linear Ft.	5.44		
	H.4.3 H.4.10	Adjacent Collocation - 2-Wire Cross Connects	.0598	24.95 23.97	26.48 25.50
	H.4.399 H.4.1099	Adjacent Collocation - 2-Wire Cross Connects - Disconnect		11.80 10.67	12.80 11.67

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Table D GEORGIA RATES - PHYSICAL COLLOCATION (continued)

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.4.4	Adjacent Collocation - 4-Wire Cross Connects	.1196	25.14 24.11	26.67 25.64
	H.499 H.4.1199	Adjacent Collocation - 4-Wire Cross Connects - Disconnect		12.15 10.93	13.18 11.96
	H.4.5 H.4.12	Adjacent Collocation - DS1 Cross Connects	1.04	44.19 32.13	45.72 33.66
	H.4.599 H.4.1299	Adjacent Collocation - DS1 Cross Connects - Disconnects		11.93 10.81	12.94 11.82
	H.4.6 H.4.13	Adjacent Collocation - DS3 Cross Connects	14.12	41.93 30.69	43.46 32.22
	H.4.699 H.4.1399	Adjacent Collocation - DS3 Cross Connects - Disconnect		13.71 11.04	14.72 12.05
	H..4.7 H.4.14	Adjacent Collocation - 2-Fiber Cross Connects	2.39	41.93 30.69	43.46 32.22
	H.4.799 H.4.1499	Adjacent Collocation - 2-Fiber Cross Connects - Disconnect		13.71 11.05	14.72 12.06
	H.4.8 H.4.15	Adjacent Collocation - 4-Fiber Cross Connects	4.57	51.14 39.90	52.67 41.43
	H.4.899 H.4.1599	Adjacent Collocation - 4-Fiber Cross Connects - Disconnect		17.96 15.29	18.97 16.30
	H.4.9	Adjacent Collocation - Application Cost			1,555
	H.4.999	Adjacent Collocation - Application Cost - Disconnect			.99
	H.4.16	Adjacent Collocation - 120V, Single Phase Standby Power Cost	5.39		
	H.4.17	Adjacent Collocation - 240V, Single Phase Standby Power Cost, per AC Breaker AMP	10.79		

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Table D GEORGIA RATES - PHYSICAL COLLOCATION (continued)

-GEORGIA RATES -					
V List Item	Cost Ref #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.4.18	Adjacent Collocation - 120V, Three Phase Standby Power Cost, Per AC Breaker AMP	16.18		
	H.4.19	Adjacent Collocation - 240V, Three Phase Standby Power Cost, per AC Breaker AMP	37.37		

Note: under nonrecurring rate columns where two rates appear, the top rate is for the first element installed and the bottom rate is for additional elements installed at the same time.

Table E KENTUCKY RATES - PHYSICAL COLLOCATION

- - -KENTUCKY RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,761.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,135.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,202.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.38	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$3.30	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$112.11	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				

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Table E KENTUCKY RATES - PHYSICAL COLLOCATION (continued)

- - -KENTUCKY RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$189.85	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$18.62	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$8.20	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,755.00
PE1PM	Cable Support Structure	Per Entrance Cable	$20.14	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$8.77	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.58	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.16	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.7[illegible]	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.[illegible]	
CROSS CONNECTS				First/Add'l
PE1P2	2-Wire	Per Cross Connect	$0.037	$33.67/$31.78
PE1P4	4-Wire	Per Cross Connect	$0.075	$33.66/$31.70
PE1P1	DS-1	Per Cross Connect	$1.51	$52.97/$39.90
PE1P3	DS-3	Per Cross Connect	$19.15	$52.04/$38.62

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Table E KENTUCKY RATES - PHYSICAL COLLOCATION (continued)

- - -KENTUCKY RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1F2	2-Fiber	Per Cross Connect	$3.80	$52.04/$38.63
PE1F4	4-Fiber	Per Cross Connect	$6.75	$64.59/$51.18
PEIAX	Security Access System	Per Premises	$78.11	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.059	$55.59
PE1AA	Administrative Charge, Existing Card	Per Card		$15.59
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.58
PE1AK	Initial Key	Per Key	N/A	$26.20
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.20
PE1SR	Space Availability Report	Per Premises Requested	N/A	$2,151
	POT BAY ARRANGEMENTS - PRIOR TO 6/1/99			
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.06	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.15	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.58	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$4.51	N/A

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Table E KENTUCKY RATES - PHYSICAL COLLOCATION (continued)

- - -KENTUCKY RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$38.79	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$52.31	N/A
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,709/$1,166
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$923.83/$923.83
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.03/$18.03
PE1C1	DS1	Per T1 TIE	N/A	$8.44/$8.44
PE1C3	DS3	Per T3 TIE	N/A	$29.54/$29.54
PE1CB	Fiber Cable	Per Cable Record	N/A	$279.05/$279.05
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.86/$21.46
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.10/$27.72
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.35/$33.97
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				

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Table E KENTUCKY RATES - PHYSICAL COLLOCATION (continued)

- - -KENTUCKY RATES - - - -PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table F LOUISIANA RATES - PHYSICAL COLLOCATION

- - -LOUISIANA RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,756.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,131.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,200.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.60	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$3.15	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$105.87	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$207.06	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$20.31	N/A

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Table F LOUISIANA RATES - PHYSICAL COLLOCATION (continued)

- - -LOUISIANA RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1PJ	Floor Space	Per Sq. Ft.	$5.94	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,753.00
PE1PM	Cable Support Structure	Per Entrance Cable	$21.16	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$9.20	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.66	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.34	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$17.00	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$39.26	
CROSS CONNECTS				First/Add'l
PE1P2	2-Wire	Per Cross Connect	$0.036	$33.61/$31.76
PE1P4	4-Wire	Per Cross Connect	$0.073	$33.53/$31.58
PE1P1	DS-1	Per Cross Connect	$1.20	$52.80/$39.76
PE1P3	DS-3	Per Cross Connect	$15.26	$51.86/$38.49
PE1F2	2-Fiber	Per Cross Connect	$3.03	$51.86/$38.49
PE1F4	4-Fiber	Per Cross Connect	$5.38	$64.36/$50.99

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Table F LOUISIANA RATES - PHYSICAL COLLOCATION (continued)

- - -LOUISIANA RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PEIAX	Security Access System	Per Central Office	$60.60	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.060	$55.51
PE1AA	Administrative Charge, Existing Card	Per Card		$15.57
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.51
PE1AK	Initial Key	Per Key	N/A	$26.16
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.16
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,148
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.0776	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.1552	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.6406	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$4.75	N/A
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$47.44	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$63.97	N/A

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Table F LOUISIANA RATES - PHYSICAL COLLOCATION (continued)

- - -LOUISIANA RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,706/$1,165
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$922.51/$922.51
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.00/$18.00
PE1C1	DS1	Per T1 TIE	N/A	$8.43/$8.43
PE1C3	DS3	Per T3 TIE	N/A	$29.49/$29.49
PE1CB	Fiber Cable	Per Cable Record	N/A	$278.65/$278.65
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.97/$21.53
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.25/$27.81
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.53/$34.09
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table G MISSISSIPPI RATES - PHYSICAL COLLOCATION

- - -MISSISSIPPI RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,755.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,130.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,200.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.61	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$2.88	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$97.85	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$208.30	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$20.43	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$6.53	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,751.00
PE1PM	Cable Support Structure	Per Entrance Cable	$19.90	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$8.96	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.61	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.23	

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Table G MISSISSIPPI RATES - PHYSICAL COLLOCATION (continued)

- - -MISSISSIPPI RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.84	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.89	
CROSS CONNECTS				First/Add'l
PE1P2	2-Wire	Per Cross Connect	$0.38	$33.65/$31.77
PE1P4	4-Wire	Per Cross Connect	$0.076	$33.46/$31.52
PE1P1	DS-1	Per Cross Connect	$1.30	$52.73/$39.70
PE1P3	DS-3	Per Cross Connect	$16.55	$51.78/$38.43
PE1F2	2-Fiber	Per Cross Connect	$3.28	$51.78/$38.43
PE1F4	4-Fiber	Per Cross Connect	$5.83	$64.27/$50.91
PEIAX	Security Access System	Per Premises	$85.54	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.061	$55.50
PE1AA	Administrative Charge, Existing Card	Per Card		$15.56
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.50
PE1AK	Initial Key	Per Key	N/A	$26.16

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Table G MISSISSIPPI RATES - PHYSICAL COLLOCATION (continued)

- - -MISSISSIPPI RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.16
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,147.00
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.1195	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.2389	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.9862	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$5.81	N/A
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$38.79	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$52.31	N/A
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,706/$1,164
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$922.28/$922.28
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.00/$18.00
PE1C1	DS1	Per T1 TIE	N/A	$8.42/$8.42
PE1C3	DS3	Per T3 TIE	N/A	$29.49/$29.49
PE1CB	Fiber Cable	Per Cable Record	N/A	$278.95/$278.95
SECU[illegible]Y ESCORT				

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002350

Table G MISSISSIPPI RATES - PHYSICAL COLLOCATION (continued)

- - -MISSISSIPPI RATES - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.80/$21.42
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.03/$27.67
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.26/$33.92
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table H NORTH CAROLINA RATES - PHYSICAL COLLOCATION

- - -NORTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,850.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,119.00 Minimum
SPACE PREPARATION FEES				
	Central Office Modifications*	Per Sq. Ft.	$1.57	

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Table H NORTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - -NORTH CAROLINA RATES - - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
	Common Systems Modifications - Cageless*	Per Sq. Ft.	$3.26	
	Common Systems Modifications - Caged*	Per Cage	$110.79	
	Power	Per nominal -48v DC Amp	$5.76	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$102.76	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$10.44	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$3.45	N/A
PE1BD	Cable Installation	Per Cable	N/A	$2,305.00
PE1PM	Cable Support Structure	Per Entrance Cable	$21.33	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$6.65	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.50	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.01	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.51	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.12	
CROSS CONNECTS				First/Add'l

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Table H NORTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - -NORTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1P2	2-Wire	Per Cross Connect	$0.32	$41.78/$39.23
PE1P4	4-Wire	Per Cross Connect	$0.64	$41.91/$39.25
PE1P1	DS-1	Per Cross Connect	$2.34	$71.02/$51.08
PE1P3	DS-3	Per Cross Connect	$42.84	$69.84/$49.43
PE1F2	2-Fiber	Per Cross Connect	$2.94	$51.97/$38.59
PE1F4	4-Fiber	Per Cross Connect	$5.62	$64.53/$51.15
PEIAX	Security Access System	Per Premises	$41.03	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.062	$55.30
PE1AA	Administrative Charge, Existing Card	Per Card		$15.51
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.34
PE1AK	Initial Key	Per Key	N/A	$26.18
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.18
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,140
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				

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Table H NORTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - -NORTH CAROLINA RATES - - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.10	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.19	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.79	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$4.85	N/A
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$45.30	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$61.09	N/A
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,707/$1,165
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$923.08/$923.08
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.02/$18.02
PE1C1	DS1	Per T1 TIE	N/A	$8.43/$8.43
PE1C3	DS3	Per T3 TIE	N/A	$29.51/$29.51
PE1CB	Fiber Cable	Per Cable Record	N/A	$278.82/$278.82
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$42.92/$25.56
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.51/$32.44
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$66.10/$39.32

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Table H NORTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - -NORTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table I SOUTH CAROLINA RATES - PHYSICAL COLLOCATION

- - - -SOUTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,768.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,141.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,204.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.75	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$3.24	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$110.17	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				

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Table I SOUTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - - -SOUTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$219.19	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$21.50	N/A
PE1PJ	Floor Space	Per Sq. Ft.	$3.95	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,621.00
PE1PM	Cable Support Structure	Per Entrance Cable	$21.33	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$9.19	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.67	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.36	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$17.03	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$39.33	
CROSS CONNECTS				First/Add'l
PE1P2	2-Wire	Per Cross Connect	$0.034	$33.75/$31.86
PE1P4	4-Wire	Per Cross Connect	$0.068	$33.71/$31.75
PE1P1	DS-1	Per Cross Connect	$1.12	$53.05/$39.96
PE1P3	DS-3	Per Cross Connect	$14.21	$52.11/$38.68

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Table I SOUTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - - -SOUTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1F2	2-Fiber	Per Cross Connect	$2.82	$52.11/$38.69
PE1F4	4-Fiber	Per Cross Connect	$5.01	$64.69/$51.26
PEIAX	Security Access System	Per Premises	$74.12	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.060	$55.70
PE1AA	Administrative Charge, Existing Card	Per Card		$15.62
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.66
PE1AK	Initial Key	Per Key	N/A	$26.25
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.25
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,155
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.1091	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$0.2181	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$0.9004	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$5.64	N/A

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Table I SOUTH CAROLINA RATES - PHYSICAL CO'LOCATION (continued)

- - - -SOUTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$37.36	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$50.38	N/A
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,712/$1,168
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$925.57/$925.57
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.06/$18.06
PE1C1	DS1	Per T1 TIE	N/A	$8.45/$8.45
PE1C3	DS3	Per T3 TIE	N/A	$29.59/$29.59
PE1CB	Fiber Cable	Per Cable Record	N/A	$279.57/$279.57
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.92/$21.50
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.19/$27.77
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.45/$34.04
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				

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Table I SOUTH CAROLINA RATES - PHYSICAL COLLOCATION (continued)

- - - -SOUTH CAROLINA RATES - - - - - -PHYSICAL COLLOCATION- - -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

Table J TENNESSEE RATES - PHYSICAL COLLOCATION

- - -TENNESSEE RATES - - - - - PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1BA	Application Fee	Per Request	N/A	$3,767.00
PE1CA	Susequent Application Fee	Per Request	N/A	$3,140.00 Minimum
SPACE PREPARATION FEES				
PE1SJ	Firm Order Processing*			$1,204.00
PE1SK	Central Office Modifications*	Per Sq. Ft.	$2.74	
PE1SL	Common Systems Modifications - Cageless*	Per Sq. Ft.	$2.95	
PE1SM	Common Systems Modifications - Caged*	Per Cage	$100.14	
SPACE ENCLOSURES (100 Sq. Ft. MINIMUM)				
PE1BW	Welded Wire - Mesh	Per 100 Sq. Ft.	$218.53	N/A
PE1CW	Welded Wire Mesh	Per Add'l 50 Sq. Ft.	$21.44	N/A

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Table J TENNESSEE RATES - PHYSICAL COLLOCATION (continued)

- - -TENNESSEE RATES - - - - - PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PE1PJ	Floor Space	Per Sq. Ft.	$6.75	N/A
PE1BD	Cable Installation	Per Cable	N/A	$1,757.00
PE1PM	Cable Support Structure	Per Entrance Cable	$19.80	N/A
POWER				
PE1PL	-48V DC Power*	Per Amp	$8.87	N/A
PE1FB	120 V AC Power-Single Phase*	Per Breaker Amp	$5.60	
PE1FD	240V AC Power Single Phase*	Per Breaker Amp	$11.22	
PE1FE	120V AC Power Three Phase*	Per Breaker Amp	$16.82	
PE1FG	277AC Power Three Phase*	Per Breaker Amp	$38.84	
CROSS CONNECTS				First/Add'l
PE1P2	2-Wire	Per Cross Connect	$0.033	$33.82/$31.92
PE1P4	4-Wire	Per Cross Connect	$0.066	$33.94/$31.95
PE1P1	DS-1	Per Cross Connect	$1.51	$53.27/$40.16
PE1P3	DS-3	Per Cross Connect	$19.26	$52.37/$38.89
PE1F2	2-Fiber	Per Cross Connect	$3.82	$52.37/$38.89
PE1F4	4-Fiber	Per Cross Connect	$6.79	$65.03/$51.55

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Table J TENNESSEE RATES - PHYSICAL COLLOCATION (continued)

- - -TENNESSEE RATES - - - - - PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
PEIAX	Security Access System	Per Premises	$55.99	
SECURITY SYSTEM				
PE1A1	New Access Card Activation*	Per Card	$0.059	$55.67
PE1AA	Administrative Charge, Existing Card	Per Card		$15.61
PE1AR	Replace Lost or Stolen Card*	Per Card		$45.64
PE1AK	Initial Key	Per Key	N/A	$26.24
PE1AL	Replace Lost or Stolen Key	Per Key	N/A	$26.24
PE1SR	Space Availability Report*	Per Premises Requested	N/A	$2,154.00
POT BAY ARRANGEMENTS - PRIOR TO 6/1/99				
PE1PE	2-Wire Cross-Connect	Per Cross Connect	$0.40	N/A
PE1PF	4-Wire Cross-Connect	Per Cross Connect	$1.20	N/A
PE1PG	DS1 Cross Connect	Per Cross Connect	$1.20	N/A
PE1PH	DS3 Cross Connect	Per Cross Connect	$8.00	N/A
PE1B2	2-Fiber Cross Connect	Per Cross Connect	$38.79	N/A
PE1B4	4-Fiber Cross Connect	Per Cross Connect	$52.31	N/A

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Table J TENNESSEE RATES - PHYSICAL COLLOCATION (continued)

- - -TENNESSEE RATES - - - - - PHYSICAL COLLOCATION- -				
Rates Marked with an asterisk (*) are interim and are subject to true-up				
USOC	RATE ELEMENT DESCRIPTION	UNIT	RECURRING RATE (RC)	NON-RECURRING RATE (NRC)
CABLE RECORDS (Note 1)				(Note 2) Initial/ Subseq
PE1CR	Cable Records	Per Request	N/A	$1,711/$1,168
PE1CD	VG/DS0 Cable	Per Cable Record	N/A	$925.06/$925.06
PE1CO	VG/DS0 Cable	Per Each 100 Pair	N/A	$18.05/$18.05
PE1C1	DS1	Per T1 TIE	N/A	$8.45/$8.45
PE1C3	DS3	Per T3 TIE	N/A	$29.57/$29.57
PE1CB	Fiber Cable	Per Cable Record	N/A	$279.42/$279.42
SECURITY ESCORT				
PE1BT	Basic Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$33.91/$21.49
PE1OT	Overtime	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$44.17/$27.76
PE1PT	Premium Time	Per 1/2 Hr-Add'l 1/2 Hr	N/A	$54.42/$34.02
NOTE(S)				
N/A Refers to rate elements which do not have a negotiated rate.				
Note 1: Cable records charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.				
Note 2: The inital charge applies when the cables are first installed and inventoried. The subsequent charge applies when additional cables are installed and inventoried at the same location.				

6.15 EXHIBIT B — ENVIRONMENTAL AND SAFETY PRINCIPLES

The following principles provide basic guidance on environmental and safety issues when applying for and establishing Physical Collocation arrangements.

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1. GENERAL PRINCIPLES

1.1 Compliance with Applicable Law. BellSouth and CLEC-1 agree to comply with applicable federal, state, and local environmental and safety laws and regulations including U.S. Environmental Protection Agency (USEPA) regulations issued under the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), the Toxic Substances Control Act (TSCA), and OSHA regulations issued under the Occupational Safety and Health Act of 1970, as amended and NFPA and National Electrical Codes (NEC) and the NESC ("Applicable Laws"). Each Party shall notify the other if compliance inspections are conducted by regulatory agencies and/or citations are issued that relate to any aspect of this Attachment.

1.2 Notice. BellSouth and CLEC-1 shall provide notice to the other, including Material Safety Data Sheets (MSDSs), of known and recognized physical hazards or Hazardous Chemicals existing on site or brought on site. Each Party is required to provide specific notice for known potential Imminent Danger conditions. CLEC-1 should contact 1-800-743-6737 for BellSouth MSDS sheets.

1.3 Practices/Procedures. BellSouth may make available additional environmental control procedures for CLEC-1 to follow when working at a BellSouth Premises (See Section 2, below). These practices/ procedures will represent the regular work practices required to be followed by the employees and contractors of BellSouth for environmental protection. CLEC-1 will require its contractors, agents and others accessing the BellSouth Premises to comply with these practices. Section 2 lists the Environmental categories where BST practices should be followed by CLEC when operating in the BellSouth Premises.

1.4 Environmental and Safety Inspections. BellSouth reserves the right to inspect the CLEC-1 space with proper notification. BellSouth reserves the right to stop any CLEC-1 work operation that imposes Imminent Danger to the environment, employees or other persons in the area or Facility.

1.5 Hazardous Materials Brought On Site. Any hazardous materials brought into, used, stored or abandoned at the BellSouth Premises by CLEC-1 are owned by CLEC-1. CLEC-1 will indemnify BellSouth for claims, lawsuits or damages to persons or property caused by these materials. Without prior written BellSouth approval, no substantial new safety or environmental hazards can be created by CLEC-1 or different hazardous materials used by CLEC-1 at BellSouth Facility. CLEC-1 must demonstrate adequate emergency response capabilities for its materials used or remaining at the BellSouth Facility.

1.6 Spills and Releases. When contamination is discovered at a BellSouth Premises, the Party discovering the condition must notify BellSouth. All Spills or Releases of regulated materials will immediately be reported by CLEC-1 to BellSouth.

1.7 Coordinated Environmental Plans and Permits. BellSouth and CLEC-1 will coordinate plans, permits or information required to be submitted to government agencies, such as emergency response plans, spill prevention control and countermeasures (SPCC) plans and community reporting. If fees are associated with filing, BellSouth and CLEC-1 will develop a cost sharing procedure. If BellSouth's permit or EPA identification number must be used, CLEC-1 must comply with all of BellSouth's permit

conditions and environmental processes, including environmental "best management practices (BMP)" (see Section 2, below) and/or selection of BST disposition vendors and disposal sites.

1.8 Environmental and Safety Indemnification. BellSouth and CLEC-1 shall indemnify, defend and hold harmless the other Party from and against any claims (including, without limitation, third-party claims for personal injury or death or real or personal property damage), judgments, damages, (including direct and indirect damages, and punitive damages), penalties, fines, forfeitures, costs, liabilities, interest and losses arising in connection with the violation or alleged violation of any Applicable Law or contractual obligation or the presence or alleged presence of contamination arising out of the acts or omissions of the indemnifying Party, its agents, contractors, or employees concerning its operations at the Facility.

2. CATEGORIES FOR CONSIDERATION OF ENVIRONMENTAL ISSUES

When performing functions that fall under the following Environmental categories on BellSouth's Premises, CLEC-1 agrees to comply with the applicable sections of the current issue of BellSouth's Environmental and Safety Methods and Procedures (M&Ps), incorporated herein by this reference. CLEC-1 further agrees to cooperate with BellSouth to ensure that CLEC-1's employees, agents, and/or subcontractors are knowledgeable of and satisfy those provisions of BellSouth's Environmental M&Pswhich apply to the specific Environmental function being performed by CLEC-1, its employees, agents and/or subcontractors.

The most current version of reference documentation must be requested from BellSouth

ENVIRONMENTAL CATEGORIES	ENVIRONMENTAL ISSUES	ADDRESSED BY THE FOLLOWING DOCUMENTATION
Disposal of Hazardous material or other regulated material (e.g. batteries, fluorescent tubes, solvents & cleaning materials)	Compliance with applicable .ocal, state & federal laws and regulations. Pollution liability insurance. EVET approval of contractor	- Std. T&C 450. - - - Fact Sheet Series 17000. -Approved Environmental Vendor List (Contact E/S Management)
Emergency Response	Hazmat/waste release/spill firesafety emergency.	- Fact Sheet Series 1700.- -Building Emergency Operation Plan (EOP) (specific to and locaed on premises).

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ENVIRONMENTAL CATEGORIES	ENVIRONMENTAL ISSUES	ADDRESSED BY THE FOLLOWING DOCUMENTATION
Contract labor/outsourcing for services with environmental implications to be performed on BellSouth Premises (e.g. disposition of hazardous material/waste; maintenance of storage tanks)	- Compliance with applicable local, state, & federal loaws and regulations. - Peerformanace of services in accordance with BST's environmental M&Ps. - -Insurance	- Std T&C 450 - - - – Std T&C 450 - B - - - - (Contact E/S for copy of appropriate E/S M&Ps) - -Std T&C 660
Transportation of Hazardous Materials	- Compliance with all applicable local, state, & federal laws and regulations. - Pollution liability insurance. - EVET approval of contractor.	- Std T&C 450 - - - - - - - - - -Fact Sheet Series 17000 - -Std T&C 660-3 - - - - -Approved Environmental Vendor List (Contact E/S Management).
Maintenance/operations work which may produce waste. - - - Other maintenance work	- Compliance with all applicable local, state, & federal laws and regulations. - - - - - All Hazardous materials & waste - Asbestos notification and protection of employees and equipment.	- P&SM Manager - Procurement. - - - - - Fact Sheet Series 17000 - - GU-BTEN-001 BT, Chapter 3. - - - - - - - -BSP 010-170-001 BS (Hazcom)
Manhole Cleaning	- Compliance with all applicable local, state, & federal laws and regulations. - - - - - Pollution liability insurance. - - - - EVET approval of contractor	- Std T & C 450. - - - Fact Sheet 14050. - - - BSP 620 620-145-011 PR Issue A, August 1996. - - - Std T & C 660 - 3. - - - - - - Approved Environmental Vendor List (Contact E/S Management).
Removing or disturbing building materials that may contain asbestos.	Asbestos work practices	- GU-BTEN-001BT, Chapter 3.

3. DEFINITIONS

Generator. Under RCRA, the person whose act produces a Hazardous Waste, as defined in 40 CFR 261, or whose act first causes a Hazardous Waste to become subject to regulation. The Generator is legally responsible for the proper management and disposal of Hazardous Wastes in accordance with regulations

Hazardous Chemical. As defined in the U.S. Occupational Safety and Health (OSHA) hazard communication standard (29 CFR 1910.1200), any chemical which is a health hazard or physical hazard.

Hazardous Waste. As defined in section 1004 of RCRA

. Imminent Danger. Any conditions or practices at a facility which are such that a danger exists which could reasonably be expected to cause immediate death or serious harm to people or immediate significant damage to the environment or natural resources.

Spill or Release. As defined in Section101 of CERCLA.

4. ACRONYMS

E/S - Environmental/Safety

EVET - Environmental Vendor Evaluation Team

DEC/LDEC - Department Environmental Coordinator/Local Department Environmental Coordinator

GU-BTEN-001BT - BellSouth Environmental Methods and Proced

NESC - National Electrical Safety Codes

P&SM - Property & Services Management

Std. T&C - Standard Terms & Conditions

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7. BellSouth Remote Site Collocation Agreement

7.1 Scope of Attachment

1.1 Scope of Attachment. The rates, terms, and conditions contained within this Attachment shall only apply when CLEC-1 is occupying the Remote Collocation Space as a sole occupant or as a Host within a Remote Site Location pursuant to Section 4. All the negotiated rates, terms and conditions set forth in this Attachment pertain to Remote Site Collocation and the provisioning of Remote Collocation Space.

1.2 Right to occupy. BellSouth shall offer to CLEC-1 Remote Site Collocation on rates, terms, and conditions that are just, reasonable, non-discriminatory and consistent with the rules of the Federal Communications Commission ("FCC"). Subject to the rates, terms, and conditions of this Attachment, BellSouth hereby grants to CLEC-1 a right to occupy that certain area designated by BellSouth within a BellSouth Remote Site Location, of a size which is specified by CLEC-1 and agreed to by BellSouth (hereinafter "Remote Collocation Space"). BellSouth Remote Site Locations include cabinets, huts, and controlled environmental vaults owned or leased by BellSouth that house BellSouth Network Facilities. To the extent this Attachment does not include all the necessary rates, terms and conditions for other BellSouth remote locations other than cabinets, huts and controlled environmental vaults, the Parties will negotiate said rates, terms, and conditions at the request for Remote Site collocation at BellSouth remote locations other than those specified above.

1.2.2 In the state of Florida, the size specified by CLEC-1 may contemplate a request for space sufficient to accommodate CLEC-1's growth within an eighteen (18) month period.

1.3 Third Party Property. If the Premises, or the property on which it is located, is leased by BellSouth from a Third Party or otherwise controlled by a Third Party, special considerations and intervals may apply in addition to the terms and conditions of this Agreement. Additionally, where BellSouth notifies CLEC-1 that BellSouth's agreement with a Third Party does not grant BellSouth the ability to provide access and use rights to others, upon CLEC-1's request, BellSouth will use its best efforts to obtain the owner's consent and to otherwise secure such rights for CLEC-1. CLEC-1 agrees to reimburse BellSouth for the reasonable and demonstrable costs incurred by BellSouth in obtaining such rights for CLEC-1. In cases where a Third Party agreement does not grant BellSouth the right to provide access and use rights to others as contemplated by this Agreement and BellSouth, despite its best efforts, is unable to secure such access and use rights for CLEC-1 as above, CLEC-1 shall be responsible for obtaining such permission to access and use such property . BellSouth shall cooperate with CLEC-1 in obtaining such permission.

1.4 Space Reclamation. In the event of space exhaust within a Remote Site Location, BellSouth may include in its documentation for the Petition for Waiver filing any vacant space in the Remote Site Location. CLEC-1 will be responsible for any justification of vacant space within its Remote Collocation Space, if such justification is required by the appropriate state commission

1.5 Use of Space. CLEC-1 shall use the Remote Collocation Space for the purposes of installing, maintaining and operating CLEC-1's equipment (to include testing and monitoring equipment) that is directly related to and thus necessary, required or indispensable for interconnection with BellSouth services and facilities, including access to unbundled network elements, for the provision of

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telecommunications services. In addition to, and not in lieu of, interconnection to BellSouth services and facilities, CLEC-1 may connect to other interconnectors within the designated BellSouth Remote Site Location (including to its other virtual or physical collocated arrangements) through DS1 co-Carrier cross connect facilities where an existing cable rack structure is in place and has sufficient capacity to accommodate the co-Carrier cross connection requested. Such co-carrier cross connect must be performed by a BellSouth Certified Supplier. The Remote Collocation Space may be used for no other purposes except as specifically described herein or authorized in writing by BellSouth.

1.6 Rates and charges. CLEC-1 agrees to pay the rates and charges identified in Exhibit A attached hereto

1.7 Due Dates. If any due date contained in this Attachment falls on a weekend or holiday, then the due date will be the next business day thereafter.

7.2 Space Notification

2.1 Availability of Space. Upon submission of an Application pursuant to Section 6, BellSouth will permit CLEC-1 to physically collocate, pursuant to the terms of this Attachment, at any BellSouth Remote Site Location, unless BellSouth has determined that there is no space available due to space limitations or that Remote Site collocation is not practical for technical reasons. BellSouth will respond to an Application within ten (10) business days as to whether space is available or not available within a BellSouth Remote Site Location. In the event space is not immediately available at a Remote Site Location, BellSouth reserves the right to make additional space available, in which case the conditions in Section 6.5.2 shall apply, or BellSouth may elect to deny space in accordance with this section in which case virtual or adjacent collocation options may be available. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount of space that is available.

2.2 Availability Notification. Unless otherwise specified, BellSouth will respond to an application within ten (10) calendar days as to whether space is available or not available within a BellSouth Remote Site Location. This interval excludes National Holidays. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount of space that is available.

2.2.1 BellSouth will respond to a Florida Application within fifteen (15) calendar days as to whether space is available or not available within a BellSouth Remote Site Location. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount that is available.

2.2.2 BellSouth will respond to a Louisiana Application within ten (10) calendar days for space availability for one (1) to ten (10) Applications; fifteen (15) calendar days for eleven (11) to twenty (20) Applications; and for more than twenty (20) Applications, it is increased by five (5) calendar days for every five additional Applications received within five (5) business days. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount of space that is available.

2.2.3 BellSouth will respond to a Mississippi Application within ten (10) business days as to whether space is available or not available within a BellSouth Premises. If the amount of space requested is not available, BellSouth will notify CLEC-1 of the amount of space that is available.

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2.3 Reporting. Upon request from CLEC-1, BellSouth will provide a written report ("Space Availability Report") specifying the amount of Remote Collocation Space available at the Remote Site Location requested, the number of collocators present at the Remote Site Location, any modifications in the use of the space since the last report on the Remote Site Location requested and the measures BellSouth is taking to make additional space available for collocation arrangements.

2.3.1 The request from CLEC-1 for a Space Availability Report must be written and must include the Common Language Location Identification ("CLLI")code for both the Remote Site Location and the serving central office. Such information regarding the CLLI code for the serving central offices located in the National Exchange Carriers Association (NECA) Tariff FCC No. 4.If CLEC-1 is unable to obtain the CLLI code, from for example a site visit to the remote site, CLEC-1 may request the CLLI code from BellSouth. To obtain a CLLI code for a remote site directly from BellSouth, CLEC-1 should submit to BellSouth a Remote Site Interconnection Request for Remote Site CLLI Code prior to submitting its request for a Space Availability Report. CLEC-1 should complete all the requested information and submit the Request with the applicable fee to BellSouth.

2.3.2 BellSouth will respond to a request for a Space Availability Report for a particular Remote Site Location within ten (10) calendar days of receipt of such request. BellSouth will make best efforts to respond in ten (10) calendar days to such a request when the request includes from two (2) to five (5) Remote Site Locations within the same state. The response time for requests of more than five (5) Remote Site Locations shall be negotiated between the Parties. If BellSouth cannot meet the ten calendar day response time, BellSouth shall notify CLEC-1 and inform CLEC-1 of the time frame under which it can respond.

2.3.3 In Mississippi, BellSouth will respond to a request for a Space Availability Report for a particular Remote Site Location within ten (10) business days of receipt of such request. BellSouth will make best efforts to respond in ten (10) business days to such a request when the request includes from two (2) to five (5) Remote Site Locations within the same state. The response time for requests of more than five (5) Remote Site Locations shall be negotiated between the Parties. If BellSouth cannot meet the ten business day response time, BellSouth shall notify CLEC-1 and inform CLEC-1 of the time frame under which it can respond.

2.4 Denial of Application. After notifying CLEC-1 that BellSouth has no available space in the requested Remote Site Location ("Denial of Application"), BellSouth will allow CLEC-1, upon request, to tour the Remote Site Location within ten (10) calendar days of such Denial of Application. In order to schedule said tour within ten (10) business days, the request for a tour of the Remote Site Location must be received by BellSouth within five (5) calendar days of the Denial of Application.

2.4.1 Denial of Application. In Mississippi, after notifying CLEC-1 that BellSouth has no available space in the requested Premises ("Denial of Application"), BellSouth will allow CLEC-1, upon request, to tour the Remote Site Location within ten (10) business days of such Denial of Application. In order to schedule said tour within ten (10) business days, the request for a tour of the Remote Site Location must be received by BellSouth within five (5) business days of the Denial of Application.

2.5 Filing of Petition for Waiver. Upon Denial of Application BellSouth will timely file a petition with the Commission pursuant to 47 U.S.C. § 251(c)(6). BellSouth shall provide to the Commission any

information requested by that Commission. Such information shall include which space, if any, BellSouth or any of BellSouth's affiliates have reserved for future use and a detailed description of the specific future uses for which the space has been reserved. Subject to an appropriate nondisclosure agreement or provision, BellSouth shall permit CLEC-1 to inspect any plans or diagrams that BellSouth provides to the Commission.

2.6 Waiting List. On a first-come, first-served basis governed by the date of receipt of an Application or Letter of Intent, BellSouth will maintain a waiting list of requesting carriers who have either received a Denial of Application or, where it is publicly known that the Remote Site Location is out of space, have submitted a Letter of Intent to collocate. BellSouth will notify the telecommunications carriers on the waiting list when space becomes available according to how much space becomes available and the position of telecommunications carrier on said waiting list. CLEC-1 must submit an updated, complete, and correct Application to BellSouth within 30 calendar days (in Miss.ssippi, 30 business days) or notify BellSouth in writing that CLEC-1 wants to maintain its place on the waiting list either without accepting such space or accepting an amount of space less than its original request. If CLEC-1 does not submit such an Application or notify BellSouth in writing as described above, BellSouth will offer such space to the next CLEC on the waiting list and remove CLEC-1 from the waiting list. Upon request, BellSouth will advise CLEC-1 as to its position on the list.

2.6.1 In Florida, on a first-come, first-served basis governed by the date of receipt of an Application or Letter of Intent, BellSouth will maintain a waiting list of requesting carriers who have either received a Denial of Application or, where it is publicly known that the Remote Site Location is out of space, have submitted a Letter of Intent to collocate. Sixty (60) days prior to space becoming available, if known, BellSouth will notify the Florida PSC and the telecommunications carriers on the waiting list by mail when space becomes available according to the position of telecommunications carrier on said waiting list. If not known sixty (60) days in advance, BellSouth shall notify the Florida PSC and the telecommunications carriers on the waiting list within two days of the determination that space is available.

2.7 Public Notification. BellSouth will maintain on its Interconnection Services website a notification document that will indicate all Remote Site Locations that are without available space. BellSouth shall update such document within ten (10) calendar days (in Mississippi, ten (10) business days) of the Denial of Application date. BellSouth will also post a document on its Interconnection Services website that contains a general notice where space has become available in a Remote Site Location previously on the space exhaust list. BellSouth shall allocate said available space pursuant to the waiting list referenced in Section 2.6.

2.8 State Agency Procedures. Notwithstanding the foregoing, should any state or federal regulatory agency impose procedures or intervals different than procedures or intervals set forth in this section applicable to CLEC-1, whether now in effect or that become effective after execution of this Agreement, those procedures or intervals shall supersede the requirements set forth herein for all Applications submitted for the first time after the effective date thereof for that jurisdiction:

7.3 Collocation Options

3.1 Compliance. The parties agree to comply with all applicable federal, state, county, local and administrative laws, orders, rules, ordinances, regulations, and codes in the performance of their obligations hereunder

3.2 Cageless. BellSouth shall allow CLEC-1 to collocate CLEC-1's equipment and facilities without requiring the construction of a cage or similar structure. BellSouth shall allow CLEC-1 to have direct access to its equipment and facilities. BellSouth shall make cageless collocation available in single rack/ bay increments pursuant to Section 6. For equipment requiring special technical considerations, CLEC-1 must provide the equipment layout, including spatial dimensions for such equipment pursuant to generic requirements contained in BellCore (Telcordia) GR-63-Core and shall be responsible for constructing all special technical requirements associated with such equipment pursuant to Section 6.8 following. Subject to space availability and technical feasibility, at CLEC-1's option, CLEC-1 may enclose its equipment

3.3 Shared (Subleased) Collocation. CLEC-1 may allow other telecommunications carriers to share CLEC-1's Remote Site collocation arrangement pursuant to terms and conditions agreed to by CLEC-1 ("Host") and other telecommunications carriers ("Guests") and pursuant to this section, except where the BellSouth Remote Site Location is located within a leased space and BellSouth is prohibited by said lease from offering such an option or is located on property for which BellSouth holds an easement and such easement does not permit such an option. CLEC-1 shall notify BellSouth in writing upon execution of any agreement between the Host and its Guest within ten (10) business days of its execution and prior to any Firm Order. Further, such notice shall include the name of the Guest(s) and the term of the agreement, and shall contain a certification by CLEC-1 that said agreement imposes upon the Guest(s) the same terms and conditions for Remote Collocation Space as set forth in this Attachment between BellSouth and CLEC-1.

3.3.1 CLEC-1 shall be the sole interface and responsible Party to BellSouth for the purpose of submitting Applications for initial and additional equipment placements of Guest; for assessment of rates and charges contained within this Attachment; and for the purposes of ensuring that the safety and security requirements of this Attachment are fully complied with by the Guest, its employees and agents. In the event the Host and Guest jointly submit an Application, only one Application Fee will be assessed. A separate Guest Application shall require the assessment of an Application Fee, as set forth in Exhibit A. Notwithstanding the foregoing, Guest may arrange directly with BellSouth for the provision of the interconnecting facilities between BellSouth and Guest and for the provision of the services and access to unbundled network elements.

3.3.2 CLEC-1 shall indemnify and hold harmless BellSouth from any and all claims, actions, causes of action, of whatever kind or nature arising out of the presence of CLEC-1's Guests in the Remote Collocation Space except to the extent caused by BellSouth's sole negligence, gross negligence, or willful misconduct.

3.4.1 Adjacent Collocation. BellSouth will provide approval for adjacent Remote Site collocation arrangements ("Remote Site Adjacent Arrangement") where space within the Remote Site Location is legitimately exhausted, subject to technical feasibility, where the Remote Site Adjacent Arrangement

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does not interfere with access to existing or planned structures or facilities on the Remote Site Location property and where permitted by zoning and other applicable state and local regulations. The Remote Site Adjacent Arrangement shall be constructed or procured by CLEC-1 and in conformance with BellSouth's design and construction specifications. Further, CLEC-1 shall construct, procure, maintain and operate said Remote Site Adjacent Arrangement(s) pursuant to all of the terms and conditions set forth in this Attachment. Rates shall be negotiated at the time of the request for the Remote Site Adjacent Arrangement.

3.4.2 Should CLEC-1 elect such an option, CLEC-1 must arrange with a BellSouth Certified Contractor to construct a Remote Site Adjacent Arrangement structure in accordance with BellSouth's guidelines and specifications. BellSouth will provide guidelines and specifications upon request. Where local building codes require enclosure specifications more stringent than BellSouth's standard specification, CLEC-1 and CLEC-1's BellSouth Certified Contractor must comply with local building code requirements. CLEC-1's BellSouth Certified Contractor shall be responsible for filing and receiving any and all necessary zoning, permits and/or licenses for such construction. CLEC-1's BellSouth Certified Contractor shall bill CLEC-1 directly for all work performed for CLEC-1 pursuant to this Attachment and BellSouth shall have no liability for nor responsibility to pay such charges imposed by the BellSouth Certified Contractor. CLEC-1 must provide the local BellSouth Remote Site Location contact with two cards, keys or other access device used to enter the locked enclosure. Except in cases of emergency, BellSouth shall not access CLEC-1's locked enclosure prior to notifying CLEC-1.

3.4.3 BellSouth maintains the right to review CLEC-1's plans and specifications prior to construction of a Remote Site Adjacent Arrangement(s). BellSouth may inspect the Remote Site Adjacent Arrangement(s) following construction and prior to the Commencement Date, as defined in Section 4.1 following, to ensure the design and construction comply with BellSouth's guidelines and specifications. BellSouth may require CLEC-1, at CLEC-1's sole cost, to correct any deviations from BellSouth's guidelines and specifications found during such inspection(s), up to and including removal of the Remote Site Adjacent Arrangement within five (5) business days of BellSouth's inspection, unless the Parties mutually agree to an alternative time frame.

3.4.4 CLEC-1 shall provide a concrete pad, the structure housing the arrangement, heating/ventilation/air conditioning ("HVAC"), lighting, and all facilities that connect the structure (i.e. racking, conduits, etc.) to the BellSouth point of interconnection. At CLEC-1's option, and where the local authority having jurisdiction permits, BellSouth shall provide an AC power source and access to physical collocation services and facilities subject to the same nondiscriminatory requirements as applicable to any other physical collocation arrangement. CLEC-1's BellSouth Certified Contractor shall be responsible for filing and receiving any and all necessary zoning, permits and/or licenses for such arrangement.

3.4.45 BellSouth shall allow Shared (Subleased) Caged Collocation within an Remote Site Adjacent Arrangement pursuant to the terms and conditions set forth in Section 3.3 preceding

7.4 Occupancy

4.1 Commencement Date. The "Commencement Date" shall be the day CLEC-1"'s equipment becomes operational as described in Article 4.2, following.

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4.2 Occupancy. BellSouth will notify CLEC-1 in writing that the Remote Collocation Space is ready for occupancy. CLEC-1 must notify BellSouth in writing that collocation equipment installation is complete and is operational with BellSouth's network. BellSouth may, at its option, not accept orders for interconnected service until receipt of such notice. For purposes of this paragraph, CLEC-1's telecommunications equipment will be deemed operational when connected to BellSouth's network for the purpose of service provision.

4.3 Termination. Except where otherwise agreed to by the Parties, CLEC-1 may terminate occupancy in a particular Remote Collocation Space upon thirty (30) calendar days prior written notice to BellSouth. Upon termination of such occupancy, CLEC-1 at its expense shall remove its equipment and other property from the Remote Collocation Space. CLEC-1 shall have thirty (30) calendar days from the termination date to complete such removal, including the removal of all equipment and facilities of CLEC-1's Guests; provided, however, that CLEC-1 shall continue payment of monthly fees to BellSouth until such date as CLEC-1 has fully vacated the Remote Collocation Space. Should CLEC-1 or CLEC-1's Guest fail to vacate the Remote Collocation Space within thirty (30) calendar days from the termination date, BellSouth shall have the right to remove the equipment and other property of CLEC-1 or CLEC-1's Guest at CLEC-1's expense and with no liability for damage or injury to CLEC-1 or CLEC-1's Guest's property unless caused by the gross negligence or intentional misconduct of BellSouth. Upon termination of occupancy with respect to a Remote Collocation Space, CLEC-1 shall surrender such Remote Collocation Space to BellSouth in the same condition as when first occupied by the CLEC-1 except for ordinary wear and tear unless otherwise agreed to by the Parties. CLEC-1 shall be responsible for the cost of removing any enclosure, together with all support structures (e.g., racking, conduits), of a Remote Site Adjacent Arrangement at the termination of occupancy and restoring the grounds to their original condition.

7.5 Use of Remote Collocation Space

5.1 Equipment Type. BellSouth permits the collocation of any type of equipment that is directly related to and thus necessary, required or indispensable for interconnection to BellSouth's network or for access to unbundled network elements in the provision of telecommunications services.

5.1.1 Such equipment must at a minimum meet the following BellCore (Telcordia) Network Equipment Building Systems (NEBS) General Equipment Requirements: Criteria Level 1 requirements as outlined in the BellCore (Telcordia) Special Report SR-3580, Issue 1; equipment design spatial requirements per GR-63-CORE, Section 2; thermal heat dissipation per GR-063-CORE, Section 4, Criteria 77-79; acoustic noise per GR-063-CORE, Section 4, Criterion 128, and National Electric Code standards. Except where otherwise required by a Commission, BellSouth shall comply with the applicable FCC rules relating to denial of collocation based on CLEC-1's failure to comply with this section.

5.1.2 CLEC-1 shall not use the Remote Collocation Space for marketing purposes nor shall it place any identifying signs or markings in the area surrounding the Remote Collocation Space or on the grounds of the Remote Site Location.

5.1.3 CLEC-1 shall place a plaque or other identification affixed to CLEC-1's equipment necessary to identify CLEC-1's equipment, including a list of emergency contacts with telephone numbers.

5.1.4 All CLEC-1 equipment installation shall comply with BellSouth TR 73503-11, Section 8, "Grounding - Engineering Procedures." Metallic cable sheaths and metallic strength members of optical fiber cables as well as the metallic cable sheaths of all copper conductor cables shall be bonded to the designated grounding bus for the remote collocation site. All copper conductor pairs, working and non-working, shall be equipped with a solid state protector unit (over-voltage protection only) which has been listed by a nationally recognized testing laboratory.

5.2 Entrance Facilities. CLEC-1 may elect to place CLEC-1-owned or CLEC-1-leased entrance facilities into the Remote Collocation Space from CLEC-1's point of presence. BellSouth will designate the point of interconnection at the Remote Site Location housing the Remote Collocation Space which is physically accessible by both Parties. CLEC-1 will provide and place copper cable through conduit from the Remote Collocation Space to the Feeder Distribution Interface to the splice location of sufficient length for splicing by BellSouth. CLEC-1 must contact BellSouth for instructions prior to placing the entrance facility cable . CLEC-1 is responsible for maintenance of the entrance facilities.

5.2.1 Shared Use. CLEC-1 may utilize spare capacity on an existing interconnector entrance facility for the purpose of providing an entrance facility to another CLEC-1 collocation arrangement within the same BellSouth Remote Site Location.

5.3 Demarcation Point. BellSouth will designate the point(s) of demarcation between CLEC-1's equipment and/or network and BellSouth's network. Each Party will be responsible for maintenance and operation of all equipment/facilities on its side of the demarcation point. CLEC-1 or its agent must perform all required maintenance to CLEC-1 equipment/facilities on its side of the demarcation point, pursuant to Section 5.8, following

5.4 CLEC-1's Equipment and Facilities. CLEC-1, or if required by this Attachment, CLEC-1's BellSouth Certified Supplier, is solely responsible for the design, engineering, installation, testing, provisioning, performance, monitoring, maintenance and repair of the equipment and facilities used by CLEC-1.

5.5 BellSouth's Access to Remote Collocation Space. BellSouth retains the right to access the Remote Collocation Space for the purpose of making BellSouth equipment and Remote Site Location modifications

5.6 Access. Pursuant to Section 11, CLEC-1 shall have access to the Remote Collocation Space twenty-four (24) hours a day, seven (7) days a week. CLEC-1 agrees to provide the name and social security number or date of birth or driver's license number of each employee, contractor, or agents of CLEC-1 or CLEC-1's Guests provided with access keys or devices ("Access Keys") prior to the issuance of said Access Keys. Key acknowledgment forms must be signed by CLEC-1 and returned to BellSouth Access Management within 15 calendar days of CLEC-1's receipt. Failure to return properly acknowledged forms will result in the holding of subsequent requests until acknowledgments are current. Access Keys shall not be duplicated under any circumstances. CLEC-1 agrees to be responsible for all Access Keys and for the return of all said Access Keys in the possession of CLEC-1 employees, contractors, Guests, or agents after termination of the employment relationship, contractual obligation with CLEC-1 or upon the termination of this Attachment or the termination of occupancy of an individual Remote Site collocation arrangement.

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5.7 Lost or Stolen Access Keys. CLEC-1 shall notify BellSouth in writing immediately in the case of lost or stolen Access Keys. Should it become necessary for BellSouth to re-key Remote Site Locations as a result of a lost Access Key(s) or for failure to return an Access Key(s), CLEC-1 shall pay for all reasonable costs associated with the re-keying.

5.8 Interference or Impairment. Notwithstanding any other provisions of this Attachment, equipment and facilities placed in the Remote Collocation Space shall not significantly degrade, interfere with or impair service provided by BellSouth or by any other interconnector located in the Remote Site Location; shall not endanger or damage the facilities of BellSouth or of any other interconnector, the Remote Collocation Space, or the Remote Site Location; shall not compromise the privacy of any communications carried in, from, or through the Remote Site Location; and shall not create an unreasonable risk of injury or death to any individual or to the public. If BellSouth reasonably determines that any equipment or facilities of CLEC-1 violates the provisions of this paragraph, BellSouth shall give written notice to CLEC-1, which notice shall direct CLEC-1 to cure the violation within forty-eight (48) hours of CLEC-1's actual receipt of written notice or, at a minimum, to commence curative measures within 24 hours and to exercise reasonable diligence to complete such measures as soon as possible thereafter. After receipt of the notice, the Parties agree to consult immediately and, if necessary, to inspect the arrangement. Except in the case of the deployment of an advanced service which significantly degrades the performance of other advanced services or traditional voice band services, if CLEC-1 fails to take curative action within 48 hours or if the violation is of a character which poses an immediate and substantial threat of damage to property, injury or death to any person, or other interference/impairment of the services provided by BellSouth or any other interconnector, then and only in that event BellSouth may take such action as it deems appropriate to correct the violation, including without limitation the interruption of electrical power to CLEC-1's equipment. BellSouth will endeavor, but is not required, to provide notice to CLEC-1 prior to taking such action and shall have no liability to CLEC-1 for any damages arising from such action, except to the extent that such action by BellSouth constitutes willful misconduct. For purposes of this section, the term significantly degrade shall mean an action that noticeably impairs a service from a user's perspective. In the case of the deployment of an advanced service which significantly degrades the performance of other advanced services or traditional voice band services and CLEC-1 fails to take curative action within 48 hours then BellSouth will establish before the relevant Commission that the technology deployment is causing the significant degradation. Any claims of network harm presented to CLEC-1 or, if subsequently necessary, the relevant Commission, must be supported with specific and verifiable information. Where BellSouth demonstrates that a deployed technology is significantly degrading the performance of other advanced services or traditional voice band services, CLEC-1 shall discontinue deployment of that technology and migrate its customers to technologies that will not significantly degrade the performance of other such services. Where the only degraded service itself is a known disturber, and the newly deployed technology satisfies at least one of the criteria for a presumption that is acceptable for deployment under 47 C.F.R. 51.230, the degraded service shall not prevail against the newly-deployed technology.

5.9 Presence of Facilities. Facilities and equipment placed by CLEC-1 in the Remote Collocation Space shall not become a part of the Remote Site Location, even if nailed, screwed or otherwise fastened to the Remote Collocation Space but shall retain its status as personality and may be removed by CLEC-1 at any time. Any damage caused to the Remote Collocation Space by CLEC-1's employees, agents or representatives shall be promptly repaired by CLEC-1 at its expense.

5.10 Alterations. In no case shall CLEC-1 or any person acting on behalf of CLEC-1 make any rearrangement, modification, improvement, addition, repair, or other alteration which could affect in any way space, power, HVAC, and/or safety considerations to the Remote Collocation Space or the BellSouth Remote Site Location without the written consent of BellSouth, which consent shall not be unreasonably withheld. The cost of any such specialized alterations shall be paid by CLEC-1. Any material rearrangement, modification, improvement, addition, repair, or other alteration shall require an Application Fee, pursuant to sub-section 6.2.

5.11 Upkeep of Remote Collocation Space. CLEC-1 shall be responsible for the general upkeep and cleaning of the Remote Collocation Space. CLEC-1 shall be responsible for removing any CLEC-1 debris from the Remote Collocation Space and from in and around the Remote Collocation Site on each visit.

7.6 Ordering and Preparation of Remote Collocation Space

6.1 State or Federal Regulatory agency impose procedures or intervals. Should any state or federal regulatory agency impose procedures or intervals different than procedures or intervals set forth in this section applicable to CLEC-1, whether now in effect or that become effective after execution of this Agreement, those procedures or intervals shall supersede the requirements set forth herein for all applications submitted for the first time after the effective date thereof for that jurisdiction.

6.2 Application for Space. CLEC-1 shall submit a Remote Site Collocation Application when CLEC-1 or CLEC-1's Guest(s), as defined in Section 3.3, desires to request or modify the use of the Remote Collocation Space.

6.3 Initial Application. For CLEC-1 or CLEC-1's Guest(s) equipment placement, CLEC-1 shall submit to BellSouth an Application,. The Application is Bona Fide when it is complete and accurate, meaning that all required fields on the Application are completed with the appropriate type of information. The Bona Fide Application shall contain a detailed description and schematic drawing of the equipment to be placed in CLEC-1's Remote Collocation Space(s) in addition to the CLLI code applicable to that location. Prior to submitting the application, CLLI information can be obtained in the manner set forth in Section 2.2.1.

6.4 Application Fee. BellSouth will assess an Application Fee on a service order which shall be issued at the time BellSouth responds that space is available pursuant to Section 2. Payment of the Application Fee will be due as dictated by CLEC-1's current billing cycle and is non-refundable.

6.5 Application Response. In Alabama, North Carolina, and Tennessee, In addition to the notice of space availability pursuant to Section 2, BellSouth will respond within ten (10) calendar days of receipt of an Application stating whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. Sufficient detail will be provided to permit CLEC-1 a reasonable opportunity to correct each deficiency. CLEC-1 must correct any deficiencies in its Application and resubmit a Bona Fide Application within ten (10) calendar days of being notified of the deficiencies in the original Application. If CLEC-1 fails to resubmit its Application as Bona Fide within this ten (10) day period, CLEC-1 will lose its place in the collocation queue. This interval

excludes national holidays. When space has been determined to be available, BellSouth will provide a written response ("Application Response"), which will include the configuration of the space and an estimate of the interval to provide the Remote Collocation Space.

6.5.1 Application Response. Except as otherwise provided, for all States that have ordered provisioning intervals but not application response intervals, the following will apply. In addition to the notice of space availability pursuant to Section 2, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. When multiple applications are submitted in a state within a fifteen (15) calendar day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) calendar days for Bona Fide Applications 1-5; within thirty-six (36) calendar days for Bona Fide Applications 6-10; within forty-two (42) calendar days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation.

6.5.2 Application Response (Florida). Within fifteen (15) calendar days of receipt of a Bona Fide Application, BellSouth will respond as to whether space is available or not available within a particular Remote Site Location. Additionally, when space has been determined to be available or when a lesser amount of space than that requested is available, then with respect to the space available, BellSouth will provide a written response ("Application Response") including sufficient information to enable CLEC-1 to place a Firm Order. When CLEC-1 submits ten (10) or more Applications within ten (10) calendar days, the initial fifteen (15) day response period will increase by ten (10) days for every additional ten (10) Applications or fraction thereof.

6.5.3 Application Response (Georgia) In addition to the notice of space availability pursuant to Section 2.1, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available for caged or cageless arrangements, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. The Application Response will include, at a minimum, the configuration of the space, the Cable Installation Fee, Cable Records Fee, and the space preparation fees, as described in Section 7.

6.5.4 Application Response (Louisiana). In addition to the notice of space availability pursuant to Section 2, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. BellSouth will respond as to whether space is available or not available within a particular Remote Site Location in accordance with Section 2. Additionally, when space has been determined to be available or when a lesser amount of space than that requested is available, then with respect to the space available, BellSouth will provide a written response ("Application Response") including sufficient information to enable CLEC-1 to place a Firm Order. BellSouth will respond with a full Application Response within 30 calendar days for one to ten Applications; 35 calendar days for eleven to twenty Applications; and for requests of more than twenty Application it is increased by five calendar days for every five Applications received within five business days.

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6.5.5 Application Response (Mississippi) In addition to the notice of space availability pursuant to Section 2, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) business days of receipt of a Bona Fide Application. When multiple applications are submitted in a state within a fifteen (15) business day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) business days for Bona Fide Applications 1-5; within thirty-six (36) business days for Bona Fide Applications 6-10; within forty-two (42) business days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation.

6.5.6 Application Response (Kentucky) In addition to the notice of space availability pursuant to Section 2, BellSouth will respond as to whether the Application is Bona Fide, and if it is not Bona Fide, the items necessary to cause the Application to become Bona Fide. When space has been determined to be available, BellSouth will provide a written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. When multiple applications are submitted in a state within a fifteen (15) calendar day window, BellSouth will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) calendar days for Bona Fide Applications 1-5; within thirty-six (36) calendar days for Bona Fide Applications 6-10; within forty-two (42) calendar days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation

6.6 Application Modifications. In Alabama, North Carolina, and Tennessee, if a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Remote Site Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, said Application shall be considered a new Application and shall be handled as a new Application for purposes of the provisioning interval, and BellSouth shall charge CLEC-1 a Subsequent Application Fee. Major changes, such as requesting additional space or adding equipment may require CLEC-1 to submit the Application with an Application Fee.

6.6.1 Application Modifications. For all States that have ordered provisioning intervals but not application response intervals, and except as otherwise specified, the following will apply. If a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Remote Site Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth receives such revised application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC-1's original application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting

additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.6.2 Application Modifications (Florida). If a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Remote Site Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within fifteen (15) calendar days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original , then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.6.3 Application Modifications (Mississippi & Georgia). If a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) business days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.6.4 Application Modifications (Louisiana). If a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Remote Site Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth receives such revised Application or at such other date as the Parties agree. BellSouth will respond to such modifications or revisions within 30 calendar days for one to ten revised Applications; 35 calendar days for eleven to twenty revised Applications; and for requests of more than twenty revised Applications it is increased by five calendar days for every five revised Applications received within five business days. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to CLEC's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.6.5 Application Modifications (Kentucky). If a modification or revision is made to any information in the Bona Fide Application for Remote Site Collocation or the Bona Fide Application for Adjacent Collocation, with the exception of modifications to Customer Information, Contact Information or Billing Contact Information, either at the request of CLEC-1 or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) calendar days after BellSouth receives such revised Application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate CLEC-1's Bona Fide Application as a result of changes requested by CLEC-1 to

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CLEC-1's original Application, then BellSouth will charge CLEC-1 a Subsequent Application Fee. Major changes such as requesting additional space or adding additional equipment may require CLEC-1 to resubmit the Application with an Application Fee.

6.7 Bona Fide Firm Order. In Alabama, North Carolina, and Tennessee, CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Remote Site Location by submitting a Bona Fide Firm Order to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.3, preceding, and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than seven (7) calendar days after BellSouth's Application Response to CLEC-1's Bona Fide Application, unless BellSouth provides an Application Response on or before the ten-day response interval set forth in section 2, in which case CLEC-1 must submit its Bona Fide Firm Order to BellSouth within seventeen (17) calendar days of BellSouth's receipt of the Bona Fide Application. If CLEC-1 fails to submit its Bona Fide Firm Order to BellSouth within the time frames set forth above, the provisioning intervals set forth in section 6.6 shall apply from the date of receipt of the Bona Fide Firm Order and not from the date of the Bona Fide Application. If CLEC-1 fails to submit a Bona Fide Firm Order within fifteen (15) days of receipt of an Application Response, the Application will expire.

6.7.1 Bona Fide Firm Order. Except as otherwise provided, in all States that have ordered provisioning intervals but not addressed Firm Order intervals, the following shall apply. CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Remote Site Location by submitting a Physical Expanded Interconnection Firm Order document ("Firm Order") to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.3, preceding and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than thirty (30) calendar days (in Mississippi 30 business days) after BellSouth's Application Response to CLEC-1's Bona Fide Application or the Application will expire.

6.7.2 Bona Fide Firm Order (Kentucky & Mississippi). CLEC-1 shall indicate its intent to proceed with equipment installation in a BellSouth Remote Terminal Location by submitting a Physical Expanded Interconnection Firm Order document ("Firm Order") to BellSouth. A Firm Order shall be considered Bona Fide when CLEC-1 has completed the Application/Inquiry process described in Section 6.3, preceding and has submitted the Firm Order document indicating acceptance of the Application Response provided by BellSouth. The Bona Fide Firm Order must be received by BellSouth no later than thirty (30) calendar days (in Mississippi 30 business days) after BellSouth's Application Response to CLEC-1's Bona Fide Application or the Application will expire.

6.7.3 BellSouth will establish a firm order date based upon the date BellSouth is in receipt of a Bona Fide Firm Order. BellSouth will acknowledge the receipt of CLEC-1's Bona Fide Firm Order within seven (7) calendar days of receipt indicating that the Bona Fide Firm Order has been received. A BellSouth response to a Bona Fide Firm Order will include a Firm Order Confirmation containing the firm order date. No revisions will be made to a Bona Fide Firm Order.

6.8 BellSouth will permit one accompanied site visit to CLEC-1's designated Remote Collocation Space after receipt of the Bona Fide Firm Order without charge to CLEC-1.b

6.9 CLEC-1 must submit to BellSouth the completed Access Control Request Form for all employees or agents requiring access to the BellSouth Remote Site Location a minimum of 30 calendar days prior to the date CLEC-1 desires access to the Remote Collocation Space. CLEC-1 may submit such a request at any time subsequent to BellSouth's receipt of the Bona Fide Firm Order. In the event CLEC-1 desires access to the Collocation Space after submitting such a request but prior to Access being approved, BellSouth shall permit CLEC-1 to access the Collocation Space, accompanied by a security escort at CLEC-1's expense. CLEC-1 must request escorted access at least three (3) business days prior to the date such access is desired.

6.10 Construction and Provisioning Interval. In Alabama, North Carolina, and Tennessee, BellSouth will complete construction for Remote Site collocation arrangements within a maximum of 90 calendar days from receipt of an Application, or as agreed to by both parties. Under extraordinary conditions, BellSouth may elect to renegotiate an alternative provisioning interval with CLEC-1 or seek a waiver from this interval from the Commission. Examples of extraordinary conditions include, but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.10.1 Construction and Provisioning Interval (Florida). BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. For changes to collocation space after initial space completion, BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 45 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. If BellSouth does not believe that construction will be completed within the relevant time frame and BellSouth and CLEC-1 cannot agree upon a completion date, within 45 calendar days of receipt of the Bona Fide Firm Order for an initial request, and within 30 calendar days for Augmentations, BellSouth may seek an extension from the Florida PSC.6.10.1 Construction and Provisioning Interval (Florida). BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. For changes to collocation space after initial space completion, BellSouth will complete construction for collocation arrangements as soon as possible and within a maximum of 45 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. If BellSouth does not believe that construction will be completed within the relevant time frame and BellSouth and CLEC-1 cannot agree upon a completion date, within 45 calendar days of receipt of the Bona Fide Firm Order for an initial request, and within 30 calendar days for Augmentations, BellSouth may seek an extension from the Florida PSC.

6.10.2 Construction and Provisioning Interval (Georgia). BellSouth will use best efforts to complete construction for caged collocation arrangements under ordinary conditions as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. BellSouth will use best efforts to complete construction for cageless collocation arrangements under ordinary conditions as soon as possible and within a maximum of 60 calendar days from receipt of a Bona Fide Firm Order and 90 calendar days for extraordinary conditions or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Extraordinary conditions

are defined to include but are not limited to major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length. Under extraordinary conditions, BellSouth may elect to renegotiate an alternative provisioning interval with CLEC-1 or seek a waiver from this interval from the Commission.

6.10.3 Construction and Provisioning Interval (Louisiana). BellSouth will complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 120 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). BellSouth will complete construction of all other Collocation Space ("extraordinary conditions") within 180 calendar days of the receipt of a Bona Fide Firm Order. Examples of extraordinary conditions include but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.10.4 Construction and Provisioning Interval (Mississippi). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 120 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will complete construction of all other Collocation Space ("extraordinary conditions") within 180 calendar days of the receipt of a Bona Fide Firm Order. Examples of extraordinary conditions include but are not limited to, extended license or permitting intervals; major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length

6.10.5 Construction and Provisioning Interval (Kentucky). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order or as agreed to by the Parties. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction of all other Collocation Space ("extraordinary conditions") within 130 calendar days of the receipt of a Bona Fide Firm Order. Extraordinary conditions are defined to include but are not limited to major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

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6.10.6 Construction and Provisioning Interval (South Carolina). BellSouth will complete the construction and provisioning activities for cageless and caged collocation arrangements as soon as possible, but no later than 90 calendar days from receipt of a bona fide firm order.

6.11 In the event BellSouth does not have space immediately available at a Remote Site Location, BellSouth may elect to make additional space available by, for example but not limited to, rearranging BellSouth facilities or constructing additional capacity. In such cases, excluding the time interval required to secure the appropriate government licenses and permits or additional public or private rights of way, BellSouth will provision the Remote Collocation Space in a nondiscriminatory manner and at parity with BellSouth and will provide CLEC-1 with the estimated completion date in its Response.

6.12. Permits. Each Party or its agents will diligently pursue filing for the permits required for the scope of work to be performed by that Party or its agents within ten (10) calendar days of the completion of finalized construction designs and specifications

6.13 Acceptance Walk Through. Upon request, CLEC-1 and BellSouth will complete an acceptance walk through of each Remote Collocation Space requested from BellSouth by CLEC-1. BellSouth will correct any deviations to CLEC-1's original or jointly amended requirements within seven (7) calendar days after the walk through, unless the Parties jointly agree upon a different time frame.

6.14 Use of BellSouth Certified Supplier. CLEC-1 shall select a supplier that has been approved as a BellSouth Certified Supplier to perform all engineering and installation work required in the Remote Collocation Space per TR 73503 specifications. BellSouth shall provide CLEC-1 with a list of BellSouth Certified Suppliers upon request. The BellSouth Certified Supplier(s) shall be responsible for installing CLEC-1'''s equipment and components, installing co-carrier cross connects, extending power cabling to the BellSouth power distribution frame, performing operational tests after installation is complete, and notifying BellSouth's Outside Plant engineers and CLEC-1 upon successful completion of installation. The BellSouth Certified Supplier shall bill CLEC-1 directly for all work performed for CLEC-1 pursuant to this Attachment and BellSouth shall have no liability for nor responsibility to pay such charges imposed by the BellSouth Certified Supplier. All work performed by or for CLEC-1 shall conform to generally accepted industry guidelines and standards.

6.15 Alarm and Monitoring. BellSouth may place alarms in the Remote Site Location for the protection of BellSouth equipment and facilities. CLEC-1 shall be responsible for placement, monitoring and removal of alarms used to service CLEC-1's Remote Collocation Space and for ordering the necessary services therefor. Both Parties shall use best efforts to notify the other of any verified hazardous conditions known to that Party.

6.16 Basic Telephone Service. Upon request of CLEC-1, BellSouth will provide basic telephone service to the Remote Collocation Space under the rates, terms and conditions of the current tariff offering for the service requested.

6.17 Virtual Remote Site Collocation Relocation. BellSouth offers Virtual Collocation pursuant to the terms and conditions set forth in its F.C.C. Tariff No. 1 for Remote Site Collocation locations. The rates shall be the same as provided in this Exhibit A of this agreement. For the interconnection to BellSouth's network and access to BellSouth unbundled network elements, CLEC-1 may purchase

2-wire and 4-wire cross-connects as set forth the service inquiry procedures established for sub loop unbundling as set forth in Attachment 2 of the Interconnection Agreement, and CLEC-1 may place within its Virtual Collocation arrangements the telecommunications equipment set forth in Section 5.1. In the event physical Remote Collocation Space was previously denied at a Remote Site Location due to technical reasons or space limitations, and that physical Remote Collocation Space has subsequently become available, CLEC-1 may relocate its virtual Remote Site collocation arrangements to physical Remote Site collocation arrangements and pay the appropriate non-recurring fees for physical Remote Site collocation and for the rearrangement or reconfiguration of services terminated in the virtual Remote Site collocation arrangement, as outlined in the appropriate BellSouth tariffs. In the event that BellSouth knows when additional space for physical Remote Site collocation may become available at the location requested by CLEC-1, such information will be provided to CLEC-1 in BellSouth's written denial of physical Remote Site collocation. To the extent that (i) physical Remote Collocation Space becomes available to CLEC-1 within 180 calendar days of BellSouth's written denial of CLEC-1's request for physical collocation, and (ii) CLEC-1 was not informed in the written denial that physical Remote Collocation Space would become available within such 180 calendar days, then CLEC-1 may relocate its virtual Remote Site collocation arrangement to a physical Remote Site collocation arrangement and will receive a credit for any nonrecurring charges previously paid for such virtual Remote Site collocation. CLEC-1 must arrange with a BellSouth Certified Supplier for the relocation of equipment from its virtual Remote Collocation Space to its physical Remote Collocation Space and will bear the cost of such relocation.

6.18 Cancellation. If, at anytime prior to space acceptance, CLEC-1 cancels its order for the Remote Collocation Space(s), CLEC-1 will reimburse BellSouth in the following manner: BellSouth will ascertain how far preparation work has progressed. CLEC-1 will be billed the applicable non recurring rate for any and all work processes for which work has begun.

6.19 Licenses. CLEC-1, at its own expense, will be solely responsible for obtaining from governmental authorities, and any other appropriate agency, entity, or person, all rights, privileges, and licenses necessary or required to operate as a provider of telecommunications services to the public or to occupy the Remote Collocation Space.

6.20 Environmental Hazard Guidelines. The Parties agree to utilize and adhere to the Environmental Hazard Guidelines identified as Exhibit B attached hereto.

7.7 Rates and Charges

7.1 Recurring Fees. Recurring fees for space occupancy shall be billed upon space completion or space acceptance, whichever occurs first. Other charges shall be billed upon request for the services. All charges shall be due as dictated by CLEC-1's current billing cycle

7.2 Rack/Bay Space. The rack/bay space charge includes reasonable charges for air conditioning, ventilation and other allocated expenses associated with maintenance of the Remote Site Location, and includes amperage necessary to power CLEC-1's equipment. CLEC-1 shall pay rack/bay space charges based upon the number of racks/bays requested. BellSouth will assign Remote Collocation Space in conventional remote site rack/bay lineups where feasible

7.3 Power. BellSouth shall make available -48 Volt (-48V) DC power for CLEC-1's Remote Collocation Space at a BellSouth Power Board (Fuse and Alarm Panel) or BellSouth Battery Distribution Fuse Bay ("BDFB") at CLEC-1's option within the Remote Site Location. The charge for power shall be assessed as part of the recurring charge for rack/bay space. If the power requirements for CLEC-1's equipment exceeds the capacity for the rack/bay, then such power requirements shall be assessed on a recurring per amp basis for the individual case.

7.3.1 Charges for AC power will be assessed per breaker ampere per month. Rates include the provision of commercial and standby AC power. When obtaining power from a BellSouth service panel, protection devices and power cables must be engineered (sized), and installed by CLEC-1's BellSouth Certified Supplier except that BellSouth shall engineer and install protection devices and power cables for Adjacent Collocation. CLEC-1's BellSouth Certified Supplier must also provide a copy of the engineering power specification prior to the Commencement Date. AC power voltage and phase ratings shall be determined on a per location basis. At CLEC-1's option, CLEC-1 may arrange for AC power in an Adjacent Collocation arrangement from a retail provider of electrical power

Security Escort. A security escort will be required whenever CLEC-1 or its approved agent desires access to the Remote Site Location after the one accompanied site visit allowed prior to completing BellSouth's Security Training requirements and/or prior to Space Acceptance. The parties agree that a security escort will not be required for remote site collocation. However, if one is needed, the parties will negotiate appropriate security escort rates which will be assessed on a one half (1/2) hour increment basis.

7.5 Rate "True-Up". The Parties agree that the prices reflected as interim herein shall be "trued-up" (up or down) based on final prices either determined by further agreement or by final order, including any appeals, in a proceeding involving BellSouth before the regulatory authority for the state in which the services are being performed or any other body having jurisdiction over this Agreement (hereinafter "Commission"). Under the "true-up" process, the interim price for each service shall be multiplied by the volume of that service purchased to arrive at the total interim amount paid for that service ("Total Interim Price"). The final price for that service shall be multiplied by the volume purchased to arrive at the total final amount due ("Total Final Price"). The Total Interim Price shall be compared with the Total Final Price. If the Total Final Price is more than the Total Interim Price, CLEC-1 shall pay the difference to BellSouth. If the Total Final Price is less than the Total Interim Price, BellSouth shall pay the difference to CLEC-1. Each Party shall keep its own records upon which a "true-up" can be based and any final payment from one Party to the other shall be in an amount agreed upon by the Parties based on such records. In the event of any disagreement as between the records or the Parties regarding the amount of such "true-up," the Parties agree that the Commission shall be called upon to resolve such differences.

7.6 Other. If no rate is identified in the contract, the rate for the specific service or function will be negotiated by the Parties upon request by either Party. Payment of all other charges under this Attachment shall be due as dictated by CLEC-1's current billing cycle CLEC-1 will pay a late payment charge as specified in the current State Tariff

7.8 Insurance

8.1 Maintain Insurance. CLEC-1 shall, at its sole cost and expense, procure, maintain, and keep in force insurance as specified in this Section 8 and underwritten by insurance companies licensed to do business in the states applicable under this Attachment and having a Best's Insurance Rating of A-.

8.2 Coverage. CLEC-1 shall maintain the following specific coverage:

8.2.1 Commercial General Liability coverage in the amount of ten million dollars ($10,000,000.00) or a combination of Commercial General Liability and Excess/Umbrella coverage totaling not less than ten million dollars ($10,000,000.00). BellSouth shall be named as an Additional Insured on the Commercial General Liability policy as specified herein.

8.2.2 Statutory Workers Compensation coverage and Employers Liability coverage in the amount of one hundred thousand dollars ($100,000.00) each accident, one hundred thousand dollars ($100,000.00) each employee by disease, and five hundred thousand dollars ($500,000.00) policy limit by disease.

8.2.3 All Risk Property coverage on a full replacement cost basis insuring all of CLEC-1's real and personal property situated on or within BellSouth's Remote Site Location.

8.2.4 CLEC-1 may elect to purchase business interruption and contingent business interruption insurance, having been advised that BellSouth assumes no liability for loss of profit or revenues should an interruption of service occur.

8.3 Limits. The limits set forth in Section 8.2 above may be increased by BellSouth from time to time during the term of this Attachment upon thirty (30) days notice to CLEC-1 to at least such minimum limits as shall then be customary with respect to comparable occupancy of BellSouth structures.

8.4 All policies purchased by CLEC-1 shall be deemed to be primary. All policies purchased by CLEC-1 shall be deemed to be primary and not contributing to or in excess of any similar coverage purchased by BellSouth. All insurance must be in effect on or before the date equipment is delivered to BellSouth's Remote Site Location and shall remain in effect for the term of this Attachment or until all CLEC-1'''s property has been removed from BellSouth's Remote Site Location, whichever period is longer. If CLEC-1 fails to maintain required coverage, BellSouth may pay the premiums thereon and seek reimbursement of same from CLEC-1.

8.5 Submit certificates of insurance. CLEC-1 shall submit certificates of insurance reflecting the coverage required pursuant to this Section a minimum of ten (10) business days prior to the commencement of any work in the Remote Collocation Space. Failure to meet this interval may result in construction and equipment installation delays. CLEC-1 shall arrange for BellSouth to receive thirty (30) business days' advance notice of cancellation from CLEC-1's insurance company. CLEC-1 shall forward a certificate of insurance and notice of cancellation/non-renewal to BellSouth at the following address: BellSouth Telecommunications, Inc. Attn.: Risk Management Coordinator 675 W. Peachtree Street Rm. 17H53 Atla rgia 303

8.6 Conformance to recommendations made by BellSouth's fire insurance company. CLEC-1 must conform to recommendations made by BellSouth's fire insurance company to the extent BellSouth has agreed to, or shall hereafter agree to, such recommendations.

8.7 Self-Insurance. If CLEC-1's net worth exceeds five hundred million dollars ($500,000,000), CLEC-1 may elect to request self-insurance status in lieu of obtaining any of the insurance required in Sections 8.2.1 and 8.2.3. CLEC-1 shall provide audited financial statements to BellSouth thirty (30) days prior to the commencement of any work in the Remote Collocation Space. BellSouth shall then review such audited financial statements and respond in writing to CLEC-1 in the event that self-insurance status is not granted to CLEC-1. If BellSouth approves CLEC-1 for self-insurance, CLEC-1 shall annually furnish to BellSouth, and keep current, evidence of such net worth that is attested to by one of CLEC-1's corporate officers. The ability to self-insure shall continue so long as CLEC-1 meets all of the requirements of this Section. If CLEC-1 subsequently no longer satisfies this Section, CLEC-1 is required to purchase insurance as indicated by Sections 8.2.1 and 8.2.3.

8.8 Net worth requirements. The net worth requirements set forth in Section 8.7 may be increased by BellSouth from time to time during the term of this Attachment upon thirty (30) days' notice to CLEC-1 to at least such minimum limits as shall then be customary with respect to comparable occupancy of BellSouth structures.

8.9 Failure to comply. Failure to comply with the provisions of this Section will be deemed a material breach of this Attachment.

7.9 Mechanics Liens

9.1 Mechanics Lien or other Liens. If any mechanics lien or other liens shall be filed against property of either Party (BellSouth or CLEC-1), or any improvement thereon by reason of or arising out of any labor or materials furnished or alleged to have been furnished or to be furnished to or for the other Party or by reason of any changes, or additions to said property made at the request or under the direction of the other Party, the other Party directing or requesting those changes shall, within thirty (30) business days after receipt of written notice from the Party against whose property said lien has been filed, either pay such lien or cause the same to be bonded off the affected property in the manner provided by law. The Party causing said lien to be placed against the property of the other shall also defend, at its sole cost and expense, on behalf of the other, any action, suit or proceeding which may be brought for the enforcement of such liens and shall pay any damage and discharge any judgment entered thereon.

7.10 Inspections

10.1BellSouth may conduct inspection. BellSouth may conduct an inspection of CLEC-1's equipment and facilities in the Remote Collocation Space(s) prior to the activation of facilities between CLEC-1's equipment and equipment of BellSouth. BellSouth may conduct an inspection if CLEC-1 adds equipment and may otherwise conduct routine inspections at reasonable intervals mutually agreed upo by the Parties. BellSouth shall provide CLEC-1 with a minimum of forty-eight (48) hours or two (2)

business days, whichever is greater, advance notice of all such inspections. All costs of such inspection shall be borne by BellSouth.

7.11 Security and Safety Requirements

11. Security and Safety Requirements 11.1 The security and safety requirements. The security and safety requirements set forth in this section are as stringent as the security requirements BellSouth maintains at its own Remote Site Location either for their own employees or for authorized contractors. Only BellSouth employees, BellSouth Certified Contractors and authorized employees, authorized Guests, pursuant to Section 3.3, preceding, or authorized agents of CLEC-1 will be permitted in the BellSouth Remote Site Location. CLEC-1 shall provide its employees and agents with picture identification which must be worn and visible at all times while in the Remote Collocation Space or other areas in or around the Remote Site Location. The photo Identification card shall bear, at a minimum, the employee's name and photo, and the CLEC-1 name. BellSouth reserves the right to remove from its Remote Site Location any employee of CLEC-1 not possessing identification issued by CLEC-1 or who have violated any of BellSouth's policies as outlined in the CLEC Security Training documents. CLEC-1 shall hold BellSouth harmless for any damages resulting from such removal of its personnel from BellSouth Remote Site Location. CLEC-1 shall be solely responsible for ensuring that any Guest of CLEC-1 is in compliance with all subsections of this Section 11.

11.1.1 CLEC-1 will be required, at its own expense, to conduct a statewide investigation of criminal history records for each CLEC-1 employee being considered for work on the BellSouth Remote Site Location, for the states/counties where the CLEC-1 employee has worked and lived for the past five years. Where state law does not permit statewide collection or reporting, an investigation of the applicable counties is acceptable.

11.1.2 CLEC-1 will be required to administer to their personnel assigned to the BellSouth Remote Site Location security training either provided by BellSouth, or meeting criteria defined by BellSouth.

11.1.3 CLEC-1 shall not assign to the BellSouth Remote Site Location any personnel with records of felony criminal convictions. CLEC-1 shall not assign to the BellSouth Remote Site Location any personnel with records of misdemeanor convictions, except for misdemeanor traffic violations, without advising BellSouth of the nature and gravity of the offense(s). BellSouth reserves the right to refuse building access to any CLEC-1 personnel who have been identified to have misdemeanor criminal convictions. Notwithstanding the foregoing, in the even that CLEC-1 chooses not to advise BellSouth of the nature and gravity of any misdemeanor conviction, CLEC-1 may, in the alternative, certify to BellSouth that it shall not assign to the BellSouth Remote Site Location any personnel with records of misdemeanor convictions (other than misdemeanor traffic violations).

11.1.4 For each CLEC-1 employee requiring access to a BellSouth Remote Site Location pursuant to this Attachment, CLEC-1 shall furnish BellSouth, prior to an employee gaining such access, a certification that the aforementioned background check and security training were completed. The certification will contain a statement that no felony co[illegible]ns were found and certifying that the security training was completed by the employee. If the em[illegible]e's criminal history includes misdemeanor convictions, CLEC-1 will disclose the nature of the convictions to BellSouth at that time. In the alternative, CLEC-1

may certify to BellSouth that it shall not assign to the BellSouth Remote Site Location any personnel with records of misdemeanor convictions other than misdemeanor traffic violations.

11.1.5 At BellSouth's request, CLEC-1 shall promptly remove from the BellSouth's Remote Site Location any employee of CLEC-1 BellSouth does not wish to grant access to its Remote Site Location 1) pursuant to any investigation conducted by BellSouth or 2) prior to the initiation of an investigation in the event that an employee of CLEC-1 is found interfering with the property or personnel of BellSouth or another CLEC, provided that an investigation shall promptly be commenced by BellSouth.

11.2 Notification to BellSouth. BST reserves the right to interview CLEC-1's employees, agents, or contractors in the event of wrongdoing in or around BellSouth's property or involving BellSouth's or another CLEC's property or personnel, provided that BellSouth shall provide reasonable notice to CLEC-1's Security contact of such interview. CLEC-1 and its contractors shall reasonably cooperate with BellSouth's investigation into allegations of wrongdoing or criminal conduct committed by, witnessed by, or involving CLEC-1's employees, agents, or contractors. Additionally, BellSouth reserves the right to bill CLEC-1 for all reasonable costs associated with investigations involving its employees, agents, or contractors if it is established and mutually agreed in good faith that CLEC-1's employees, agents, or contractors are responsible for the alleged act. BellSouth shall bill CLEC-1 for BellSouth property which is stolen or damaged where an investigation determines the culpability of CLEC-1's employees, agents, or contractors and where CLEC-1 agrees, in good faith, with the results of such investigation. CLEC-1 shall notify BellSouth in writing immediately in the event that the CLEC discovers one of its employees already working on the BellSouth Remote Site Location is a possible security risk. Upon request of the other Party, the Party who is the employer shall discipline consistent with its employment practices, up to and including removal from the BellSouth Remote Site Location, any employee found to have violated the security and safety requirements of this section. CLEC-1 shall hold BellSouth harmless for any damages resulting from such removal of its personnel from BellSouth Remote Site Location.

11.3 Use of Supplies. Unauthorized use of telecommunications equipment or supplies either Party, whether or not used routinely to provide telephone service (e.g. plug-in cards,) will be strictly prohibited and handled appropriately. Costs associated with such unauthorized use may be charged to the offending Party, as may be all associated investigative costs.

11.4 Use of Official Lines. Except for non-toll calls necessary in the performance of their work, neither Party shall use the telephones of the other Party on the BellSouth Remote Site Location. Charges for unauthorized telephone calls may be charged to the offending Party, as may be all associated investigative costs.

11.5 Accountability. Full compliance with the Security requirements of this section shall in no way limit the accountability of either Party to the other for the improper actions of its employees.

7.12 Destruction of Remote Collocation Space

12.1 Remote Collocation Space is damaged. In the event a Remote Collocation Space is wholly or partially damaged by fire, windstorm, tornado, flood or by similar causes to such an extent as to be rendered wholly unsuitable for CLEC-1's permitted use hereunder, then either Party may elect within

ten (10) business days after such damage, to terminate this Attachment with respect to the affected Remote Collcoation Space, and if either Party shall so elect, by giving the other written notice of termination, both Parties shall stand released of and from further liability under the terms hereof with respect to such Remote Collocation Space. If the Remote Collocation Space shall suffer only minor damage and shall not be rendered wholly unsuitable for CLEC-1'''s permitted use, or is damaged and the option to terminate is not exercised by either Party, BellSouth covenants and agrees to proceed promptly without expense to CLEC-1, except for improvements not the property of BellSouth, to repair the damage. BellSouth shall have a reasonable time within which to rebuild or make any repairs, and such rebuilding and repairing shall be subject to delays caused by storms, shortages of labor and materials, government regulations, strikes, walkouts, and causes beyond the control of BellSouth, which causes shall not be construed as limiting factors, but as exemplary only. CLEC-1 may, at its own expense, accelerate the rebuild of its Remote Collocation Space and equipment provided however that a BellSouth Certifie1 Contractor is used and the necessary space preparation has been completed. Rebuild of equipment must be performed by a BellSouth Certified Vendor. If CLEC-1'''s acceleration of the project increases the cost of the project, then those additional charges will be incurred by CLEC-1. Where allowed and where practical, CLEC-1 may erect a temporary facility while BellSouth rebuilds or makes repairs. In all cases where the Remote Collocation Space shall be rebuilt or repaired, CLEC-1 shall be entitled to an equitable abatement of rent and other charges, depending upon the unsuitability of the Remote Collocation Space for CLEC-1'''s permitted use, until such Remote Collocation Space is fully repaired and restored and CLEC-1'''s equipment installed therein (but in no event later than thirty (30) business days after the Remote Collocation Space is fully repaired and restored). Where CLEC-1 has placed a Remote Site Adjacent Arrangement pursuant to section 3.4, CLEC-1 shall have the sole responsibility to repair or replace said Remote Site Adjacent Arrangement provided herein. Pursuant to this section, BellSouth will restore the associated services to the Remote Site Adjacent Arrangement.

7.13 Eminent Domain

13.1 Power of Eminent Domain. If the whole of a Remote Collocation Space or Remote Site Adjacent Arrangement shall be taken by any public authority under the power of eminent domain, then this Attachment shall terminate with respect to such Remote Collocation Space or Remote Site Adjacent Arrangement as of the day possession shall be taken by such public authority and rent and other charges for the Remote Collocation Space or Remote Site Adjacent Arrangement shall be paid up to that day with proportionate refund by BellSouth of such rent and charges as may have been paid in advance for a period subsequent to the date of the taking. If any part of the Remote Collocation Space or Remote Site Adjacent Arrangement shall be taken under eminent domain, BellSouth and CLEC-1 shall each have the right to terminate this Attachment with respect to such Remote Collocation Space or Remote Site Adjacent Arrangement and declare the same null and void, by written notice of such intention to the other Party within ten (10) business days after such taking.

7.14 Nonexclusivity

14.1 Attachment is not exclusive. CLEC-1 understands that this Attachment is not exclusive and that BellSouth may enter into similar agreements with other Parties. Assignment of space pursuant to all such agreements shall be determined by space availability and made on a first come, first served basis.

7.15 Exhibit A BellSouth/CLEC-1 Rates

Exhibit A: BellSouth/CLEC-1 Rates — Regional — Remote Site Collocation

Table K Alabama Rates

ALABAMA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$869.18
PE1RB	Cabinet Space	Per Rack/Bay	$230.19	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.19
PE1SR	Space Availability Report	Per Premises Requested	N/A	$231.74
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.11
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table L Florida Rates

FLORIDA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$874.14
PE1RB	Cabinet Space	Per Rack/Bay	$232.50	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD

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Table L Florida Rates (continued)

FLORIDA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RD	Security Access System New Key	Per Key	N/A	$26.20
PE1SR	Space Availability Report	Per Premises Requested	N/A	$231.45
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.13
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table M Georgia Rates

GEORGIA RATES					
V List Item	Cost Ref. #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.6	**Physical Collocation in the Remote Terminal (RT)**			
	H.6.1	Physical Collocation in the RT - Application Fee			608.17
	H.6.199	Physical Collocation in the RT - Application Fee - Disconnect			323.44
	H.6.2	Physical Collocation in the RT - Per Rack/Bay	224.82		

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Table M Georgia Rates (continued)

GEORGIA RATES					
V List Item	Cost Ref. #	Rate Element	Recurring Rate	Nonrecurring Rate Electronic	Nonrecurring Rate Manual
	H.6.3	Physical Collocation in the RT - Security Access Key			25.88
	H.6.4	Physical Collocation in the RT - Space Availability Report per Premises Requested			229.02
	H.6.5	Physical Collocation in the RT - Remote Site CLLI Code Request, per CLLI Code Requested			74.22

Table N Kentucky Rates

KENTUCKY RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$868.91
PE1RB	Cabinet Space	Per Rack/Bay	$224.41	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.60
PE1SR	Space Availability Report	Per Premises Requested	N/A	$231.82
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.13
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-

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Table N Kentucky Rates (continued)

KENTUCKY RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table O Louisiana Rates

LOUISIANA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$868.25
PE1RB	Cabinet Space	Per Rack/Bay	$257.01	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.16
PE1SR	Space Availability Report	Per Premises Requested	N/A	$231.49
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.02
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

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Table P Mississippi Rates

MISSISSIPPI RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$868.60
PE1RB	Cabinet Space	Per Rack/Bay	$241.11	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.16
PE1SR	Space Availability Report	Per Premises Requested	N/A	$231.43
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.01
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table Q North Carolina Rates

NORTH CAROLINA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$865.34
PE1RB	Cabinet Space	Per Rack/Bay	$254.02	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.06

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Table Q North Carolina Rates (continued)

NORTH CAROLINA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1SR	Space Availability Report	Per Premises Requested	N/A	$230.60
PE1SR	Request for CLLI	Per Premises Requested	N/A	$74.74
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table R South Carolina Rates

SOUTH CAROLINA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$871.12
PE1RB	Cabinet Space	Per Rack/Bay	$246.44	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.25
PE1SR	Space Availability Report	Per Premises Requested	N/A	$232.25
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.27
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-

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Table R South Carolina Rates (continued)

SOUTH CAROLINA RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Table S Tennessee Rates

TENNESSEE RATES				
USOC	Rate Element Description	Unit	Recurring Rate (R)	Non Recurring Rate (NRC)
PE1RA	Application Fee	Per Request	N/A	$872.95
PE1RB	Cabinet Space	Per Rack/Bay	$219.37	N/A
PE1RC	Power Upgrade	Per Fused Amp	N/A	ICB/TBD
PE1RD	Security Access System New Key	Per Key	N/A	$26.23
PE1SR	Space Availability Report	Per Premises Requested	N/A	$232.12
PE1SR	Request for CLLI	Per Premises Requested	N/A	$75.23
AEH	Additional Engineering Fee (Note 1)	Per Request First-Half-Hour Add'l-half-hour	N/A	-
PE1BT	Security Escort-Basic Time	Per 1/2 Hr./ add'l half hr.	N/A	-
PE1OT	Overtime	Per 1/2 Hr/add'l half hr.	N/A	-
PE1PT	Premium Time	Per 1/2 hr/add'l half hr.	N/A	-

Note(s): N/A stipulates the part of the rate element (RC or NRC) not applying to the element. ICB/ TBD rates will be on an Individual Case Basis until a rate can be established.

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(1) Additiona Engineering Fee: BellSouth's additional engineering shall be be recovering as Additional Engineering charges, under provisions in BellSout's F.C.C. Number 1 Tariff, Sections 13.1 and 13.2.

7.16 Exhibit B — ENVIRONMENTAL AND SAFETY PRINCIPLES

1. GENERAL PRINCIPLES

1.1 Compliance with Applicable Law. BellSouth and CLEC-1 agree to comply with applicable federal, state, and local environmental and safety laws and regulations including U.S. Environmental Protection Agency (USEPA) regulations issued under the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), the Toxic Substances Control Act (TSCA), and OSHA regulations issued under the Occupational Safety and Health Act of 1970, as amended and NFPA and National Electrical Codes (NEC) and the NESC ("Applicable Laws"). Each Party shall notify the other if compliance inspections are conducted by regulatory agencies and/or citations are issued that relate to any aspect of this Attachment.

1.2 Notice. BellSouth and CLEC-1 shall provide notice to the other, including Material Safety Data Sheets (MSDSs), of known and recognized physical hazards or Hazardous Chemicals existing on site or brought on site. Each Party is required to provide specific notice for known potential Imminent Danger conditions. CLEC-1 should contact 1-800-743-6737 for BellSouth MSDS sheets.

1.3 Practices/Procedures. BellSouth may make available additional environmental control procedures for CLEC-1 to follow when working at a BellSouth Premises (See Section 2, below). These practices/ procedures will represent the regular work practices required to be followed by the employees and contractors of BellSouth for environmental protection. CLEC-1 will require its contractors, agents and others accessing the BellSouth Premises to comply with these practices. Section 2 lists the Environmental categories where BST practices should be followed by CLEC when operating in the BellSouth Premises.

1.4 Environmental and Safety Inspections. BellSouth reserves the right to inspect the CLEC-1 space with proper notification. BellSouth reserves the right to stop any CLEC-1 work operation that imposes Imminent Danger to the environment, employees or other persons in the area or Facility.

1.5 Hazardous Materials Brought On Site. Any hazardous materials brought into, used, stored or abandoned at the BellSouth Premises by CLEC-1 are owned by CLEC-1. CLEC-1 will indemnify BellSouth for claims, lawsuits or damages to persons or property caused by these materials. Without prior written BellSouth approval, no substantial new safety or environmental hazards can be created by CLEC-1 or different hazardous materials used by CLEC-1 at BellSouth Facility. CLEC-1 must demonstrate adequate emergency response capabilities for its materials used or remaining at the BellSouth Facility.

1.6 Spills and Releases. When contamination is discovered at a BellSouth Premises, the Party discovering the condition must notify BellSouth. All Spills or Releases of regulated materials will immediately be reported by CLEC-1 to BellSouth.

1.7 Coordinated Environmental Plans and Permits. BellSouth and CLEC-1 will coordinate plans, permits or information required to be submitted to government agencies, such as emergency response plans, spill prevention control and countermeasures (SPCC) plans and community reporting. If fees are associated with filing, BellSouth and CLEC-1 will develop a cost sharing procedure. If BellSouth's permit or EPA identification number must be used, CLEC-1 must comply with all of BellSouth's permit conditions and environmental processes, including environmental "best management practices (BMP)" (see Section 2, below) and/or selection of BST disposition vendors and disposal sites.b

1.8 Environmental and Safety Indemnification. BellSouth and CLEC-1 shall indemnify, defend and hold harmless the other Party from and against any claims (including, without limitation, third-party claims for personal injury or death or real or personal property damage), judgments, damages, (including direct and indirect damages, and punitive damages), penalties, fines, forfeitures, costs, liabilities, interest and losses arising in connection with the violation or alleged violation of any Applicable Law or contractual obligation or the presence or alleged presence of contamination arising out of the acts or omissions of the indemnifying Party, its agents, contractors, or employees concerning its operations at the Facility.

2. CATEGORIES FOR CONSIDERATION OF ENVIRONMENTAL ISSUES When performing functions that fall under the following Environmental categories on BellSouth's Premises, CLEC-1 agrees to comply with the applicable sections of the current issue of BellSouth's Environmental and Safety Methods and Procedures (M&Ps), incorporated herein by this reference. CLEC-1 further agrees to cooperate with BellSouth to ensure that CLEC-1's employees, agents, and/or subcontractors are knowledgeable of and satisfy those provisions of BellSouth's Environmental M&Ps which apply to the specific Environmental function being performed by CLEC-1, its employees, agents and/or subcontractors. The most current version of reference documentation must be requested from BellSouth.

ENVIRONMENTAL CATEGORIES	ENVIRONMENTAL ISSUES	ADDRESSED BY THE FOLLOWING DOCUMENTATION
Disposal of Hazardous material or other regulated material (e.g. batteries, fluorescent tubes, solvents & cleaning materials)	Compliance with applicable local, state & federal laws and regulations. Pollution liability insurance. EVET approval of contractor	- Std. T&C 450. - - - - - Fact Sheet Series 17000. -Approved Environmental Vendor List (Contact E/S Management)
Emergency Response	Hazmat/waste release/spill firesafety emergency.	- Fact Sheet Series 1700.- -Building Emergency Operation Plan (EOP) (specific to and locaed on premises).

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Contract labor/outsourcing for services with environmental implications to be performed on BellSouth Premises (e.g. disposition of hazardous material/waste; maintenance of storage tanks)	- Compliance with applicable local, state, & federal loaws and regulations. - Peerformanace of services in accordance with BST's environmental M&Ps. - -Insurance	- Std T&C 450 - - - -Std T&C 450 - B - - - - (Contact E/S for copy of appropriate E/S M&Ps) - -Std T&C 660
Transportation of Hazardous Materials	- Compliance with all applicable local, state, & federal laws and regulations. - Pollution liability insurance. - EVET approval of contractor.	- Std T&C 450 - - - - - -Fact Sheet Series 17000 - -Std T&C 660-3 - - - - - - -Approved Environmental Vendor List (Contact E/S Management).
Maintenance/operations work which may produce waste. - - - Other maintenance work	- Compliance with all applicable local, state, & federal laws and regulations. - - - - All Hazardous materials & waste - Asbestos notification and protection of employees and equipment.	- P&SM Manager - Procurement. - - - - - - Fact Sheet Series 17000 - - GU-BTEN-001 BT, Chapter 3. - - - - - - - BSP 010-170-001 BS (Hazcom)
Manhole Cleaning	- Compliance with all applicable local, state, & federal laws and regulations. - - - - - - Pollution liability insurance. - - – EVET approval of contractor	- Std T & C 450. - - - - - Fact Sheet 14050. - - - - BSP 620 620-145-011PR Issue A, August 1996. - - - Std T & C 660 - 3. - - - - - - Approved Environmental Vendor List (Contact E/S Management).
Removing or disturbing building materials that may contain asbestos.	Asbestos work practices	- GU-BTEN-001BT, Chapter 3.

3. DEFINITIONS.

Generator. Under RCRA, the person whose act produces a Hazardous Waste, as defined in 40 CFR 261, or whose act first causes a Hazardous Waste to become subject to regulation. The Generator is legally responsible for the proper management and disposal of Hazardous Wastes in accordance with regulations.

Hazardous Chemical. As defined in the U.S. Occupational Safety and Health (OSHA) hazard communication standard (29 CFR 1910.1200), any chemical which is a health hazard or physical hazard. Hazardous Waste. As defined in section 1004 of RCRA.

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Imminent Danger. Any conditions or practices at a facility which are such that a danger exists which could reasonably be expected to cause immediate death or serious harm to people or immediate significant damage to the environment or natural resources. Spill or Release. As defined in Section 101 of CERCLA.

4. ACRONYMS

E/S - Environmental/Safety

EVET - Environmental Vendor Evaluation Team.

DEC/LDEC - Department Environmental Coordinator/Local Department Environmental Coordinator.

GU-BTEN-001BT - BellSouth Environmental Methods and Procedures.

NESC - National Electrical Safety Codes.

P&SM- Property & Services Management

Std. T&C- Standard Terms & Conditions

START-UP
GUIDE

002402

The BellSouth Start-Up Guide

BellSouth Interconnection Services

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This document is intended to reflect, in as accurate a manner as possible, current BellSouth start-up and activation processes. BellSouth Telecommunications, Inc., and its subsidiaries, affiliates, officers, directors, and employees are not liable nor responsible for inaccuracies which may be present in this documentation. Please report any discrepancies you may find to the assigned Account Team.

Version History/Control

This section reflects modifications, enhancements, and/or improvements made to the CLEC Start-Up/Activation process. As changes are made to this process, this document will be updated accordingly.

Section	Date/Issue	Description
All	March 2000/Issue 1	• Initial Issue
12.6.2	June 2000/Issue 1.1	• Added footnote related to Tennessee late payment charges • Removed Treatment Date, Payment Arrangements, and Payment Not Received Sections • Adjusted wording of the Refusal for Additional Service Section to reflect a typical CLEC contract
12.6.3	June 2000/Issue 1.1	• Adjusted wording of the Reasons for Billing Dispute Adjustments Section to reflect the current state • Removed Interest on Adjustments Section • Expanded the Dispute Resolution Follow-Through Section to clearly define the when an adjustment will appear on a bill
6.5.1.1	December 2000 Issue 1.2	• Clarification of Basic Service Features
6.7.1.1	December 2000 Issue 1.2	• New Unbundled Dark Fiber graphic inserted.
6.7.3	December 2000 Issue 1.2	• New detail on Ordering Information table
6.9.1.2	December 2000 Issue 1.2	• Clarification of Basic Service Capabilities and Restrictions
6.9.2.1	December 2000 Issue 1.2	• Clarification of Equipment Arrangement details • Clarification of Space Preparation – NRC • Clarification of Power – Removal of AC and DC detail • Removal of Co Carrier Cross Connect – NRC and RC • Insert Cable Record charges
6.9.4	December 2000 Issue 1.2	• Addition to Installation Intervals
6.10.1.2	December 2000 Issue 1.2	• Clarification of Basic Service Capabilities And Restrictions
6.10.2.1	December 2000 Issue 1.2	• Removal of application fee details in Equipment Arrangement
6.10.4	December 2000 Issue 1.2	• Change in Installation Intervals to follow PUC or FCC
7.4	March 2001 Issue 1.3	• Clarification and addition of contact number
9.0	March 2001 Issue 1.3	• Update to Web site addresses
9.3.4	March 2001 Issue 1.3	• Addition - Data CLECs - UNEs
9.3.9	March 2001 Issue 1.3	• Addition - Customer Products Services Records
9.3.10	March 2001 Issue 1.3	• Addition - Collocation Overview
9.3.11	March 2001 Issue 1.3	• Addition - Directory Listing Forms
9.3.12	March 2001 Issue 1.3	• Addition - Switched Port Loop Combinations
9.4	March 2001 Issue 1.3	• Addition - ASR Order Local Interconnection
9.4.1	March 2001 Issue 1.3	• Addition - ASR Ordering Guidelines
9.4.2	March 2001 Issue 1.3	• Addition - Special Access for ASR
9.4.3	March 2001 Issue 1.3	• Addition - Common Access Front End

Section	Date/Issue	Description
5.1.1.4	March 2001 Issue 1.3	• Remove information on INP
5.2.1.1	March 2001 Issue 1.3	• Update NECA phone number and fax number
12.2.1	March 2001 Issue 1.3	• Update NECA Form phone number and fax number
12.6	March 2001 Issue 1.3	• Appendix F – Addition of information on the Change Control Process

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1.0 Introduction

1.1 Preface

BellSouth Interconnection Services has designed its Competitive Local Exchange Carrier (CLEC) documentation to help CLECs do business with BellSouth. Documents within each area of BellSouth's CLEC business model provide appropriate introductory and process specific material. This Start-Up Guide provides both Resale and Facility-Based CLECs the information necessary to begin a business relationship with BellSouth.

1.2 Purpose

The Start-Up Guide contains general, and useful information introducing the CLEC to the specifics of working with BellSouth. Since the intent is for the CLEC reader to use the information contained in this guide for insight on how to do business with BellSouth, the guide makes references to more detailed documentation as appropriate. Whenever possible, a Web site link is also provided. (NOTE: It is highly recommended that CLECs have access to the Internet and the World Wide Web because BellSouth provides large amounts of important information to its customers in this format.)

1.3 Audience

This guide is written for Resale and Facility-based CLECs initiating business with BellSouth Telecommunications, Inc. Except where necessary, this guide does not differentiate between Resale and Facility-based CLECs.

1.4 How to Read this Guide

Each section of the Start-Up Guide addresses a topic in which a CLEC will need to become knowledgeable as the relationship with BellSouth is initiated. Although it is recommended that a CLEC read the entire Start-Up Guide, the sections are designed so that the reader can refer to an individual section for information on a particular topic. For example, if the reader is interested in knowing more about BellSouth's CLEC Training program, he/she can refer directly to the *CLEC Training* section of the Start-Up Guide.

The sections of this guide are organized as follows:

- Overview of BellSouth's CLEC Program
- Overall Start-Up Process Flow
- BellSouth & CLEC Roles & Responsibilities

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- Activation for Resale & Facility-based CLECs
- Local Interconnection Services for Facility-based Carriers
- Electronic Interfaces and Gateways
- Requesting Customer Service Records
- CLEC Training
- Business Process Overviews
- BellSouth Resources & Contacts
- Appendices

Overview of BellSouth's CLEC Program
This section provides an introduction to the CLEC's relationship with BellSouth. It offers a high-level overview of BellSouth's CLEC program and describes generally some of its various components.

Overall Start-Up Process Flow
This section describes the major activities that a CLEC participates in during start-up/activation with BellSouth, beginning with the "Initial Contact" phase and continuing through "Support for CLECs Utilizing OSS."

BellSouth & CLEC Roles & Responsibilities
This section outlines the key roles BellSouth plays and the responsibilities the company has in its relationship with the CLEC. It also covers the key roles the CLEC plays and the responsibilities it has in its relationship with BellSouth. Additionally, this section contains an overview of the start-up actions required to do business with BellSouth as a CLEC.

Activation for Resale & Facility-based CLECs
This section consists of two sub-sections: *CLEC Account Establishment* and *Doing Business as a CLEC*. *CLEC Account Establishment* addresses forms and actions that the CLEC must complete prior to establishing a "Q" Account. *Doing Business as a CLEC* provides additional information on forms the CLEC should be familiar with and other useful information for doing business as a Competitive Local Exchange Carrier.

Local Interconnection Services for Facility-based CLECs
This section provides information about local interconnection services that is specific to Facility-based carriers.

Electronic Interfaces & Gateways
This section provides an overview of the electronic interfaces and gateways available to CLECs to perform Pre-Ordering, Ordering, and Trouble Maintenance functions. It contains an overview of the following: LENS, BellSouth® RoboTAG™ software, TAG, TAFI, and ECTA.

Requesting Customer Service Records
This section is an overview of the process used to request Customer Service Records (CSRs). CSRs provide the CLEC with account information for its end-users, as well as any BellSouth end-user.

CLEC Training
This section provides an overview of the BellSouth CLEC training program, including the course schedule, course registration, and course offerings. It also contains links to the areas on the BellSouth Interconnection Services Web site which have current schedule, registration, and course information.

Business Process Overviews
This section provides a high-level overview of the following core process areas within BellSouth: Pre-Ordering, Ordering, Provisioning, Maintenance and Repair, Billing, Collocation, and Local Number Portability Ordering. Since the overviews are not detailed, references and links are provided to where more specific process information can be located.

BellSouth Resources & Contact Information
This section provides resources, along with contact information, that are available to assist the CLEC. This section also contains multiple links to helpful Web sites.

Appendices
The *Appendices* provide helpful examples, necessary forms, and a glossary. References to the *Appendices* are made in bold throughout this guide.

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2.0 Overview of BellSouth's CLEC Program

With one of the most modern telecommunications networks in the world, BellSouth is known for its state-of-the-art technology, outstanding quality and widespread coverage in its nine-state region – Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Now, through BellSouth Interconnection Services all these advantages are available to carrier customers, including CLECs.

The BellSouth Interconnection Services Team has designed a comprehensive program to help CLECs navigate through the many specific requirements to be met and decisions to be made when entering the local telecommunications market. For example, a CLEC must first be certified by the state utilities/public service commission or regulatory authority to become a local exchange carrier and provide telecommunications services to customers. Each state has statutes, rules, and regulations regarding certification and the operation of telecommunications companies. Additionally, there are two primary methods through which a CLEC can provide telecommunications services to customers: as a reseller of telecommunications services purchased from other telecommunications carriers or through facilities owned or leased by the CLEC. Please see the *Activation for Resale and Facility-based CLECs* section in this guide for more specific Activation information.

To assist CLECs with all of these procedures, BellSouth offers multiple support options, including such resources as CLEC training, Internet access, CLEC documentation, dedicated service centers, and the BellSouth Interconnection Services Team. The BellSouth Start-Up Guide provides general information about the resources that BellSouth provides to assist CLECs in establishing successful business relationships.

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3.0 Overview of Start-Up Process

After contract negotiations between BellSouth and the CLEC are completed, the CLEC will be contacted by the BellSouth Pre-Sales Quality Team (PQT) or Account Team to initiate the CLEC Start-Up process. This involves establishing the new CLEC's Master Account with BellSouth for billing purposes and completing all required CLEC pre-ordering documentation. The PQT or Account Team will provide an activation kit with instructions and forms for the CLEC's completion and submittal back to BellSouth.

The CLEC may contact the PQT at 888-560-CLEC prior to the execution of an agreement to receive additional information concerning operating as a CLEC in the BellSouth region. Once the CLEC has established a Master Account and completed the CLEC Start-Up process prerequisites, the CLEC will be assigned to a BellSouth Account Team, which will be the CLEC's interface with BellSouth from that point forward.

The Start-Up process can be divided into five phases:

- Initial Contact
- Planning
- Technical Implementation
- Technical Implementation/End-to-End Testing
- Support for CLECs Utilizing OSS

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The following table provides an overview of the major activities that will take place during each phase, and in turn, during the Start-Up process as a whole. The activities are listed in the approximate order they will occur; however, the listing is intended to provide a general process flow rather than an exact timeline. These activities may evolve in a different order for each CLEC/BellSouth relationship. Also, some activities may not be applicable to all CLECs.

I. Initial Contact	II. Planning	III. Technical Implementation	IV. Technical Implementation/ End-to-End Testing	V. Support for CLECs Utilizing OSS
• Initial Contact with BellSouth • Become familiar with content of BellSouth Start-Up Guide • Sign contract with BellSouth	• Initial Welcome and Business Meeting • Contract Review Meeting • CLEC Account Establishment • Complete appropriate forms and actions in the BellSouth Start-Up Guide • BellSouth assigns an Account Team to CLEC, as appropriate	• Technical Implementation Meeting • Submit signed activation letter for Line Information Database/Optional Daily Usage File (LIDB/ODUF) options, as appropriate • Contact BellSouth Advertising and Publishing Company (BAPCO) for appropriate documentation • BellSouth follows up with BAPCO for signed agreement • BellSouth verifies that all information, certification, contracts, credit check, and deposits are complete • BellSouth verifies "Q" account has been established • Meet with Enhanced Billing Services (EBS) group • BellSouth outlines training options with CLEC • Electronic Communications Support Group confirms understanding of connectivity process for Operational Support Systems (OSS)	• Letter of Authorization (LOA) is processed to set-up Local Exchange Navigation System (LENS) profile, as appropriate • Complete End-to-End testing with BellSouth using Electronic Document Interchange (EDI), as appropriate • Complete End-to-End testing with BellSouth using Telecommunications Access Gateway (TAG), as appropriate • Complete End-to-End testing using BellSouth® RoboTAG™ software, as appropriate	• Customer Support Manager assists CLEC with Pre-Ordering and Ordering processes, as appropriate

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Further detail on the Start-Up and Activation activities, including an explanation of required forms, is provided in the *Activation for Resale and Facility-based CLECs* section of this guide.

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4.0 BellSouth and CLEC Roles & Responsibilities

4.1 BellSouth Roles & Responsibilities

The following list provides an overview of the key roles BellSouth plays and the responsibilities the company has in its relationship with CLECs. Please note that some activities may not be applicable in all CLEC/BellSouth relationships.

Responsibility	BellSouth Group
Work with CLEC to develop marketing strategy	Account Team
Facilitate CLEC understanding of how to do business with BellSouth	Account Team
Match training classes to specific needs of CLEC	Account Team
Provide CLEC information on available Operational Support Systems	Account Team
Help CLEC resolve escalations	Account Team
Answer CLEC questions about BellSouth products and services	System Designer
Prepare service inquiries	System Designer
Determine price quotes	System Designer
Process special assemblies submitted by CLEC	System Designer
Responsible for activities surrounding the service order process, such as analyzing ordering data and communicating improvement recommendations to CLEC	Customer Support Manager
Identify and initiate proactive contact with the appropriate decision-maker in CLEC to review ordering performance data and coordinate action programs	Customer Support Manager
Act as advocate for CLEC and Local Carrier Service Center (LCSC) on concerns and issues that will positively impact operational efficiencies and productivity measurements	Customer Support Manager

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Responsibility	BellSouth Group
Ensure the appropriate application of OSS and act as the single point of contact on electronic issues with CLEC after the testing period (as appropriate)	Customer Support Manager

4.2 CLEC Roles & Responsibilities

The following items are some of the major activities CLECs are required to complete in order to begin business with BellSouth as a Local Exchange Carrier. The list is not meant to be exhaustive, but provides an overview of the start-up actions to be taken. For further detail on the Activation requirements, please see the *Activation for Resale and Facility-based CLECs* section of this guide.

Activation Requirements
Obtain PSC/PUC Certification
Complete a Credit Application
Establish a "Q" Account
Provide Proof of Tax-Exempt Status (if applicable)
Obtain an Operating Company Number (OCN)
Sign a Resale Agreement with BellSouth (in states with no approved state tariff)
Sign a Blanket Letter of Authorization
Complete CLEC Misdirected Call Contact Number Form
Initiate Line Information Database Contract Negotiations (an optional agreement)
Obtain a CLEC Customer Name and Address Information Code
Complete a PIC/LPIC Change Notification Form
Obtain an ACNA/CIC (for Facility-Based CLECs and Access Providers only)

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The following table provides an overview of the key roles the CLEC plays and the responsibilities the company has in its relationship with BellSouth. Please note that some activities may not be applicable in all CLEC/BellSouth relationships.

CLEC Roles & Responsibilities
Provide customer service to end-users
Maintain all end-user records
Serve as the end-user's single point of contact regarding the BellSouth products and services resold
Provide end-user maintenance and repair
Provide billing to end-users
Work with BellSouth to develop marketing strategy
Handle all marketing/sales support for end-users
Establish end-user pricing
Become knowledgeable of all information provided by BellSouth to CLECs on the BellSouth Interconnection Services Web site: http://www.interconnection.bellsouth.com/
Attend appropriate BellSouth training classes
Review ordering performance data and action programs with BellSouth

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5.0 Activation for Resale & Facility-based CLECs

This section provides Resale and Facility-based CLECs with an explanation of the forms and actions required to become a Competitive Local Exchange Carrier in the BellSouth territory.

5.1 CLEC Account Establishment

5.1.1 Steps To Establish A "Q" Account

The forms or actions described in this section must be completed as described before the CLEC can establish a "Q" account, which BellSouth will use to bill the CLEC for the services it orders for its customers.

Submit the necessary information and completed forms to the following address:

BellSouth Interconnection Services
Presale Quality Team
8th Floor
600 N 19th ST
Birmingham, AL 35203
888-560-CLEC (888-560-2532)

Expect to receive a response in approximately 10 business days. An example of each form described, along with any accompanying instructions, can be found in **Appendix A** of this guide.

5.1.1.1 Proof of PSC/PUC C..rtification

Certification is the process by which the state Public Service/Utilities Commission (PSC/PUC) authorizes a CLEC to conduct business in a particular state. Since each state commission in BellSouth's nine-state region requires CLECs to be certified (licensed), the CLEC should contact the PSC/PUC in each state that it intends to offer service to determine certification requirements. Proof of such certification is required for the CLEC to complete BellSouth's Master Account Application.

5.1.1.2 Proof of Tax Exempt Status (if applicable)

CLECs must provide tax exemption certificates, as applicable, for federal, state, county, local, or other taxes. If proof is not provided, applicable taxes will be billed.

The letter referencing this requirement can be found in **Appendix A** of this guide. An example of the Certificate of Continuing Exemption from Federal Excise Tax on Telecommunications Services is also in **Appendix A** of this guide.

5.1.1.3 Credit and Deposit Policy

Before a new account can be established or orders can be submitted for processing, the CLEC must provide BellSouth with information to determine the CLEC's satisfactory credit and any deposit requirements. CLECs must provide proof of PSC/PUC certification and, if applicable, proof of tax-exempt status before submitting the credit profile.

The CLEC will need to complete the BellSouth Credit Profile. An example of this form is located in **Appendix A** of this guide. The form can be found on the Web at:

http://www.interconnection.bellsouth.com/forms/lec/lec_form.html

NOTE: Download the Acrobat Reader, if necessary, from the link, on this page, then click the PDF icon next to the form description to proceed to the form.

5.1.1.3.1 Deposits

A deposit is a sum of money or security obtained by BellSouth from the CLEC to ensure payment of an account. Deposits may be requested in connection with either new or existing service as a means of protection against lost revenue.

Accounts will be reviewed routinely and larger deposits will be requested on accounts when appropriate.

Deposits for CLEC accounts cannot be combined with, precluded by, or covered by deposits for other BellSouth services. Additional deposits may apply for additional services. Each deposit applies to only one individual "Q" Account.

Deposits should only be paid after state/PSC certification has been completed.

BellSouth will accept a Surety Bond or an Irrevocable Bank Letter of Credit in lieu of a cash deposit.

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5.1.1.3.2 Surety Bonds

A Surety Bond is a legal obligation stating that a security company guarantees payment of accounts in the event of default by the bonded CLEC. The bond must be obtained from a security company meeting the requirements described on the BellSouth "Surety Bond" form, and it must be submitted on that form. An example of the BellSouth "Surety Bond" form is located in **Appendix A** of this guide.

5.1.1.3.3 Bank Letter Of Credit

A Bank Letter of Credit is a legal document issued by a financial institution guaranteeing a specific amount of money for a specific period of time. An example of the BellSouth "Standby Letter of Credit" is found in **Appendix A** of this guide.

5.1.1.4 Master Account Application (i.e., "Q" Account)

After completing the previous steps, the CLEC must complete the Master Account Application, which establishes a "Q" Account. The "Q" account is used to bill the CLEC for the services it orders for its customers.

NOTE: Separate "Q" Accounts must be established for Resale, LNP, UNE Loops, and UNE Port Combos.

The CLEC will need the BellSouth Master Account Application – Competitive Local Exchange Carrier form. See **Appendix A** of this guide for a copy of this form.

5.2 Doing Business as a CLEC

5.2.1 Before Ordering Services

The CLEC must complete the forms or actions described in this section before ordering services. The necessary information and forms specified should be submitted to the following address or to the appropriate Account Team, as directed during initial contact.

BellSouth Interconnection Services
Presale Quality Team
8th Floor
600 N 19th ST
Birmingham, AL 35203
888-560-CLEC (888-560-2532)

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An example of each form, along with any accompanying instructions, can be found in **Appendix B**.

5.2.1.1 Operating Company Number

Service requests cannot be processed without an Operating Company Number (OCN), an alphanumeric code assigned by the National Exchange Carrier Association (NECA). Contact the NECA at 800-223-7751 for appropriate information. The fax number for the NECA is 800-551-3038.

The "NECA Non-Member Company Code Request Form" that is required for an OCN can be found in **Appendix B** of this guide.

5.2.1.2 Blanket Letter of Authorization

The CLEC must sign a blanket Letter of Authorization (LOA) prior to processing service order requests. This blanket LOA is required for CLECs to have access to BellSouth's Customer Service Records (CSRs). The blanket LOA does not relieve the CLEC of the obligation to secure and maintain authorization from every end-user whose CSR it will view or use. BellSouth may request a copy of the end-user authorization obtained by the CLEC from the CLEC's end-user to view and/or use in the event of an end-user dispute.

This BellSouth Blanket Agency Agreement for Local Service Providers is located in **Appendix B** of this guide.

5.2.1.3 CLEC Misdirected Call Contact Number

A form is required to advise BellSouth how to handle a misdirected call from the CLEC's end-user. For example, a CLEC's end-user calling BellSouth Repair for maintenance or repair issues will be given the appropriate number(s) provided by the CLEC for calls misdirected to BellSouth.

The name of this form is Telephone Number for Misdirected CLEC Calls – CLEC Contact Number. This form can be found in **Appendix B** of this guide.

CLECs may use the following number to refer BellSouth end-users that dial a CLEC in error to BellSouth for assistance: 800-282-9973.

5.2.1.4 CLEC CNA Code

Providing a contact number for Customer Name and Address (CNA) information is done pursuant to a reciprocal agreement between BellSouth and the CLEC. BellSouth will provide CNA information to aid CLECs in the investigation of toll calls placed by CLEC end-users to

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BellSouth users. An investigation is necessary when toll charges are denied or questioned by the end-user. The CLEC is assigned a unique access code when the Master Account Application is processed.

A sample letter referencing Toll Call Investigations is located in **Appendix B** of this guide.

5.2.1.5 PIC/LPIC Form

The Primary Interexchange Carrier/IntraLATA Primary Interexchange Carrier (PIC/LPIC) Change Notification is a report provided to Resellers when the end-user's PIC/LPIC of record changes. This report will provide the CLEC with an up-to-date record of the end-user's account for subsequent order activity and accurate records for trouble reporting.

The CLEC only receives notification of PIC/LPIC changes for service requests processed mechanically through the Equal Access Service Center (EASC). Service orders issued in the LCSC at the request of the CLEC will not be included in the report.

To receive the report, the CLEC must complete the PIC/LPIC Change Notification Form and forward it to the Equal Access Service Center at the address provided below.

Manager - Equal Access Service Center
BellSouth Interconnection Services
600 19th Street North
Floor 15
Birmingham, AL 35203

State	Equal Access Service Center
Georgia, Florida, North Carolina, South Carolina	780-2778 *
Alabama, Mississippi, Louisiana, Tennessee, Kentucky	557-6001 *
All other states	800-456-9127

*Dial local area code in areas where 10-digit dialing is required.

Notification to the Reseller is mechanically generated after the service request has been completed.

The form required is the PIC/LPIC Change Notification Report, which is located in **Appendix B** of this guide.

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5.2.1.6 ACNA and CIC

NOTE: This section is only applicable to Facility-based Carriers.

Facility-based CLECs must have an *Access Customer Name Abbreviation (ACNA)* and a *Carrier Identification Code (CIC)* to place orders for Access Service.

ACNA – To order Special or Switched Access from BellSouth, the CLEC must have an Access Customer Name Abbreviation (ACNA). To obtain an ACNA, the CLEC must:

1. Write a letter requesting an ACNA on company letterhead.
2. Provide a legal document which identifies the company.
3. Submit the completed information by fax to:

BellSouth Telecommunications - Interconnection Services
Fax: 770-592-3453

CIC – To order Local Access Trunks from BellSouth, the CLEC must also have a Carrier Identification Code (CIC) in addition to the Access Customer Name Abbreviation (ACNA). To obtain a CIC, the CLEC must:

1. Write a letter requesting an ACNA on company letterhead
2. Complete the appropriate CIC application form
3. Local Exchange Carriers must submit a copy of their state certification granting Local Exchange Carrier Status
4. Submit the completed information by fax to:

BellSouth Telecommunications - Interconnection Services
Fax: 770-592-3453

5.2.1.7 Disposition of LIDB Contract Negotiations

Line Information DataBase (LIDB) is a database system designed to provide validation of calling card and other billing information. The purpose of providing LIDB access service is to provide screening validation on operator assisted calls on billing number records for CLECs with a [illegible] LIDB Storage Agreement. The CLEC will provide its billing number records inform[illegible] BellSouth's LIDB for the initial loading and daily updates each business day by a method agreed upon by both companies. The CLEC will arrange and pay for transportation of its updates to the LIDB database. The CLEC must advise BellSouth of its decision to

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participate in LIDB storage. Contact your BellSouth Account Team for additional information concerning a LIDB storage agreement.

5.2.1.8 Tariffs

Copies of tariffs may be purchased through outside Tariff Advisory Services. Listed below are the tariff advisories currently contracting with BellSouth.

Connie Wightman
Technologies Management, Inc.
PO Drawer 200, or
163 E. Morse Boulevard, Suite 300
Winter Park, FL 32780-0200
Telephone: (407) 740-8575

Maureen Osorno
Product Manager Tariff Services
Room 2B41
100 South Jefferson Road
Whippany, NJ 07981

Misty Mason
Valucom, Inc.
415 Church Street, NE, Suite 204
Vienna, VA 22180
Telephone: (703) 255-0700

Janice Fromer
Tele-Tech Services
P.O. Box 757
McAfee, NH 07428
Telephone: (201) 827-4421

Brian Lem
CCMI/UGG
11300 Rockville Pike
Suite 1100
Rockville, MD 20852-3030
Telephone: (301) 816-8950

Public Reference Room In the FCC
Room 514
1119 M. Street, NW
Washington, DC 20554

Ken Shafer
Communications Image
Technologies, Inc.
2222 Gallows Road, Suite 160
Dunn Loring, VA 22027
Telephone: (703) 698-7050

International Transcription Service (ITS)
Room 14021, M Street, NW
Washington, DC 20037
Telephone: (202) 857-3800

William Goddard
Telecommunications Information Services
280 North Providence Road
Media, PA 19063
Telephone: (215) 891-6857

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5.2.1.9 Contract

A Resale Agreement between the CLEC & BellSouth is required before a CLEC places service order requests at the applicable state discount in those states that do not provide this service via a tariff. In the event the Reseller does not have an agreement and desires services at resale, BellSouth must have a copy of the reseller's certificate with the Master Account Application prior to order processing.

5.2.1.10 Bona Fide Request Process

5.2.1.10.1 Request For Unbundled Capabilities

The Bona Fide Request (BFR) Process has been developed to evaluate the availability and feasibility of all CLEC requests for unbundled services or capabilities not currently addressed in agreements. The BFR Process ensures that all requests for new services are answered in a timely and efficient manner and in compliance with applicable regulatory requirements.

If you would like to submit a Nondisclosure Agreement in association with your request, please request a BellSouth prepared non-disclosure agreement from the assigned Account Team. You should then complete and attach the agreement to your request. If you have questions or concerns regarding any of the information being requested, please contact the assigned Account Team representative.

The completed Request for Unbundled Capabilities form, located in **Appendix B** of this guide, should be returned to your assigned Account Team Representative.

5.2.1.11 Annoyance Call Center

When an end-user receives threatening, abusive, or false report calls, that person should be referred to the BellSouth Annoyance Call Center (ACC) after the end-user has made a report to the appropriate local law enforcement agency. Examples of these types of calls are:

- Threatening Calls - Calls where there is a threat or intent that is harmful to a life or property (e.g., bomb threat)
- Abusive Calls - Calls that are intended to annoy or embarrass by using obscene or harassing language; harassing by hanging up, heavy breathing or dead silence; repeated calls on answering machines, voice mail or other lines in the home.
- False Report Calls - When a caller represents himself or herself as a law enforcement officer, hospital staff, or a school official and states that a child or spouse has been injured or killed in an accident.

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BellSouth will cooperate fully with Resellers in the disposition of annoyance calls received by the Reseller's end-users. Because of the nature of the work, the Annoyance Call Center will need to work directly with the Reseller end-user to resolve any problems.

BellSouth will expect Resellers to take appropriate corrective action with their end-users in those cases where the annoyance call is initiated by the Reseller's end-user. Failure of the Reseller's end-user to cease annoyance or harassing calls will result in the disconnection of the end-user's service.

The Annoyance Call Center does not handle referrals concerning misdirected, debt collection, or solicitation calls.

State	Annoyance Call Center
Alabama, Kentucky, Louisiana, Mississippi, Tennessee	557-6222 * Central Time: 8:00 AM - 4:30 PM, Monday - Friday
Florida, Georgia, North Carolina, South Carolina	780-2969 * Eastern Time: 9:00 AM - 5:30 PM, Monday - Friday
All other states	205-328-9262 (Collect) Eastern Time: 9:00 AM - 5:30 PM Monday - Friday

* Dial local area code in areas where 10-digit dialing is required.

5.2.1.12 Access to Poles, Conduits, and Rights-of-Way

Under the provisions of the Telecommunications Act of 1996, Section 224 (47 U.S. C. 224), BellSouth will grant to competing telecommunications service providers the authority to attach facilities to BellSouth owned or controlled poles or to place facilities within BellSouth owned or controlled conduits, ducts or rights-of-way. BellSouth will provide the requesting CLEC with equal and nondiscriminatory access to pole space, conduits, ducts, and right-of-way on terms and conditions equal to those provided by BellSouth to itself or to any other telecommunications service provider. Authority will be granted by individual licenses under terms specified in the "BellSouth Poles, Conduits and Rights of Way License" agreement.

The Telecommunications Act of 1996 allows parties to negotiate rates, terms, and conditions different from those that might have been negotiated with other entities. BellSouth offers a Generic Structures Access agreement, but CLECs are free to propose other terms. All CLEC Structures Access license agreements must be negotiated through the Competitive Structures Provisioning Center (CSPC).

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For information regarding negotiations or for copies of "Inquiry and License Application" documents contact:

Competitive Structures Provisioning Center
North W3D2
3535 Colonnade Parkway
Birmingham, AL 35243
Fax (205) 977-7997

Staff Contacts:

Bob Thomas, Manager
(205) 977-2682

John Chaucer, Specialist
(205) 977–2631

Steven Chancellor, Specialist
(205) 977–1862

5.2.1.13 End-users with Disabilities

BellSouth offers local Directory Assistance at no charge on calls from an approved telephone line for end-users with disabilities. End-users who are legally blind or are visually or physically disabled may apply for the exemption. The application for Directory Assistance exemption automatically expires in two (2) years for a residential line and in one (1) year for a business line. For the end-user's exemption to continue uninterrupted, a renewal request must be received in the Telecommunications Center for Customers with Disabilities (TCCD) prior to the expiration date. A copy of this application is located in **Appendix B** of this guide.

BellSouth also offers reduced long distance rates for calls from an approved telephone line for end-users with disabilities. End-users with an Impairment of Hearing or an Impairment of Speech condition may apply for the reduction. A copy of this application is located in **Appendix B** of this guide. The end-user must contact his/her long distance carrier, if other than BellSouth, for information concerning reduced rates for its service.

When a CLEC end-user wishes to apply for the local Directory Assistance exemption or the BellSouth reduced long distance rates, the CLEC should provide the end-user with the appropriate application. If an end-user already has a disability exemption for local directory assistance or for reduced long distance rate and switches to another local service provider, a new application must be completed. The CLEC is responsible for maintaining the end-user's application in its files.

The end-user should return the application to the CLEC. After review by the CLEC to insure the application is complete, the application, along with proof of the disability, must be mailed to the BellSouth TCCD. The TCCD does not accept Local Service Requests. Only applications for end-user disability exemptions, special equipment inquiries, and orders after local service is established are accepted.

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The completed application(s) and appropriate documentation from the end-user, should be mailed to:

Telecommunications Center for Customers with Disabilities
BellSouth - Room 205N
3196 Highway 280 South
Birmingham, Alabama 35243

No credit for calls or charges prior to receipt and processing of the application (including calls or charges not yet billed) will be given.

CLECs may call the following voice-only numbers with questions about the local directory assistance exemption application and other special services and equipment available for use by the CLEC or CLEC end-users with disabilities. CLEC end-users should NOT be referred to these numbers.

State	TCCD
Alabama, Kentucky, Louisiana, Mississippi, Tennessee	557-6253 *
Florida – Outside Miami Area, North Carolina, South Carolina, Georgia – Outside Atlanta Area	780-2273 *
Georgia Inside Metro – Atlanta Area	404-780-2273
Florida Inside Metro – Miami Area	305-780-2273
Non-BellSouth territory or Outside BellSouth Region	800-982-2891

* Dial local area code in areas where 10-digit dialing is required.

5.2.1.13.1 Application for BellSouth Directory Assistance Exemption

Persons whose disability prevents their use of directories will not be charged for BellSouth Directory Assistance calls billed to their approved telephone number line. All BellSouth Directory Assistance calls charged to the approved telephone number line will be automatically exempted (deleted) from the bill. The number of allowable free Directory Assistance calls may vary by state. This exemption may be removed if abuse of this exemption is confirmed by investigation.

Persons with the following disabilities may qualify for BellSouth Directory Assistance Exemptions:

- **Legally Blind** - Those whose visual acuity is 20/200 or less in the better eye with correcting glasses, or whose widest diameter of visual field subtends an angular distance no greater than 20 degrees.

- **Visual Disabled** - Those whose visual disability, with correction and regardless of optical measurement with respect to "Legal Blindness" are certified as unable to read normal printed material. (This includes telephone book size characters.)
- **Physically Disabled** - Those who are certified by competent authority as unable to read or use ordinary printed materials as a result of physical limitations.

  Examples of physical disability cited are: loss of hands, or use or control of hands; constant severe tremor, spasticity or paralysis; noncorrectable double or triple vision; incapacitating confinement as in iron lung; severely debilitating conditions such as found in advanced stages of certain diseases.

The Federal Register (Vol. 35, No. 126, Tuesday, June 30, 1970) is the reference source for these definitions.

If the end-user needs an exemption for business use or employment, he/she must complete an application for that request also.

This application for BellSouth Directory Assistance Exemption is for 2 years for a residence and for one year for a business. At the end of that period, a renewal application will be requested which will not require recertification. For information about free Directory Assistance for long distance numbers, the end-user should call his/her long distance company.

A letter from the end-user's physician, clinic or appropriate group/agency verifying the disability, on the official letterhead of the physician, should be attached to the application. The telecommunications company will not be responsible for any charges incurred to obtain certification. This application can be located in **Appendix B** of this guide.

5.2.1.13.2 Application for Reduction in BellSouth Long Distance Charges

Persons whose hearing or speech impairment requires their use of a teletypewriter or telecommunications device for the deaf for telephone communications are eligible for reduced long distance rates.

Those qualifying for reduction are: a) persons with hearing impairment as defined in the *Standards and Definitions of Impairment* section of this guide; or b) persons with severe speech impairment as defined in the *Standards and Definitions of Impairment* section of this guide. Reductions will be provided where the telephone is in the disabled person's name or in the name of a member of his or her household.

Reduced rates may apply for long distance direct station-to-station (DDD) day or evening calls originated from a designated residence telephone associated with a Portable Communications Terminal or TDD/TTY. The reductions are as follows:

- a DDD call made in the day rate period will be billed at the evening DDD rate
- a DDD call made in the evening rate period will be billed at the night DDD rate

Please print clearly or type the application found in **Appendix B** of this guide according to the following instructions.

- Provide name and address of person applying for reduction
- Fill in the name and address of the customer to whom the telephone is billed.
- Fill in the 10-digit telephone number.
- Provide the manufacturer's name, model number and serial number of the TDD/TTY device. The manufacturer's name should be on the face of the TDD/TTY equipment, the model and serial numbers generally are on the back. Check with the supplier if unable to locate these numbers.
- After completing sections a, b, c and d on the form, please provide acceptable certification in item 7. This certification must be one of the following:
  - Signature of a physician, otolaryngologist, or licensed speech-language pathologist or audiologist, or of the authorized representative of a social agency that conducts programs for the hearing or speech impaired in cooperation with an official state agency.
  - As an alternative, submit a previous certification establishing the impairment of hearing or speech, such as those which qualify for social security benefits on the basis of total hearing impairment or for use of facilities of an agency for the hearing or speech impaired.

5.2.1.13.3 Standards and Definitions of Impairment

5.2.1.13.3.1 Impairment of Hearing

The American Academy of Otolaryngology (A.A.O.) has developed the following procedure for measuring and calculating the percentage impairment of hearing.

1. Using an audiometer that is calibrated according to American National Standard Specifications for Audiometer, S3.6–1969, readings are made on the "hearing threshold level dial" to determine the hearing level for pure tones of the frequencies of 500, 1000, 2000 and 3,000 Hz.
2. These readings show the number of decibels (dB) that the listener's threshold of hearing lies above the standard audiometric zero for each frequency.

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3. The hearing level for speech is the average of the audio-metric measurements made at the four frequencies, computed separately for each ear.
4. Under the criteria used by the A.A.O., 60 percent impairment is reached when the average hearing level for pure tones in the better ear is 65 dB.
5. Where the average level is higher than 65 dB, the hearing impairment exceeds 60 percent.

In addition, certain individuals may have less than 60 percent impairment for pure tones, but have poor speech discrimination. Written confirmation from an audiologist or an otolaryngologist certifying that an individual's speech discrimination precludes normal use of the telephone will also be accepted as qualification for discounts.

5.2.1.13.3.2 Impairment of Speech

The American Medical Association's Committee on Rating of Mental and Physical Impairment recommends the following procedure for evaluating speech impairment*:

Judgments of speech impairment should be based on direct observation of the person's speech and on reports of the person's performance in situations of everyday living. Following is a summary of the recommended standardized procedure for evaluation:

1. Place the person approximately eight feet from the examiner in a "reasonably quiet" environment.
2. Interview the person to permit observation of speech in ordinary conversation.
3. Observe the person's speech in reading aloud a simple prose paragraph.
4. The examiner should record his or her judgment of the person's speech capacity in the three categories with reference to the following classifications (65 to 85 percent of impairment, according to the AMA Committee's guidelines):
   - Audibility - Can produce speech of intensity sufficient for a few of the needs of everyday speech communications; can barely be heard by a close listener . . . able to whisper audibly, but has no voice.
   - Intelligibility - Can perform a few of the necessary articulatory acts for everyday speech communications; can produce some phonetic units...however, unintelligible out of context.
   - Functional Efficiency - Can meet a few of the demands of articulation and phonation for everyday speech communication . . . such as single words or short phrases . . . speech is labored; rate is impractically slow.

The degree of impairment of speech function is equivalent to the greatest percentage of impairment as recorded for any one of the three categories.

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* See *Guides to the Evaluation of Permanent Impairment*, 109-111, American Medical Association,1971.

5.2.2 CLEC End-user Support

CLECs must establish Customer Service functions to initiate service orders for their customers. CLECs must maintain all end-user records since BellSouth does not manage this.

5.2.2.1 CLEC End-user Billing

The CLEC must establish its own independent billing method and system for billing its end-users. BellSouth establishes a "Q" account from the completed Master Account Application for billing the CLEC for any services the CLEC orders for its end-users. After completing all pre-ordering requirements, the CLEC should work with the assigned Account Team representative to determine a billing option. Please see the *Billing Process* section of this guide for more information.

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6.0 Local Interconnection Services for Facility-based Carriers

This section provides information on local interconnection services that is specific to Facility-based CLECs.

6.1 Local Trunking Arrangements

This section assumes that the CLEC has already completed the joint facility planning process with BellSouth (BST) to determine specific network design and trunking requirements.

6.1.1 Description

CLECs will submit requests to BST for Local/Toll (LT) trunk groups required to complete calls to BST end-users and the Transient (TS) trunk groups required for traffic through the BST Network to and from other carriers.

- The LT trunk groups are utilized to complete local and IntraLATA toll traffic to BST.
- The TS trunk groups are usually two-way trunk groups which are utilized to originate and receive InterLATA, IntraLATA toll and local traffic which transits the BST Network to and from connecting carriers (e.g., Interexchange Carriers, Independent Telephone Companies and other CLECs).

6.1.2 Application

The CLEC will submit Access Service Requests (ASRs) for the installation or other activities for trunk groups with the following Traffic Types:

- Local/IntraLATA Toll Group
- ASR Traffic Type (TRF TYP) = LT

The LT trunk group is usually a one-way terminating group from the CLEC's switch to a BST tandem or end office. The group will be used to terminate local or IntraLATA toll traffic from a CLEC's switch to a BST end office. The IntraLATA local/toll trunk groups allow a CLEC's end-user to dial and make contact with a BST end-user, or Wireless Service Provider.

- Transiting Group (BellSouth is Intermediary)
- ASR Traffic Type (TRF TYP) = TS

The transiting (TS) trunks are two-way trunk groups ordered from the CLEC's switch to an access tandem for the purpose of originating and/or terminating traffic to an:

- Interexchange Carrier
- Independent Company
- Alternate CLEC

Any question regarding other Trunking arrangements should be referred to the assigned Account Team representative.

- E911 Trunks:

The CLEC may order these trunks from its switch to an E911 access tandem for the purpose of terminating emergency traffic from the CLEC's switch to the E911 tandem. These trunk groups are one-way trunk groups.

- Direct Inward Dial (DID) Trunks:

Direct Inward Dial trunk groups are direct end office only Common Channel Signaling Access Capability (CCSAC) groups used for Service Provider Number Portability (SPNP). The former BST seven-digit telephone number is delivered to the CLEC, who in turn converts these digits to the new telephone number for the end-user.

- CHOKE Trunks:

A terminating trunk group used for the purpose of Choking locally defined CHOKE codes. Example: Phone numbers with Choke NXXs used to route traffic destined for local Choke codes; NXXs used by radio stations to control mass calling

6.1.3 Reciprocal Compensation

Reciprocal compensation for Local Interconnection arrangements will be handled via contractual arrangements with each individual CLEC or through a Local Interconnection tariff, if applicable.

6.1.4 Record Exchange

Record exchanges for the purpose of billing to third parties are available per standard industry formats and agreements.

6.1.5 Access Order Requirements

ASRs will be the documents used by the CLECs when requesting facility-based services. The ASR will contain ordering, billing and provisioning information specific to the types of services ordered. For more information on completing an ASR, the CLEC should visit the ATIS Web site at: http://www.atis.org/atis/clc/obf/obfdocs.htm

6.1.6 ASR Page/Screen

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(1) PLU: Interstate IntraLATA Usage Percentage – This factor represents the percent local usage (PLU). The PLU will represent the percent of intrastate usage that is local usage. This factor must be provided when service is ordered. The factor will be entered in the PLU field of the ASR. Any future changes to the initial factor will be reported via a quarterly jurisdictional report.

The quarterly report on a CLEC's BellSouth specific PLU must be sent to the Interexchange Carrier Service Center at:

600 North 19th Street
Room 12C3
Birmingham, AL 35203

After the initial report, CLEC PLU reports are due the first of January, April, July, and October of each year to be received by BellSouth no later than 30 days after the first of each such month. If a request for service is received prior to the PLU report, the PLU populated on the first Access Service Request will be used in lieu of an official report PLU. Once the official report is received, the records will be updated to reflect the new PLU. Please note that the PLU cannot be "0" if you have local service. The TPIU cannot be "100" if a PLU is reported. Following are the steps that should be taken in order to obtain the PLU:

STEP	ACTION
1	Identify intrastate MOUs from the CLEC that terminate to BellSouth end offices
2	Eliminate any terminating party pay traffic, e.g., 800 traffic
3	Identify local usage terminating to BellSouth end offices
4	Eliminate any local terminating party pay traffic
5	Divide the result of step 4 by the result of step 2 to obtain the PLU.

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Example:

STEP	ACTION
1	11,250,000 (total traffic terminating to BST) - 600,000 (interstate traffic terminating to BST) = 10,650,000 (total intrastate traffic terminating to BST)
2	10,650,000 (intrastate traffic terminating to BST) - 65,000 (intrastate terminating party pays traffic = 10,585,000
3	10,000,000 (Total local terminating traffic) - 0 (Total local terminating party pays traffic) = 10,000,000
4	10,000,000 (local terminating traffic) divided by 10,585,000 (local + intrastate-intrastate terminating party pays) = 94.47%
5	Round 94.47 to nearest whole number. PLU equals 94%

(2) REQTYP: Requisition Type - Enter MD

(3) TQ: Translation Questionnaire

- Enter "DY" for Trunk Installations
- Enter "DX" for Switch Translations Only

Attach a copy of the completed TQ for switch and trunk translations.

Translation Items Expected or Required in EXACT

(4) UNIT: "C" = Number of Trunks ordered

(5) LTP: Local Transport - Enter the applicable transport/trunk code

(6) BAN: "N" = New Billing Account Number Requested

(7) ACTL: Access Customer Terminal Location - Enter the 11-character Common Language Location Identification (CLLI) code of the point of interface

(8) NC: Refer to Bellcore BR 795-403-100 *Common Language Network Channel Interface Guide* for Service Code Definitions.

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Select one of the following:

TRFTYP = LT	TRFTYP = TS	
CHOKE Group	**E911 Group**	**DID Group**
SH-D	SBUC *	SDSA *
SHSA*	SDUC *	SBSA *
SHSC *		SDSC *

* When SS7 Trunks are ordered, enter the Link Signaling Transport (STP) CLLI in Remarks and the STP Point Code in CSPC.

(9) **NCI**: Network Channel Interface Code (Digital or Analog Code)
- If Digital, New or Existing, Facility ID (CFA) must also be entered

(10) **TTT**: Transport Trunk Termination Code
- LT TTT = 2 or 3
- TS TTT = 1, (1 & 2) or 3
- DID TTT = 1
- CHOKE TTT = 2
- E911 TTT = 2

(11) **TRFTYP**: Traffic Type
- ATC = LT
- CMC = TS
- DID = PN
- CHOKE = CH
- E911 = E9

(12) **SECLOC**: Eleven-character CLLI Code of one of the following:
- ATC = LT
- CMC = TS
- E911 = E911 Tandem
- DID = End Office
- CHOKE = Access Tandem

6.1.7 Intervals

Intervals must be negotiated. Intervals for the initial start of service or for the establishment of new trunk groups are typically in the range of 2-6 weeks. Intervals for the addition of trunks to an existing trunk group are typically in the range of 1-2 weeks. The committed due dates will be dependent upon the quantity and type of trunks, equipment/facility availability, workload, etc.

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The committed due date will be returned on the Firm Order Confirmation (FOC). The interval guides can be found on the Web at:
http://www.interconnection.bellsouth.com/guides/guides.html

6.1.8 Service Specific Billing

Refer to contracts and Section E6 of the state access tariff for specific rates associated with the billing of applicable rate elements such as:

- Local Channel
- Switched Transport
- Tandem Switching
- Local Switching
- Interconnection
- Carrier Common Line

6.2 Calling Name Query Service

6.2.1 Service Description

6.2.1.1 Basic Service Description

This service provides a method for companies selling Calling Name Delivery (using the technology defined in Bellcore Technical Reference 1188) to query, in response to an incoming call to a CNAM customer, the names of BellSouth customers. Also included is the ability to query, in response to an incoming call to a CNAM customer, for all other names stored in the BellSouth Calling Name Database under contracts BellSouth may have with other companies that store their names in the BellSouth CNAM database. This service requires the purchasing company to allow access to the names that are stored in its database by all other companies that contract with BellSouth for the BellSouth Calling Name Query Service (non-database owner version). Responses to queries will be returned by BST using TR 1188 standards.

6.2.1.2 Basic Service Capabilities And Restrictions

Included as part of this service are the following items: STP translations required to route queries to the appropriate database (either as intermediate Global Translations alone or a combination of intermediate and final Global Translations); lookup of a TR 1188 formatted calling party name (15-character maximum) from the BST CNAM Database; formatting of a TR 1188 response message containing the necessary routing information and the appropriate response from the BST CNAM Database; STP translations required to route the response message to the querying end office. Access to BST names must be on a reciprocal basis (i.e., in order for a CLEC to access the BST names, BST must be able to access the CLEC names).

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6.2.1.3 How Does This Service Work

The CLEC must have a Calling Name Database and an SS7 network capable of sending and receiving CNAM query/response SS7 messages in the TR1188 TCAP format. Queries are launched into the BST SS7 Network via SS7 links. (SS7 links are purchased through the SS7 Interconnection Tariffs.) Responses are returned via SS7 links. All CNAM queries and responses must be in the TR1188 format for both BST and the interconnecting CLEC. BST will provide access to all names stored within its CNAM Database and the CLEC must allow access to all names provided within its CNAM database.

6.2.1.4 Feature Interaction

All feature interactions are at switch level and are controlled by the CLEC switch.

6.2.2 Installation Intervals

Normal installation intervals do not apply and project coordination is required.

6.2.3 Service Inquiry & Ordering Guidelines

6.2.3.1 Information Required

NPA/NXXs included in CLEC database, point codes for all involved offices, requested service and test dates, single point of contact, LATAs included in service area, signaling point CLLIs, point(s) of interconnection (SS7) into the BST SS7 Network, and point codes of all CLEC connecting STPs and SCPs are required.

6.2.3.2 Source Of Information

The required information is furnished by the CLEC.

6.2.3.3 Forms

Please see the assigned Account Team representative for the applicable forms.

6.2.4 Customer Education

There is no customer education available or necessary for this service.

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6.3 800 Access 10-Digit Screening

6.3.1 Description

800 Access 10-Digit Screening (ATDS) service provides the information necessary for routing 800 originating calls based on the dialed 10-digit 800 number except for 800 calls to Canada, Bermuda, and the Bahamas. Routing for 800 calls to these areas will be based on the first 6 digits of the dialed 800 number.

6.3.2 Application

The routing information is retrieved through queries to the Service Control Point (SCP). CLECs with Signal Transfer Points (STPs) may access BellSouth's Regional STP for the launching of queries to BellSouth's Service Control. CLECs without STPs or without third party STPs, must send the calls to BellSouth's Access Tandem for call completion.

6.3.3 Access Order Requirements

CLECs with their own STP or utilizing a third party STP must order SS7 links and ports to connect directly to BellSouth's Regional STP for SCP database query information.

6.3.3.1 ASR Page Screen

In addition to the ASR requirements outlined for CCS/SS7 Signaling Connection (LINKS) (see the assigned Account Team representative), the following requirements apply to the ordering of 800 10-digit Screening:

NOTE: In the "Remarks" field enter "Access to 800 SCP" and the CLLI code of the CLEC Switch (ACSWITCH).

6.3.3.2 Data Base Services Interconnection form (part of the ASR)

1. CSPS: Enter the STP point code(s). If a third-party link (LINK) provider is being used, the STP point code(s) of the link provider will be entered
2. ECCKT: Enter the exchange company's circuit of the links
3. TSC: Enter the TSC associated with the links
4. PSACT: Enter "N" for new
5. CSPC: Enter the switch point code(s)
6. [illegible] TYPE: Enter the office type of the switch originating th[illegible]ry
7. PC TYPE: Enter the type of point code

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6.3.4 Intervals

Intervals must be negotiated. Intervals for ordering access to the 800 SCP are typically 10 business days. If links are also being ordered, the due date will be 10 days following completion of the links. The committed due date will be returned on the FOC.

6.3.5 Service Specific Billing

A per query charge, to be billed to the CLEC, will be applicable for each query launched to the database. The charges are found in Section E6.8.4 of the Access Tariff.

In addition to the query charge, if 800 10-digit screening via connection to the 800 SCP is requested, the following charges will also be applicable:

- NRBFA - Change of service (per request)
- NRBFD - Common block/translations rearrangement (one per STP)

6.4 Unbundled Tandem Switching

6.4.1 Market Service Description

6.4.1.1 Basic Service Features

This functionality allows CLECs who are purchasing Unbundled Network Elements (UNEs) from BST to route calls between BST end offices or between a CLEC switch and BST's end office(s).

6.4.1.2 Basic Service Capabilities

Additionally, this service allows BST to provide an intermediary switching functionality, whereby CLECs can route calls from their networks to the networks of other CLECs, IXCs, ICOs, etc. This is referred to as intermediary transit switching. Calls that originate from a BST end office within a tandem serving area will either be directly routed between end offices or come to the tandem in order to be routed to a terminating location within that same serving area. If the call is brought to the tandem it could be transported to another tandem serving area, or to another network provider (i.e., CLEC, IXC, CMRS, ICO, etc.). A call coming to a tandem from a CLEC switch will be terminated within that tandem's serving area either to a BST end office or to another network provider.

The tandem trunk port is a shared-use facility that provides the CLEC with the capability of terminating trunks into a tandem for the purpose of sending traffic to, and delivering traffic from, other locations outside of the dial-tone providing switch.

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6.4.2 Network Architecture

6.4.2.1 Physical Network Configuration

Switching Requirements

Tandem Switching Functionality (UTS-SF) - Basic Switching and Billing functions will be provided. Generic upgrades will be performed as deemed necessary by BST.

Requests for features that require software and/or hardware not provided to BST will be priced out upon receipt of a BFR.

	1ESS		5ESS		DMS 100 / 200	4ESS
Generic	1AE11	1AE12	5E9	5E10	NA004	
Trunk Port						
2 Wire						
4 Wire						

Signaling

SS7 or Multi-frequency (MF) will be provided.

Recording

- Line side local/toll 100% measured service recording
- All other applicable industry AMA standards will be recorded by BST

Transport/Interconnection

Calls originating from tandem trunk ports will be transported via the BellSouth Public Switched Network (BPSN) or via trunk connections provided by other network providers interconnecting with the BellSouth Access Tandem.

CLECs will have the option of interconnecting at either the Access Tandem or Local Tandem. In areas where multiple local tandems exist, CLECs may elect to connect to one or more tandems as traffic dictates.

CLECs must interconnect to one access tandem in a local calling area for connection to Interexchange Carriers and IntraLATA toll.

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If a CLEC insists on a single interconnection point within a LATA, the connection point would be at an access tandem and connectivity to cross-boundary switches would not be possible.

Figure 1 depicts Network Elements Unbundled Tandem Switching.

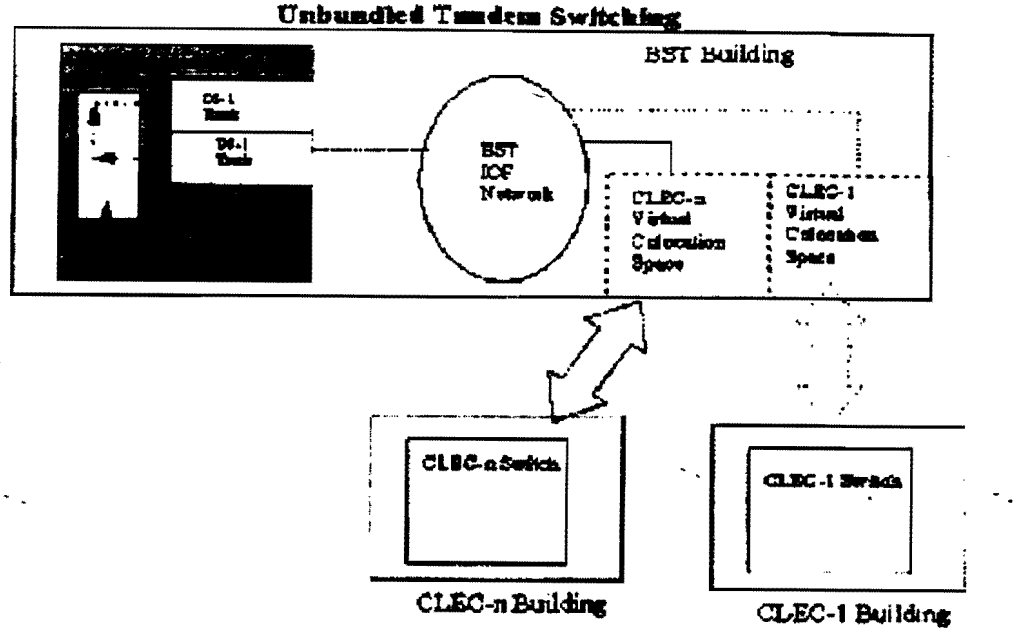

Figure 1 Network Elements Unbundled Tandem Switching

6.5 Unbundled Interoffice Transport (UIT-D)

6.5.1 Market Service Description

6.5.1.1 Basic Service Features

Dedicated Transport is defined as BellSouth transmission facilities dedicated to a particular customer or carrier that provide telecommunications between wire centers owned by BellSouth or requesting telecommunications carriers, or between switches owned by BellSouth or requesting telecommunications carriers.

These facilities can be used for Local Interconnection within a LATA, that is, from a CLEC's POP location to an interconnection point at a BellSouth switch location. These facilities can also be used to build a CLEC's network within a LATA. These facilities may be configured in various transmission configurations, may or may not include multiplexing functionality, and will provide the same transport capacities that exist in Section 7 of the FCC tariff (i.e., DS0, DS1,

DS3, etc.). The basic rate structure of this UNE will also be consistent with the existing interoffice transport elements in BellSouth's FCC tariff.

6.5.1.2 Basic Service Capabilities And Restrictions

CLECs can utilize UIT-D to transport their exchange and exchange access as well as transit traffic. Interoffice Transport has two architectures: Local Channel and Interoffice Channel, either can be channelized with a mulitplexer. A Local Channel is the transport between the CLEC's POP and the POP servicing wire center collocation. The Interoffice Channel is the transport between the BellSouth wire centers collocations. If the CLEC's POP is in a BellSouth collocation site, then usually only the Interoffice Channel is used. The interoffice mileage will be computed based on the airline mileage between the BellSouth Central Offices regardless of how UIT-D is actually routed. Multiplexing functionality is offered as a part of a channelized facility over which lower level facilities may ride. Multiplexing functionality will also be offered as a stand-alone service. All UNE transports are terminated into the CLEC's collocation site and are accessible through collocation cross-connections. Figure 2 depicts UIT-D.

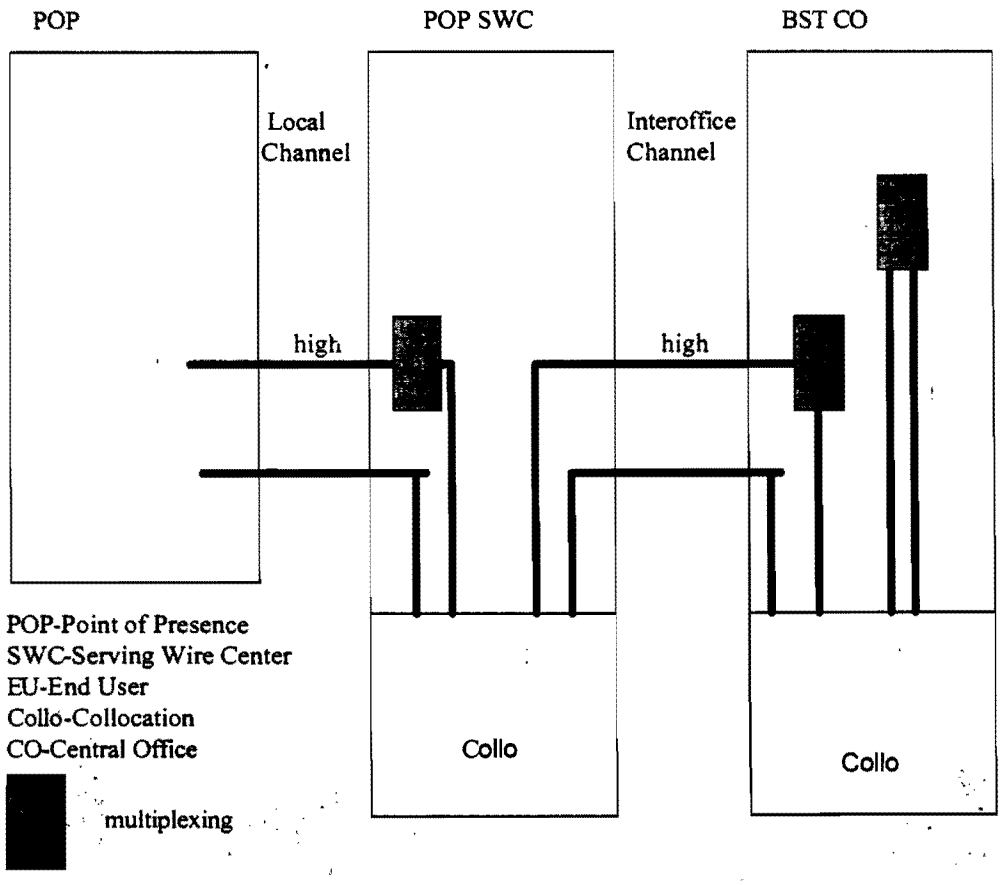

Figure 2 UIT-D

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6.5.1.3 How Does This Service Work?

UIT-D can be ordered at various transmission speeds (DS0, DS1, DS3, etc.) in order to allow the CLEC to utilize BellSouth interoffice facilities to complete a telecommunications service that it is providing for its end-user. If multiplexing is used, the higher capacity facility with multiplexing should be ordered before the lower capacity facilities.

General Description of Performance Standards/Reliability

- Service Performance Objectives: This UNE will be designed to meet the transmission standards in BellSouth's technical publications at parity with those facilities used for Special Access.
- Diversity Requirements: No requirements for UNEs, but some level of diversity may exist in BST network (embedded and forward looking).
- Performance Monitoring: No specific requirement, however, network element may be monitored as part of BST network infrastructure.
- Special Considerations: None.

Deployment Schedule

- Ubiquitous deployment assuming current Central Office capabilities
- Additional transport capacities development may be requested based on the Bona Fide Request (BFR) process. Special construction may apply as appropriate.

6.5.1.4 Feature Interaction

Since UIT-D is strictly an interoffice transport service, it is the responsibility of the CLEC to ensure that other UNEs purchased from BellSouth and/or portions that it provides itself are compatible with the UIT-D element options that it is ordering. This would include such options as DS1 framing and formatting (e.g., ESF/B8ZS).

6.5.2 Service Inquiry & Ordering Guidelines

A Complex Service Provisioning System (CSPS) Service Inquiry will be required for UIT-D DS3 and above level service requests and for DS1 level service requests associated with Unbundled Channelization (UC).

All CLEC requests for UIT-D, except those combined with an Unbundled Local Switching (ULS) port, should be sent to the LCSC via an LSR with UNE** (where ** is a number representing a particular UNE to collocation arrangement or UNE combination). These requests will have the same field requirements as Special Access services, e.g. NC, NCI, SECNCI, ACTL, SECLOC, ACNA, etc. The LCSC will then issue a Service Order for either a CLS or CLF circuit to Carrier Access Billing System (CABS).

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It is a requirement for all UNE-related LSRs to have the three characters "UNE" in the first three positions of the Project Field. If required, other Project Field information should then be entered in the other character positions.

All CLEC requests for UIT-D combined with an Unbundled Local Switching (ULS) port, should be sent to the LCSC via an LSR. The LCSC will then issue a Service Order for a Foreign Exchange type service (Telephone # Format) to the Customer Records Information System (CRIS).

All CLEC requests for UIT-D to be used for Local Interconnection should be sent to the Interconnection Purchasing Center (IPC) on an ASR.

6.5.2.1 Deployment Schedule

UIT-D is available in all states within BellSouth region.

6.5.3 Customer Education

Customer Education for the ordering of UIT-D is available from the CLEC Account Team upon request.

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6.6 UIT-S

6.6.1 Market Service Description

6.6.1.1 Basic Service Features

Unbundled Interoffice Transport - Shared (UIT-S) provides a transmission path, and its associated electronics, allowing calls to be transported from a BellSouth end office to a BellSouth end office, BellSouth end office to a BellSouth tandem, or BellSouth tandem to a BellSouth tandem. These facilities/trunk groups are shared among all network providers that require calls to be transported between particular switching locations. These facilities/trunk groups may be transported over various transmission configurations (e.g., DS1, OC3) based on total shared network requirements. An example of a typical configuration for this UNE is as follows:

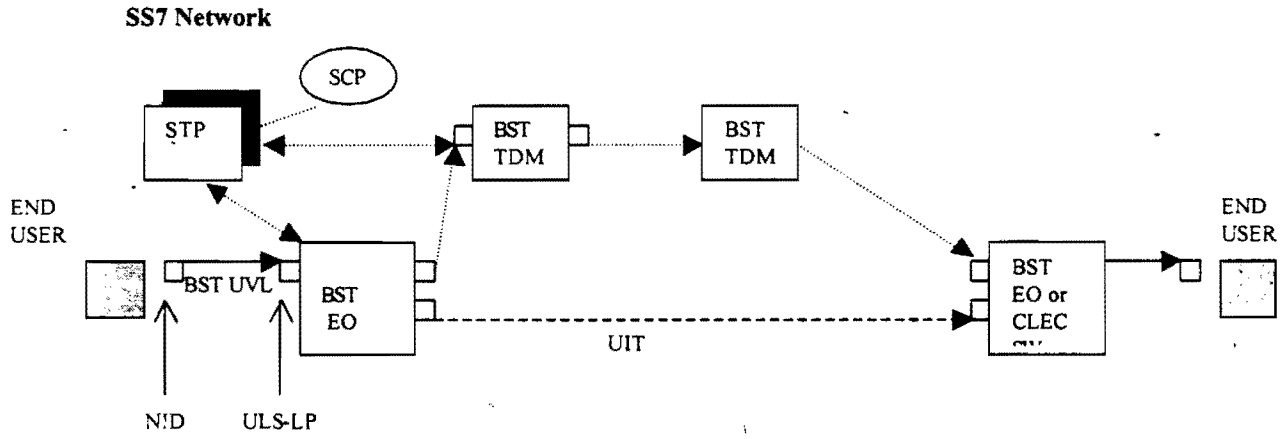

Figure 3 UIT-S Configuration

In the above diagram, Unbundled Interoffice Transport - Shared applies to the transport portion of the service only (i.e., the Tandem Switch and the End Office Switch are excluded from this rate element.) The elements associated with UIT-S include the physical transport facilities (e.g., fiber), any regenerating equipment, and the facility terminating equipment such as fiber-optic terminals and multiplexes.

UIT-S carries the originating traffic of a CLEC end-user (that utilizes BellSouth's Unbundled Local Switching and Unbundled Tandem Switching elements) to another BellSouth end office, to a BellSouth tandem, or between BellSouth tandems. This traffic could be originating local, toll, or access usage.

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6.6.1.2 Basic Service Capabilities And Restrictions

CLECs will utilize UIT-S to originate their local, toll, and access traffic and terminate their toll and access traffic within the BellSouth network. Various call flow diagrams have been developed that provide details of how UIT-S will be utilized. These call flows are found at the end of this UIT-S section.

The SS7 network will be utilized for call setup. This network will establish the physical connections for the call and will also determine when busy conditions exist.

CLECs will be required to interconnect with at least one BellSouth tandem in each LATA. For toll traffic, it is possible that toll tandem-to-toll tandem connections will be utilized.

When CLECs are switchless providers, they will utilize BellSouth UNEs to originate and terminate their calls. In this case, the interoffice mileage will be computed based on the airline mileage between the originating BellSouth End Office and the terminating BellSouth End Office regardless of how the call is actually routed. (NOTE: No distinction will be made in computing the mileage if the Serving Wire Center has its own switch or if the Serving Wire Center is utilizing a remote switch.)

Figure 3 depicts several routing possibilities. As mentioned earlier, it is possible that the call could actually route through two toll tandem offices. It is also possible that the BellSouth Tandem could establish shared direct trunk groups between the originating BellSouth End Office and the terminating BellSouth End Office. A meld of these possible configurations was utilized to determine the cost for this UNE.

6.6.1.3 How Does This Service Work?

UIT-S is not ordered by the CLEC and is only available when used with unbundled local switching. Billing for UIT-S will be done based on minutes of use and mileage. UIT-S provides a transmission path, and its associated electronics, between switching locations. These facilities/trunk groups are shared among network providers. These facilities/trunk groups may be configured in various transmission configurations (DS1, DS3, etc.) based on total shared network requirements between switching locations. Depending on the distance between switching locations and the total service demands required, different combinations of SONET interoffice facilities will be utilized to transport the DS1 facilities carrying these shared trunk groups.

General Description of Performance Standards and Reliability

Trunk Group Service Performance Objectives:

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- Final Trunk Groups between BellSouth Switches carrying Local traffic:
  - The Design Blocking Objective is 1.0% during the Average Time Consistent Busy Hour over a 20-day period. These trunk groups are monitored for blockages on a weekly basis.
  - There are no parity measurements on these trunk groups, since they are shared resources with all of the parties receiving the same level of service. A CLEC call accesses the trunk groups in the same manner as a BellSouth call.

- This UNE will be designed to meet the transmission standards in BellSouth's technical publications similar to those facilities used for Common Transport Trunk Groups.
  - Diversity Requirements: No requirements for UNEs but some level of diversity will exist in BellSouth network (embedded and forward-looking).
  - Performance Monitoring: No specific requirement, however, network element will be monitored as part of BellSouth network infrastructure.

- Special Considerations:
  - None
  - Billing Guarantees do not apply
  - Blocking Performance reports: None

Credit Terms

Since these charges are on a usage sensitive basis, there are no customer commitments for this service. There also are no volume or term options for this service.

Deployment Schedule

There will be widespread deployment assuming current Central Office capabilities.

6.6.1.4 Feature Interaction

Customers purchasing this UNE will also be billed the Unbundled Tandem Switching (UTS) and must have purchased an Unbundled Local Switching (ULS) port.

6.6.2 Installation Intervals

Installation Intervals are not applicable to UIT-S.

6.6.3 Service Inquiry & Ordering Guidelines

Service Inquiry and Ordering Guidelines are not applicable to UIT-S.

6.6.4 Customer Education

Customer Education is available from the CLEC Account Team upon request.

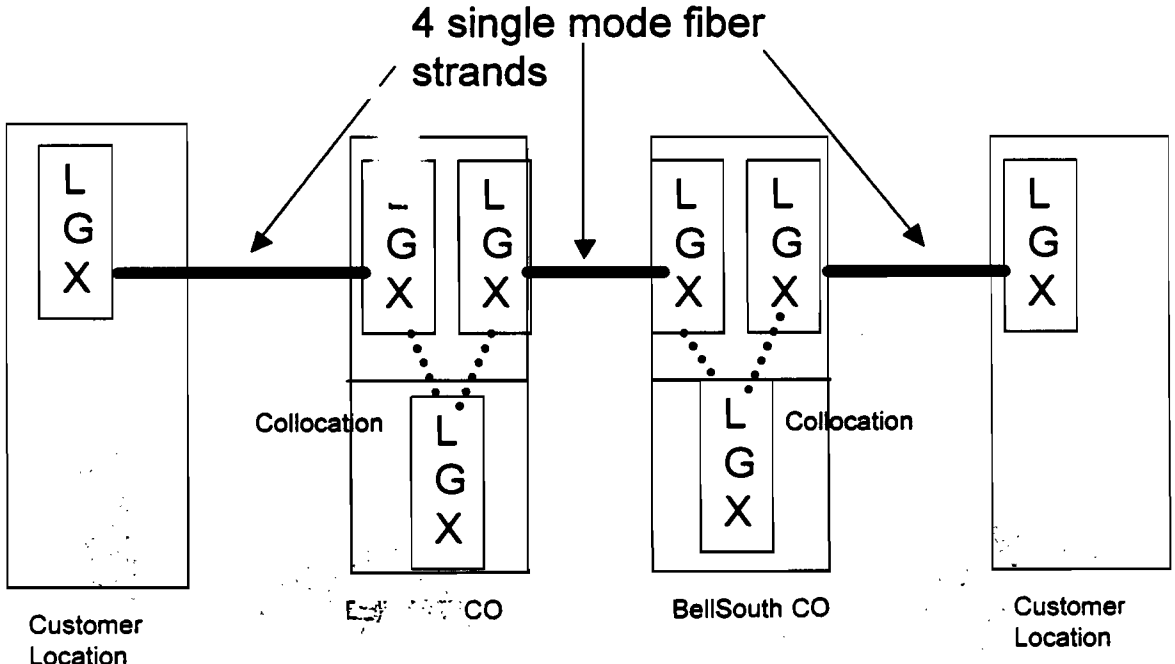
6.7 Unbundled Dark Fiber

6.7.1 Market Service Description

6.7.1.1 Basic Service Features

Unbundled Dark Fiber (UDF) is unused fiber-optic transmission media. It is offered as a point-to-point arrangement between a CLEC designated premise and a BellSouth Wire Center or between BellSouth Wire Centers. This ngement consists of four optical fibers and fiber terminating equipment as shown in Fi 12. UDF is offered without optical signal regeneration to compensate for signal losse.

BellSouth reserves the right to rearrange its network and to modify the manner in which it provides service in order to meet its overall service requirements. This includes, but is not limited to, the right to engineer and construct its fiber-optic facilities in accordance with its normal operations without the requirement to modify its materials, splicing techniques, or planned facility rearrangements to suit a specific CLEC request.



Unbundled Dark Fiber

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Figure 12 UDF Architecture

6.7.1.2 Basic Service Capabilities And Restrictions

BellSouth makes no representations regarding the transmission capability of the facilities. UDF is to be used for exchange and exchange access traffic.

6.7.1.3 How Does This Service Work?

UDF can be ordered by a CLEC to utilize BellSouth fiber-optic facilities to complete a service that it is providing for its end-user or to construct its own network.

General Description of Performance Standards and Reliability

- Service Performance Objectives: There will not be any specified performance objectives for UDF. However, at the request of the CLEC, if made prior to the installation of the facilities, BellSouth will attempt to estimate the transmission loss of the channel at the CLEC's intended transmission wavelength. BellSouth does not warrant that the CLEC's channel will operate at that estimated loss or that the transmission loss will remain constant during the period in which the CLEC obtains the facilities from BellSouth.
- Diversity Requirements: No requirements for UNEs, but some level of diversity will exist in BST's network (embedded and forward looking).
- Performance Monitoring: None.
- Special Considerations: None

Deployment Schedule

UDF will be available, where spare fibers exist, in all states.

6.7.2 Installation Intervals

Installation intervals will be determined on an individual case basis. The targeted Installation is 30 calendar days after receipt of a clean LSR. Repair intervals are the same as the FCC Tariff Dry Fiber Arrangements.

6.7.3 Service Inquiry & Ordering Guidelines

A Service Inquiry will be required for UDF requests in order to determine spare fiber availability and installation interval due to connection requirements.

All CLEC requests for UDF should be sent to the LCSC via an LSR with UNE in the first three characters of the "Project" field and other appropriate information. These requests will have the

same field requirements as Special Access services e.g. NC, NCI, SECNCI, ACTL, SECLOC, ACNA, etc. The LCSC will then issue a Service Order for a CLS circuit to CABS.

UDF Ordering Information:

UNE Description	Class of Service	NC	NCI	SEC NCI Class	USOC
UDF Interoffice	UDF	LX–	02QBF.LLX	02QBF.LLX	1L5DF
UDF Local Channel	UDF	LX	02QBF.LLX	02FCF.X	1L5DC
UDF Local Loop	UDF	LX	02QBF.LLX	2FCF	1L5DL

1. The LSR and the service inquiry will be submitted by the CLEC to the appropriate account team. The account team will forward the service inquiry to the appropriate state OSPE and CCM organizations.
   SPE and CCM will review fiber availability i: requested cross sections. OSPE and M will confer on overall fiber availability if : d. If fiber is not available the SI is ned to the account team who will then forw: response to the CLEC. If fiber is available OSPE and CCM will respond to the Account Team, providing the total fiber length being provided on the request, and the service provision interval.
3. The SI and LSR will then be forwarded to the LCSC. The LCSC will write the Service Order and will apply the appropriate USOC configuration for billing.

6.7.4 Customer Education

Customer Education for the ordering ofUDF is available from the CLEC Account Team upon request.

6.8 Unbundled Channelization

6.8.1 Market Service Description

6.8.1.1 Basic Service Features

Unbundled Channelization (UC) provides the multiplexing capability that will allow a DS1 or DS3 UNE or collocation cross-connect to be channelized at a BellSouth central office. This can be accomplished through the use of a multiplex or a digital cross-connect system at the discretion of BellSouth. The CLEC can activate channels all at once or on an as-needed basis once the UC UNE has been installed by connecting lower level UNEs via Central Office Channel Interfaces (COCIs).

6.8.1.2 Basic Service Capabilities And R ons

The initial set of Central Office channelization capabilities will be as follows:

- DS1 Central Office Channelization System: An element that channelizes a DS1 signal into 24 DS0s.

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- Central Office Channel Interfaces (COCI): Elements that can be activated on a channelization system.
- DS1 Central Office Channel Interface elements can be activated on a DS3 Channelization System.
- Voice Grade or Digital Data Central Office Channel Interfaces can be activated on a DS1 Channelization System.
- AMI and B8ZS line coding with either Super Frame (SF) and Extended Super Frame (ESF) framing formats will be supported as options.
- The multiplexer should be ordered with the higher-level transport service, if it is to be combined with BellSouth higher level services. Collocation should already be established. Lower-level transport service to be used with a higher-level channelized service can be ordered to establish higher-level channelized transport service.

6.8.1.3 How Does This Service Work?

UC allows the CLEC to build channelized facilities that can interconnect with lower level UNEs in a more efficient manner. One example is shown in Figure 13 below. In this case, the CLEC is collocated in a BellSouth Central Office and chooses to interface with DS1 level cross-connects that are then channelized into a maximum of 24 DS0s for interfacing with DS0 level UNEs.

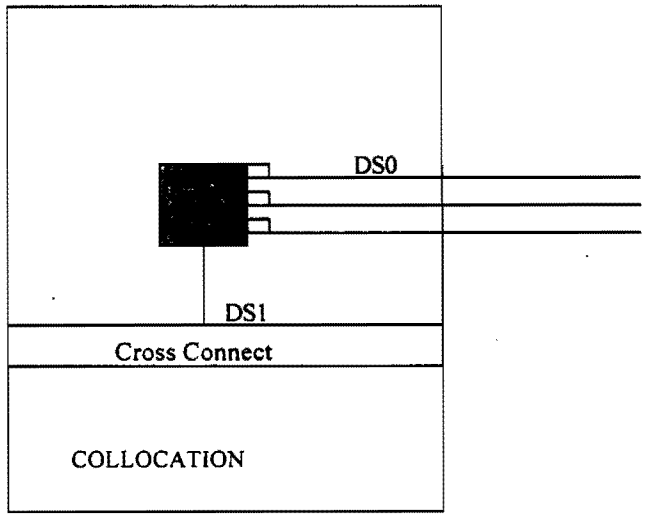

Figure 13 Unbundled Channelization

General Description of Performance Standards and Reliability

- Service Performance Objectives: There will not be any specified performance objectives for this UC since it is a multiplexing functionality rather than a measurable end-to-end service arrangement.

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- Diversity Requirements: None.
- Performance Monitoring: Whatever exists in Network Element that is used.
- Special Considerations: None.
- Deployment Schedule: UC is offered in the same offices as the tariffed multiplexing functionality.

Other channelization arrangements may be made available if requested via the Bona Fide Request process.

6.8.1.4 Feature Interaction

COCIs will be billed on the lower level UNE order that is interfacing with the UC arrangement and will have to be compatible with those UNEs. For example, a CLEC should not connect a 64 kbps loop to a Voice Grade Center Office Channel Interface.

6.8.2 Service Inquiry & Ordering Guidelines

A CSPS Service Inquiry will be required for service requests associated with Unbundled Channelization (UC).

All CLEC requests for UC should be sent to the LCSC via an LSR with UNE** (where ** is a number representing a particular UNE to collocation arrangement or UNE combination.) These requests will have the same field requirements as Special Access services, e.g. NC, NCI, SECNCI, ACTL, SECLOC, ACNA etc. The LCSC will then issue a Service Order for a CLF circuit to CABS.

All CLEC requests for UC for Local Interconnection should be sent to the IPC via ASR. The above instructions above apply.

6.8.3 Customer Education

Customer Education for the ordering of UC is available from the CLEC Account Team upon request.

6.9 Physical Collocation

6.9.1 Service Description

6.9.1.1 Basic Service Description

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Physical collocation is a negotiated service offering which provides for the installation of collocator-owned equipment and facilities within leased floor space in BellSouth Central Offices for the purpose of connecting to the BellSouth network. Physical Collocation is available as Caged, Shared Caged, Cageless, and Adjacent. The equipment complement may include any type of equipment used or useful for interconnection or access to unbundled network elements in the provision of telecommunications services. The collocator is solely responsible for the timing, alarming, monitoring, performance, maintenance, provisioning, and repair of its equipment. Equipment ownership, maintenance and insurance are the responsibility of the collocator or it's approved agent. Equipment and facilities placed as part of a collocation arrangement must be installed by a BellSouth certified vendor in accordance with BellSouth Technical Reference (TR) 73503.

As part of the equipment installation, collocators may place a private fiber entrance facility from outside the central office to an interconnection point designated by BellSouth. This entrance facility will be pulled into the central office cable vault by BellSouth, spliced into collocator-provided fire retardant riser cable and connected to the equipment arrangement within the central office.

A physical collocation arrangement which connects to private fiber entrance facilities is called Expanded Interconnection Service (EIS) as depicted in Figure 14. This arrangement provides the collocator the ability to interconnect its private network or remotely located switching/routing equipment to BellSouth transport services.

A collocator may elect to place its equipment in a BellSouth central office without the use of private fiber entrance facilities. In this scenario, the arrangement is known as Service Interconnection (SI), see Figure 15. This configuration allows the collocator to interconnect to unbundled elements without having to place private facilities to that central office location.

Floor space will be made available per central office on a first-come, first-served basis. Collocators may enclose their leased space within an enclosure meeting BellSouth specifications and local building code. The equipment complement may include transmission equipment, loop concentration devices, switching equipment, and Personal Computers. The official demarcation point between a collocator's equipment and BellSouth's network will be designated per location and will reside on the conventional distribution frame for two-wire and four-wire, the DSX for DS1 or DS3, and the LGX for fiber-optic terminations. Collocators may directly connect to other collocation arrangements that they own located within the same central office utilizing collocator-owned facilities or BellSouth cross-connects. Such connection may not be in lieu of connection to the BellSouth network.

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With Expanded Interconnection, the collocator is "expanding" its private network to BellSouth's network. Therefore, private fiber is placed to the central office and pulled through to the collocation arrangement. The collocator places its equipment in leased floor space and cross-connects to BellSouth's transports.

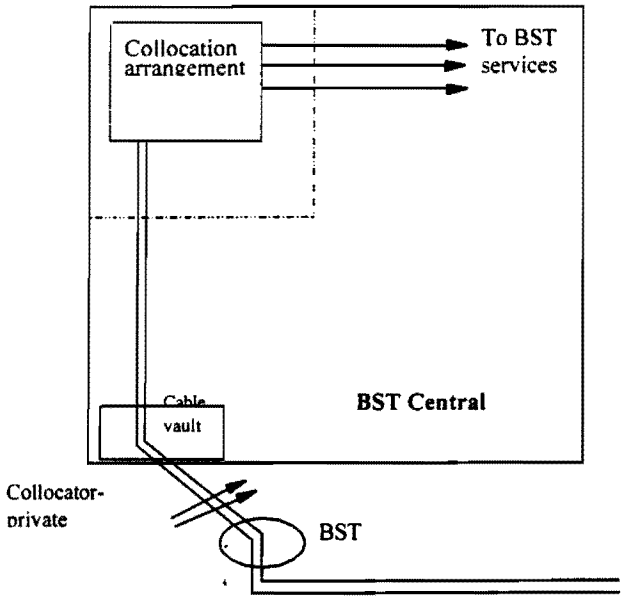

Figure 14 Expanded Interconnection Service

With a Service Interconnection arrangement, the collocator places its equipment in leased floor space and purchases cross-connects to BellSouth's Transport services.

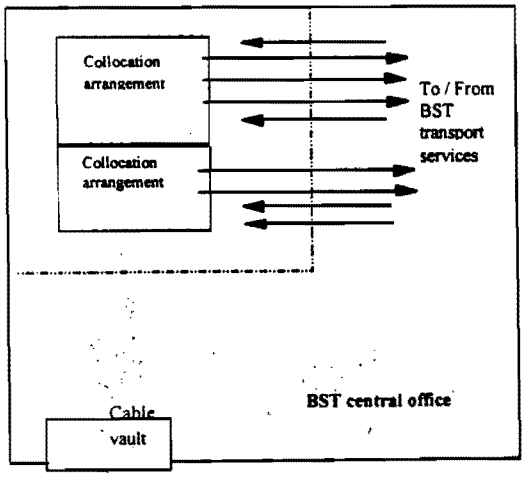

Figure 15 Service Interconnection

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6.9.1.2 Basic Service Capabilities And Restrictions

A collocation arrangement allows a telecommunications service provider an efficient means for connecting to BellSouth tariffed services and unbundled network elements through the purchase of BellSouth cross-connects. Cross-connects provide a one-to-one dedicated transmission path between the interconnector's network equipment located in the Central Office and BellSouth's network at two-wire, four-wire, DS1, DS3, and fiber-optic levels.

Two-wire and four-wire cross-connects are for connection to BellSouth's unbundled voice loops, unbundled digital loops, dedicated DS0 services and unbundled port offerings. DS1 and DS3 cross-connects provide a 1.544 Mb or 44 Mb path, respectively, between the collocator and the following BellSouth services: tariffed DS1and DS3 local channel or interoffice transport offerings (hi-cap, SMARTPath, Megalink, LightGate, etc.), central office channelization, SMARTRing central office node interfaces, FLEXServ, and unbundled digital (DS1) loops. Fiber-optic cross-connects provide a generic fiber connection between the collocator and unbundled dark fiber (where offered), SMARTRing Service and LightGate optical service at customer-designated bandwidths.

6.9.2 Service Inquiry & Ordering Guidelines

6.9.2.1 Equipment Arrangement

The application process for collocation is a two-phase process consisting of the Application Inquiry phase and the Bona Fide Firm Order phase. Both phases use BellSouth Expanded Interconnection forms (BSTEI forms). Please see section *6.9.5 Customer Education* for more information about these forms.

For the Application Inquiry phase, a collocator must submit a complete and accurate BSTEI-1 Application Inquiry document, for review and planning by BellSouth equipment engineers, space planners and facility planners. The Application is Bona Fide when it is complete and accurate, meaning that all required fields on the Application are completed with the appropriate type of information. A proposed equipment layout, and an estimate of the square footage or bay space required must accompany each Application Inquiry as indication of a Bona Fide Request. BellSouth will inform the CLEC within ten (10) calendar days of receipt of an Application whether the Application is denied as a result of space availability and whether the Application is considered Bona Fide.

BellSouth will provide a comprehensive written response ("Application Response") within thirty (30) calendar days of receipt of a Bona Fide Application. The Application Response will include the configuration of the space, and the fees for all services requested by the CLEC. When multiple applications are submitted within a fifteen (15) calendar day window, BellSouth

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will respond to the Bona Fide Applications as soon as possible, but no later than the following: within thirty (30) calendar days for Bona Fide Applications 1-5, within thirty-six (36) calendar days for Bona Fide Applications 6-10, and within forty-two (42) calendar days for Bona Fide Applications 11-15. Response intervals for multiple Bona Fide Applications submitted within the same timeframe for the same state in excess of 15 must be negotiated. All negotiations shall consider the total volume from all requests from telecommunications companies for collocation.

If a modification or revision is made to any information in Sections 2 through 12 or 15 of a Bona Fide Application for Physical Collocation, or Sections 2 through 10 or 13 of a Bona Fide Application for Adjacent Collocation, either at the request of the collocator or necessitated by technical considerations, BellSouth will respond to the Bona Fide Application within thirty (30) business days after BellSouth receives such application or at such other date as the Parties agree. If, at any time, BellSouth needs to reevaluate the collocator's Bona Fide Application as a result of changes requested by the collocator to the collocator's original application, then BellSouth will charge the collocator a fee based upon the additional engineering hours required to do the reassessment. Major changes such as requesting additional space or adding additional equipment may require the collocator to resubmit the application with an Application Fee. The collocator may modify Section 1, 13, 14, or 16 of a Bona Fide Application for Physical Collocation, or Sections 1, 11, or 12 of a Bona Fide Application for Adjacent Collocation, without incurring additional expense or a longer Application Response interval.

The collocator shall indicate its intent to proceed with equipment installation in a BellSouth Premises by submitting a Bona Fide Firm Order to BellSouth. A Bona Fide Firm Order requires the collocator to complete the Application/Inquiry process described above and submit the Physical Expanded Interconnection Firm Order document (BSTEI-1P-F) indicating acceptance of the Application Response provided by BellSouth ("Bona Fide Firm Order"). (Please see section *6.9.5 Customer Educ ion* for more information about this form.) The Bona Fide Firm Order must be received b BellSouth no later than thirty (30) business days after BellSouth's Application Response to the collocator's Bona Fide Application.

BellSouth will establish a firm order date based upon the date BellSouth is in receipt of a Bona Fide Firm Order. BellSouth will acknowledge the receipt of the collocator's Bona Fide Firm Order within seven (7) calendar days of receipt indicating that the Bona Fide Firm Order has been received. A BellSouth response to a Bona Fide Firm Order will include a Firm Order Confirmation containing the firm order date. No revisions will be made to a Bona Fide Firm Order. Space preparation for the Collocation Space will not begin until BellSouth receives the Bona Fide Firm Order and all applicable fees.

Once the Firm Order is placed, the collocator may negotiate with a BellSouth Certified Supplier for the equipment placement. Collocation equipment placement m not begin until uth's space and infrastructure work is complete. This date is id ified as the "Space and Infrastructure Complete Date" or "Space Ready Date." BellSout nay, at its sole discretion, agree to an equipment installation date prior to the completion of its infrastructure work,

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provided the area is properly secured. For these exceptions, BellSouth will report this date as the Space Available for Occupancy Date. In these cases, the collocator must sign a liability waiver before such work may begin.

Requesting collocators may begin the Application Inquiry process prior to the execution of Physical Collocation agreement with BellSouth. However, the agreement must be executed prior to proceeding to the Firm Order phase.

NOTE: A collocator may contact its BellSouth Interconnection Services Account Team contact for copies of BellSouth's Request for Negotiations, BSTEI forms and BSTEI line-by-line instructions.

6.9.2.2 Interconnecting Service

Interconnection to Physical Collocation is available at the two-wire or four-wire, DS1, DS3 or Fiber-optic interface levels on a negotiated basis only. Services to be interconnected to a collocation arrangement must be submitted on ASR forms or LSR forms using industry standards and code sets for accurate and complete requests. Please ask your BellSouth contact for specific information. For more information, including selecting the appropriate form, reference the *Access Service Ordering Guide* and Bellcore's Special Reports SR STS-471001 and 471004 regarding the ASR ordering process and field definitions and the *BellSouth Business Rules for Local Ordering* regarding the LSR ordering process and field definitions.

6.9.3 Price List References

BellSouth assesses both non-recurring and recurring charges for physical collocation. The following is a description of each rate element. For the rate element descriptions, a designation of NRC or RC will follow the name of the element to indicate if the element is a non-recurring charge (NRC), a recurring charge (RC), or both. Please reference the Collocation Agreement for specific rate information.

Application Fee - NRC

The application fee is required per request, per location to cover the engineering and administrative expense associated with reviewing, analyzing and responding to the initial application inquiry. Associated with the review are design and planning activities including an engineering record search for conduit, rack, and floor space availability, preliminary construction design and cost estimates, power engineering assessment, and provisioning interval estimates.

Subsequent Application Fee - NRC

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This one-time fee applies per request for subsequent activity to an existing collocation arrangement when the requested activity does not require BellSouth to expend capital (e.g., floor loading changes, construction of additional enclosure, changes to HVAC requirements, power requirement changes which may result in a power plant upgrade, environmental or safety requirements, or equipment relocation). The fee covers the cost for BellSouth to review, analyze and respond to the subsequent request. The application of this charge assumes the work required by BellSouth is more limited in scope than that required by a new application. Should BellSouth be required to expend capital in fulfilling the subsequent request, a full Application Fee is required.

Space Preparation - NRC

Space pr ation fees consist of a nonrecurring charge for Firm Order Processing and month recurring ges for Central C e Modifications, assessed per arrangement, per square foo and Cor Systems Modifi ons, assessed per arrangement, per square foot for cageless and per for caged colloc ion. CLEC-1 shall remit payment of the nonrecurring Firm Order Pr sing Fee coincident with submission of a Bona Fide Firm Order. The recurring charges t space preparation apply beginning on the date on which BellSouth releases the Collocation Space for occupancy or on the date CLEC-1 first occupies the Collocation Space, whichever is sooner. The charges recover the costs associated with preparing the Collocation Space, which includes survey, engineering of the Collocation Space, design and modification costs for network, building and support systems. In the event CLEC-1 opts for cageless space, the space preparation fees will be assessed based on the total floor space dedicated to CLEC-1.

Space Enclosure – RC

The Space Enclosure Construction Fee is a monthly recurring fee, assessed per enclosure, per location with a one hundred (100) square foot minimum enclosure. It recovers costs associated with providing an optional equipment arrangement enclosure, which include architectural and engineering fees, materials, and installation costs. The cost for additional square feet is applicable only when ordered with the first 100 square feet and must be requested in 50-square-foot increments. The collocator may, at its option, arrange with a BellSouth Certified Contractor to construct the space enclosure in accordance with BellSouth's guidelines and specifications. In this event, the BellSouth Certified Contractor shall directly bill the collocator for the space enclosure, and this fee will not apply.

Floor Space - RC

The floor space charge is a monthly recurring charge that covers the square footage assigned to the collocator for the equipment arrangement. This charge includes reasonable charges for lighting, HVAC, and other allocated expenses associated with maintenance of the Premises but does not include amperage necessary to power the collocator's equipment. When the

collocation space is enclosed, the collocator shall pay floor space charges based upon the number of square feet so enclosed. When the collocation space is not enclosed, the collocator shall pay floor space charges based upon the following floor space calculation: [(depth of the equipment lineup in which the rack is placed) + (0.5 x maintenance aisle depth) + (0.5 x wiring aisle depth)] (width of rack and spacers). For purposes of this calculation, the depth of the equipment lineup shall consider the footprint of equipment racks plus any equipment overhang. BellSouth will assign unenclosed collocation space in conventional equipment rack lineups where feasible. In the event the collocator's collocated equipment requires special cable racking, isolated grounding or other treatment which prevents placement within conventional equipment rack lineups, the collocator shall be required to request an amount of floor space sufficient to accommodate the total equipment arrangement. Floor space charges are due beginning with the date on which BellSouth releases the collocation space for occupancy or on the date the collocator first occupies the collocation space, whichever is sooner.

Cable Installation - NRC

The cable installation charge applies only to collocators who place private fiber entrance facilities to their collocated equipment. This is a one-time charge per cable, per installation to arrange the punch-through to the manhole, pull fiber cable length from the serving manhole to the central office cable vault, perform splicing to collocator provided fire retardant riser, and pull cable length through the central office cable support structure to the collocation arrangement.

Cable Support Structure - RC

This component covers the use and maintenance of the Central Office duct, riser and overhead racking structure when the collocator has elected to provide private fiber entrance to its equipment.

Power - NRC

BellSouth shall make available – 48 Volt (-48V) DC power for CLEC-1's Collocation Space at a BellSouth Power Board or BellSouth Battery Distribution Fuse Bay ("BDFB") at CLEC-1's option within the premises.

Recurring charges for -48V DC power will be assessed per ampere per month based upon the BellSouth Certified Supplier engineered and installed power feed fused ampere capacity. Rates include redundant feeder fuse positions (A&B) and common cable rack to CLEC-1's equipment or space enclosure. When obtaining power from a BDFB, fuses and power cables (A&B) must be engineered (sized), and installed by CLEC-1's BellSouth Certified Supplier. When obtaining power from a BellSouth power board, power cables (A&B) must be engineered (sized), and installed by CLEC-1's BellSouth Certified power Supplier. CLEC-1 is responsible for contracting with a BellSouth Certified Supplier for power distribution feeder cable runs from a BellSouth BDFB or power board to CLEC-1's equipment. Determination of

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the BellSouth BDFB or BellSouth power board as the power source will be made at BellSouth's sole, but reasonable, discretion. The BellSouth Certified Supplier contracted by CLEC-1 must provide BellSouth a copy of the engineering power specification prior to the day on which CLEC-1's equipment becomes operational ("Commencement Date"). BellSouth will provide the common power feeder cable support structure between the BellSouth BDFB or power board and CLEC-1's arrangement area. CLEC-1 shall contract with a BellSouth Certified Supplier who will be responsible for the following: dedicated power cable support structure within CLEC-1's arrangement; power cable feeds; terminations of cable. Any terminations at a BellSouth power board must be performed by a BellSouth Certified power Supplier. CLEC-1 shall comply with all applicable National Electric Code (NEC), BellSouth TR73503, Telcordia (BellCore) and ANSI Standards regarding power cabling.

If Bells[illegible]has not previously invested in pc[illegible]plant capacity for collocation at a specific site, CLEC-[illegible]he option to add its own dedic[illegible]ower plant; provided, however, that such work sh[illegible]erformed by a BellSouth Certi[illegible]upplier who shall comply with BellSouth's guidelin[illegible]specifications. Where the addit[illegible]f CLEC-1's dedicated power plant results in construction of a new power plant room, upon termination of CLEC-1's right to occupy collocation space at such site, CLEC-1 shall have the right to remove its equipment from the power plant room, but shall otherwise leave the room intact.

If CLEC-1 elects to install its own DC Power Plant, BellSouth shall provide AC power to feed CLEC-1's DC Power Plant. Charges for AC power will be assessed per breaker ampere per month. Rates include the provision of commercial and standby AC power. When obtaining power from a BellSouth service panel, protection devices and power cables must be engineered (sized), and installed by CLEC-1's BellSouth Certified Supplier except that BellSouth shall engineer and install protection devices and power cables for Adjacent Collocation. CLEC-1's BellSouth Certified Supplier must also provide a copy of the engineering power specification prior to the Commencement Date. Charges for AC power shall be assessed pursuant to the rates specified in Exhibit A. AC power voltage and phase ratings shall be determined on a per location basis. At CLEC-1's option, CLEC-1 may arrange for AC power in an Adjacent Collocation arrangement from a retail provider of electrical power.

Cross-Connect - NRC and RC

These elements provide the one-for-one interconnection to BellSouth's tariffed or negotiated service elements as described under Service Capabilities (i.e., connection to a two-wire or four-wire unbundled loop or port, DS1, DS3 fiber-optic service). The cross-connect has a NRC fee for First and Additional and a RC rate component as well.

Security Access System – NRC and RC

The Security Access System charges provide for key and card access to BellSouth premises. NRC charges are applicable per card for activations and for lost or stolen cards. RC charges

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are applicable per card for activations and for lost or stolen cards. RC charges are applicable per premises per card. Keys are issued with a NRC charge.

Reports - NRC

Collocators who request space availability reports will be assessed a report fee on an individual basis.

Cable Record charges

These charges apply for work required to build cable records in company systems. The VG/DS0 per cable record charge is for a maximum of 3600 records. The Fiber cable record charge is for a maximum of 99 records.

POT Bay – RC

When a Point of Termination (POT) bay or frame supplied by BellSouth for demarcation is utilized with physical collocation, a recurring monthly charge applies for each cross-connect. There is no non-recurring charge for this element. Effective June 1, 1999, BellSouth no longer utilizes a POT Bay as a demarcation point.

Security Escort - NRC

A security escort will be required whenever the collocator or its approved agent desires access to the entrance manhole or must have access to the Premises after the one accompanied site visit allowed in the Collocation Agreement but prior to meeting BellSouth's security requirements and/or prior to Space Acceptance. Rates for a security escort are assessed in quarter hour increments.

6.9.4 Installation Intervals

Construction and Provisioning intervals are mandated by the various State Commissions and the FCC. In general the guidelines are described below, but will vary slightly in each State. Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction for collocation arrangements under ordinary conditions as soon as possible and within a maximum of 90 calendar days from receipt of a Bona Fide Firm Order. Ordinary conditions are defined as space available with only minor changes to support systems required, such as but not limited to, HVAC, cabling and the power plant(s). Excluding the time interval required to secure the appropriate government licenses and permits, BellSouth will use best efforts to complete construction of all other Collocation Space ("extraordinary conditions") within 180 calendar days of the receipt of a Bona Fide Firm Order. Extraordinary conditions are defined to include but are not limited to major BellSouth equipment rearrangement or addition; power plant addition or upgrade; major mechanical addition or

upgrade; major upgrade for ADA compliance; environmental hazard or hazardous materials abatement; and arrangements for which equipment shipping intervals are extraordinary in length.

6.9.5 Customer Education

BellSouth provides an overview on all Local Interconnection and Unbundled elements at CLEC training classes scheduled throughout the year. Customer information packages containing the BellSouth *Collocation Handbook*, Collocation Application and Firm Order documents, line-by-line instructions, and the standard collocation agreement are available from the Account Team Collocation Coordinator (ATCC). Contact the ATCC for more information.

6.10 Virtual Collocation

6.10.1 Service Description

6.10.1.1 Basic Service Description

Virtual Expanded Interconnection Service (VEIS, or virtual collocation) is a tariffed service offering which provides for the placement of collocator-owned transmission facilities and equipment in BellSouth Central Offices and the interconnection of this equipment to BellSouth switched access, special access, and unbundled network element services. VEIS arrangements are most commonly located in the BST equipment line-up.

As part of the equipment installation, collocators may place a private fiber entrance facility from outside the central office to an interconnection point designated by BellSouth. The entrance facility will be pulled into the central office cable vault, spliced into fire-retardant riser cable provided by the collocator and connected to the equipment arrangement within the central office. If multiple entry points are available and the collocator so desires, multiple entry points will be provided to the collocator for its fiber entrance facilities. Microwave facilities, in lieu of fiber facilities, may be used for interconnection where they may be reasonably provided.

To ensure the compatibility of the transmission capabilities of the facilities and equipment used in the provision of VEIS, equipment and facilities, including the entrance fiber, associated fire retardant riser cable, terminal transmission equipment, plug-ins/line cards, software, unique tools and test equipment, will be provided by the collocator. The collocator will also provide the cabling from the arrangement to the BST cross-connect point and power cabling from the arrangement to the BST-provided power source. The collocator will contract directly with its chosen BellSouth certified vendor for engineering and installation activities for the arrangement. The collocator will lease to BellSouth all equipment and support components required to provision and maintain/repair VEIS on an ongoing basis for the nominal sum of $1.00.

The VEIS collocator is responsible for performance monitoring, alarm monitoring, and software cross-connect control of all facilities and equipment owned by the collocator and leased from BellSouth. BellSouth will perform all maintenance and repair on collocator equipment once

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notified by the collocator that such work is necessary. If a collocator has selected terminating transmission equipment hardware and/or software which is not currently in use in the BellSouth location where VEIS will be provided, the collocator is responsible for payment of tuition fees and employee time and travel expenses associated with any necessary training for BellSouth personnel to install and repair the equipment.

Space is available for VEIS in each BellSouth central office on a first-come, first-serve basis. The Company's central office site designations are listed in the National Exchange Carrier Association (NECA) Tariff FCC No. 4. The first-come, first-serve policy is determined based upon the order of receipt of applications for VEIS along with the Application Fee.

6.10.1.2 Basic Service Capabilities And Restrictions

A virtual collocation arrangement allows a telecommunications service provider an efficient means for connection to BellSouth tariffed services and unbundled network elements, through the purchase of BellSouth cross-connects. VEIS cross-connects provide a one-to-one dedicated transmission path between the interconnector's transmission equipment located in the Central Office and BellSouth's network at two-wire, four-wire, DS1, DS3, and fiber-optic levels.

Two-wire and four-wire cross-connects are for connection to BellSouth's unbundled voice loop, unbundled digital loop, dedicated DS0 services and unbundled port offerings. DS1 and DS3 cross-connects provide a 1.544 Mb or 44 Mb path, respectively, between the collocator and the following BellSouth services: tariffed DS1 and DS3 local channel or interoffice transport offerings (e.g., SPA DS1/DS3, SPA DS1/DS3 Shared Ring, SWA DS1, SWA DS3, SWA Dedicated Transport), central office channelization, Dedicated Ring central office node interfaces, SPA Customer Reconfiguration and unbundled digital (DS1) loops. Fiber-optic cross-connects are for interconnection to BellSouth's SMARTRing optical and LightGate optical interfaces, to unbundled dark fiber (where available), or to another collocated party.

6.10.2 Service Inquiry & Ordering Guidelines

6.10.2.1 Equipment Arrangement

The virtual collocation ordering process has two phases: Application Inquiry and Bona Fide Firm Order. BellSouth requires the submission of its form BSTEI-1-V for both the Application/Inquiry and the Bona Fide Firm Order/Installation phases.

For the Application Inquiry phase, a collocator must submit a complete and accurate BSTEI-1-V Application Inquiry document, with the appropriate Application Fee, for review and planning by BellSouth equipment engineers, space planners and facility planners. The Application is Bona Fide when it is complete and accurate, meaning that all required fields on the Application are completed with the appropriate type of information. A proposed equipment layout and an

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estimate of the square footage or bay space required must accompany each Application Inquiry as indications of a bona fide request. BellSouth will inform the CLEC within ten (10) business days of receipt of an Application whether the Application is denied as a result of space availability and whether the Application is considered Bona Fide. BellSouth will process applications for virtual collocation on a first-come, first-serve basis by location as determined through the receipt of the application fee.

Upon receipt of a Bona Fide Application, BellSouth will conduct the following design and planning activities: engineering record search and review to determine availability of conduit, rack, floor space and multiple entry points; determination of requirements of the requested virtual collocation arrangement design; and administrative activities required to process the application. Once BellSouth has completed the design and planning activities, the collocator will be informed of the floor space and power requirements. At this time, BellSouth will provide to the collocator a list of vendors certified to perform equipment installations.

The collocator will contract directly with its chosen BellSouth Certified Vendor for installation. BellSouth will retain project management responsibility and authority related to the installation work done in the central office (decisions as to specific location of the equipment bay, termination panel appearance, assignments, etc.). BellSouth will work cooperatively with the BellSouth Certified Vendor. BellSouth will notify the collocator in writing upon completion of the installation work and prior to activating the virtual collocation arrangement.

6.10.2.2 Interconnecting Service

Services to be interconnected to a collocation arrangement must be submitted on ASR forms or LSR forms using industry standards and code sets for accurate and complete requests. For more information, including selecting the appropriate form, reference the *Access Service Ordering Guide* and Bellcore's Special Reports SR STS-471001 and 471004 regarding the ASR ordering process and field definitions and the *BellSouth Business Rules for Local Ordering* regarding the LSR ordering process and field definitions.

6.10.3 Price List Reference

BellSouth assesses both non-recurring and recurring charges for virtual collocation. The following is a description of each rate element, including a NRC indicator for non-recurring and RC for recurring. For rate information, please reference Section 20 of BellSouth's FCC #1 tariff.

Application Fee – NRC

The Application Fee covers the engineering and administrative expense associated with reviewing, processing and responding to the initial application inquiry. Associated with the

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review are design and planning activities, which include an engineering record search for conduit, rack, and floor space availability, and a determination of requirements for the requested VEIS design. The fee is a one-time charge required with each VEIS arrangement application submitted per location.

Cable Installation Charge – NRC

The Cable Installation Charge applies for each VEIS fiber entrance cable ordered installed to an arrangement. Cable installation involves activities associated with arranging the manhole punch-through, pulling the collocator-provided/BellSouth leased fiber cable from the interconnection point to the central office cable vault, installing collocator-provided/BellSouth-leased fire retardant riser cable, and splicing the entrance fiber cable to the riser cable.

Cable Support Structure – RC

This component recovers the use and maintenance of the duct from the point of interconnection to the central office cable vault and for riser and overhead racking structure. The charge applies to each private fiber entrance cable installed.

Floor Space – RC

The VEIS Floor Space component consists of two recurring rate elements: per square foot and per ampere. The per square foot element applies for the floor space required to provision the VEIS arrangement and includes heat, ventilation and air conditioning (HVAC), lighting, and AC power. The per Ampere element consists of two -48 volt direct current feeds (A & B) with battery backup and applies per ampere for the equipment maximum power requirement per manufacturer's specifications.

Cross-connect – NRC and RC

The cross-connect element allows the connection to either access or unbundled network elements. The physical cabling between the collocation arrangement and the cross-connect panel is completed by the collocator's certified vendor. The monthly recurring charge for cross-connects consists of the cross-connect panel, cable racks between the collocation arrangement and cross-connect panel, bay framework and other supporting hardware. Non-recurring charges are assessed on a "First" and "Additional" basis.

Training – ICB

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When collocator-provided training is required as described in section I.A. of the Collocation Agreement, the collocator must compensate BellSouth for employee living expenses per day, air fare/travel expenses per trip and labor rate each half-hour for Basic, Overtime, or Premium time.

Security Escort

A Security Escort is provided by BellSouth to a collocator whenever the collocator or approved agent desires access to the collocation arrangement. Charges for the Security Escort are assessed in half-hour increments as Basic, Premium or Overtime charges. A request resulting in the dispatch of a BellSouth employee at a time not consecutive with the employee's scheduled work period is subject to a minimum charge of three (3) hours.

6.10.4 Installation Intervals

BellSouth will complete its work for Virtual Collocation under ordinary conditions and under extraordinary conditions within the time frame set forth by the State PUC or the FCC. Although not generally required for Virtual Collocation preparation activities, the time interval required to secure any governmental licenses and permits will be excluded from BellSouth's Virtual Collocation Provisioning interval.

6.10.5 Customer Education

Customer information packages containing the Collocation Application and Firm Order documents, line-by-line instructions, a copy of the FCC #1 Virtual Expanded Interconnection tariff, as well as additional customer information and assistance with the application are available from the Account Team

6.11 Open Advanced Intelligent Network (AIN)

6.11.1 Service Description

6.11.1.1 Basic Service Features

AIN Toolkit 1.0 is a product that is designed to provide a CLEC with the ability to create and offer AIN service applications to its end-users. Service applications are created in a BellSouth-provided Service Creation Environment (SCE) using a BellSouth-provided graphical user interface (GUI). AIN SMS Access 1.0 provides access to the SCE and supports administrative activities (e.g., inputting end-user specific data or accessing usage reports) associated with the service applications that are created using AIN Toolkit 1.0. AIN SMS Access 1.0 is required in conjunction with AIN Toolkit 1.0.

6.11.1.2 Basic Service Capabilities And Restrictions

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AIN Toolkit 1.0: AIN Toolkit 1.0 will allow subscribers to access SS7 call information and AIN processing capabilities to create customized telephone services to meet the needs of end-users. AIN Toolkit 1.0 will support these major classes of applications: routing, incoming call screening, outbound call screening, routing, calls analysis reports, or a combination of these.

With AIN Toolkit 1.0, CLECs may create services by accessing a BellSouth-provided SCE. The SCE provides a set of tools that allows the CLEC to configure AIN capabilities. The tools include a set of nodes, or pre-defined building blocks of AIN service logic that may be combined to create AIN service applications in the form of Decision Graphs (DGs). Once a particular service application has been verified for network and service integrity, it will be distributed to elements (SCPs) in BellSouth's network and will be available for implementation on end-users' lines. Service activation and deactivation will be at the CLEC's discretion.

The triggers available will be: 1) Off Hook Delay, 2) Termination Attempt, 3) Public Office Dialing Plan, 4) Feature Code, 5) Customized Dialing Plan, 6) Off Hook Immediate. The nodes available will be: Announce & Collect, Announcement, Assign, Bill Carrier, Bill Subscriber, Carrier, Come Into, Comparison, Connection, Counter, Directory Number Validation, Day, Distribute, Flexible Table, Geography, Go To, Increment/Decrement, LATA, Leg Treatment, Length, Match, Percent, Query Parameters, Redirection Party ID, Table, Time, Trunk Group.

AIN SMS Access 1.0: The BellSouth provided SCE resides in the BellSouth AIN SMS. AIN SMS Access 1.0 provides the interface that allows CLEC personnel to access the SCE to create or modify AIN service applications. AIN SMS Access 1.0 also provides the capability for the CLEC to add or modify service subscription information, view service related information, and access reports (view online or download).

AIN SMS Access 1.0 supports access security, data security, and security based on class of users. Access security requires a security card authentication process in addition to log-in and password identifiers to the SMS. AIN SMS Access 1.0 ensures that each BellSouth AIN SMS Access 1.0 customer can access only data that belongs to that customer. In addition, the customer controls whatever portions of data may be accessed by each of the customer's users. This type of security is based on class of users, which is selected for each user by the customer.

AIN SMS Access 1.0 will interface only with services provided in association with BellSouth's AIN network or AIN service platforms. The BellSouth SMS is not capable of updating information stored on a non-BellSouth platform (SCP, SN, IP, database, etc.).

6.11.1.3 How Does This Service Work?

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The service itself depends on the application developed by the CLEC. As mentioned earlier, AIN Toolkit is a platform that will provide the CLEC with the capability to develop AIN applications. The manner in which services are created are as follows:

1. The CLEC orders AIN SMS Access 1.0 and will have a subscription created on SMS, as well as having security access and User IDs created.
2. The CLEC will use AIN SMS Access 1.0 to gain access to AIN Toolkit 1.0. The CLEC will then be able to create individualized AIN applications (Decision Graphs).
3. The CLEC will use AIN SMS Access 1.0 to download and activate its AIN applications to the BellSouth SCPs.

6.11.1.4 Feature Interaction

The type of AIN Trigger that can assigne to an end-user's Directory Number may conflict with switch-related features already rovide by BellSouth. The charts contained on the next few pages (Figures 16-21) reflect how custom calling services, BellSouth® TouchStar® services, and other central office features interact with AIN Triggers. Limitations are shown by switch type.

The entries in columns two through six of each chart indicate whether or not a given switch feature is compatible with a specific Trigger. Possible table entries include:

Term	Definition
No	Trigger cannot be assigned to a line equipped with this switch-based feature.
Yes	Trigger can be assigned to a line equipped with this switch-based feature.
Special Conditions	Trigger can be assigned to a line equipped with this switch-based feature; however, special interactions may exist.

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6.11.1.5 Other Special Considerations

If an end-user subscribes to BellSouth® Prestige® service, BellSouth® MultiServ® service, or ESSX service, special conditions may apply. Contact the assigned Account Team representative for assistance before assigning an AIN Trigger to any lines associated with these services.

Custom Calling Features	OHI Trigger	OHD Trigger	TAT Trigger	PODP Trigger	FC Trigger
Call Forwarding Busy Line (CFBL)	NO	NO	YES	YES	YES
Customer Control of CFBL	NO	NO	YES	YES	YES
Call Forwarding Don't Answer (CFDA)	NO	NO	YES	YES	YES
Customer Control of CFDA	NO	NO	YES	YES	YES
Call Forwarding Variable (CFV)	NO	NO	YES	YES	YES
Remote Access to CFV	NO	NO	YES	YES	YES
Multiple Call Forwarding	NO	NO	YES	YES	YES
Call Waiting	NO	NO	YES	YES	YES
Speed Calling 8	NO	NO	YES	YES	YES
Speed Calling 30	NO	NO	YES	YES	YES
Three Way Calling	NO	NO	YES	YES	YES

Figure 16 Interactions with 5ESS Custom Calling Services

Trigger Legend	
OHI	Off-Hook Immediate
OHD	Off-Hook Delayed
TAT	Terminating Attempt Trigger
PODP	Public Office Dialing Plan
FC	Feature Code

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TouchStar Features	OHI Trigger	UID Trigger	TAT Trigger	PODP Trigger	FC Trigger
Anonymous Call Rejection (ACR)	NO	NO	YES	YES	YES
Call Block	NO	NO	YES	YES	YES
Caller ID Features	NO	NO	YES	YES	YES
Calling Number Delivery Blocking	NO	NO	YES	YES	YES
Call Return	NO	NO	YES	Special Conditions	YES
Call Selector	NO	NO	YES	YES	YES
Preferred Call Forwarding	NO	NO	YES	YES	YES
Repeat Dialing	NO	NO	YES	Special Conditions	YES

Figure 17 Interactions with 5ESS BellSouth® TouchStar® Services

Other Features	OHI Trigger	UHD Trigger	TAT Trigger	POD? Trigger	FC Trigger
MemoryCall® Service	NO	NO	YES	YES	YES
Message Waiting Indication	NO	NO	YES	YES	YES
Ringmaster® Service	NO	NO	YES	YES	YES

Figure 18 Interactions with other 5ESS Switch Features

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Custom Calling Feature:	[illegible] Trigger	[illegible] Trigger	[illegible] Access	[illegible] Subscr.	FC Trigger
Call Forwarding Busy Line (CFBL)	NO	YES	Special Conditions	Special Conditions	YES
Customer Control of CFBL	NO	YES	Special Conditions	Special Conditions	YES
Call Forwarding Don't Answer (CFDA)	NO	YES	Special Conditions	Special Conditions	YES
Customer Control of CFDA	NO	YES	Special Conditions	Special Conditions	YES
Call Forwarding Variable (CFV)	NO	YES	Special Conditions	Special Conditions	YES
Remote Access to CFV (see Note)	NO	NO	NO	Special Conditions	NO
Multiple Call Forwarding	NO	YES	YES	Special Conditions	YES
Call Waiting	YES	YES	YES	YES	YES
Speed Calling 8	NO	YES	YES	YES	YES
Speed Calling 30	NO	YES	YES	YES	YES
Three Way Calling	YES	YES	YES	YES	YES

Figure 19 Interactions with DMS-100 Custom Calling Services

NOTE: Remote Access to CFV may be compatible with AIN Triggers on DMS-100 central office switches. However, compatibility testing by the switch manufacturer has not been completed at the time of publication.

Trigger Legend	
OHI	Off-Hook Immediate
OHD	Off-Hook Delayed
TAT	Terminating Attempt Trigger
PODP	Public Office Dialing Plan
FC	Feature Code

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Anonymous Call Rejection (ACR)	YES	YES	YES	Special Conditions	YES
Call Block	YES	YES	YES	Special Conditions	YES
Caller ID Features	YES	YES	YES	Special Conditions	YES
Calling Number Delivery Blocking	YES	YES	YES	Special Conditions	YES
Call Tracing	YES	YES	YES	Special Conditions	YES
Call Return	NO	NO	YES	Special Conditions	NO
Call Selector	YES	YES	YES	Special Conditions	YES
Preferred Call Forwarding	YES	YES	YES	Special Conditions	YES
Repeat Dialing	NO	NO	YES	Special Conditions	NO

Figure 20 Interactions with DMS - 100 BellSouth® TouchStar® Services

MemoryCall® Service	NO	NO	NO	NO	NO
Message Waiting Indication	NO	NO	NO	NO	NO
Ringmaster® Service	YES	YES	YES	YES	YES

Figure 21 Interactions with other DMS - 100 Switch Features

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6.11.1.6 AIN Toolkit 1.0

Non-recurring charges will apply for the following rate elements:

- **Service Establishment Charge (per state) (Includes one set of user documentation)**
  - Initial Setup
- **Additional copies of user documentation (per set)**
- **Trigger Access Charge (per trigger, per DN)**
  - Terminating Attempt
  - Off-hook Delay
  - Off-hook Immediate
  - 10-digit Public Office Dialing Plan (PODP)
  - Customized Dialing Plan (CDP)
  - Public Office Dialing Plan (PODP) Feature Code
- **Monthly Report (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription
- **Special Study (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription
- **Call Event Report (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription
- **Call Event Special Study (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription
- **Training (if selected by the subscriber)**
  - SS7 signaling and AIN 1.0 messages (two-day training session, per attendee)
  - AIN Toolkit 1.0 (one-and-a-half-day training session, per attendee)
  - AIN SMS Access 1.0 (one-and-a-half-day training session, per attendee)

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6.11.1.7 AIN Toolkit 1.0

Monthly recurring charges will apply for the following rate elements:

- **Trigger Access Charge (per trigger, per DN)**
  - Terminating Attempt
  - Off-hook Delay
  - Off-hook Immediate
  - 10-digit Public Office Dialing Plan (PODP)
  - Customized Dialing Plan (CDP)
  - Public Office Dialing Plan (PODP) Feature Code

- **SCP Storage Charge (per AIN SMS Access 1.0 service account)**
  - Per 100 kilobytes (or fraction thereof)

- **Monthly Report (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription

- **Call Event Report (if selected by the subscriber)**
  - Per AIN Toolkit 1.0 service subscription
- **Query**
  - Per query

- **Type 1 Node (per AIN Toolkit 1.0 service subscription)**
  - Announcement Node
  - Announce and Collect Node
  - Geographic Decision Node
  - LATA Decision Node
  - Writes to Flexible Table

- **Help Desk Support**
  - Per quarter hour (fractions of a quarter hour will be billed for a full quarter hour)

6.11.1.8 AIN SMS Access 1.0

Non-recurring charges will apply for the following rate elements:

- **Service Establishment Charge (per state)**
  - Initial Setup

- **Port Connection**
  - Dial/Shared Access
- **ISDN Access (where available)**

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- **User Identification Codes**
  - Per User ID Code

- **Security Card (Per User ID Code)**
  - Initial or Replacement

6.11.1.9 AIN SMS Access 1.0

Monthly recurring charges will apply for the following rate elements:

- **Storage**
  - Per 100k Unit

- **Session**
  - Per Minute

- **Company Performed Session**
  - Per Minute

- **Help Desk Support**
  - Per quarter hour (fractions of a quarter hour will be billed for a quarter hour)

6.11.2 Installation Intervals

Normal installation intervals apply and project coordination is not required.

6.11.3 Service Inquiry & Ordering Guidelines

A Service Inquiry is required

P/SIMS will provide information on where AIN Toolkit is available.

Abbreviation	Term
ATTP	AIN Toolkit 10-digit PODP
AT6P	AIN Toolkit 6-digit PODP
ATT	AIN Toolkit TAT
ATOD	AIN Toolkit Off-hook Delay
ATOI	AIN Toolkit Off-hook Immediate
ATCD	AIN Toolkit Customized Dialing Plan
ATFC	AIN Toolkit Feature Code

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6.11.3.1 Forms

The Account Team must complete a Service Request Form and fax it to the LCSC and BellSouth Applied Technologies (BAT).

6.11.4 Customer Education

6.11.4.1 Availability Of Material

Material is available in the CLEC information package.

6.11.4.2 Training Availability

Training is available through CLEC Conferences.

6.11.4.3 Costs

N/A

6.11.4.4 How To Order

AIN Toolkit 1.0 and AIN SMS Access 1.0 should be ordered via a Service Request Form and faxed to the BAT.

6.12 Operator Call Processing

6.12.1 Service Description

Operator Call Processing includes Fully Automated Call Handling and Operator Provided Call Handling (0+ and 0- Operator Assistance).

- Live Operator Call Handling - Minutes of Use
  - With BellSouth LIDB Storage
  - With Non-BellSouth LIDB Storage
- Fully Automated Call Handling - Per Attempt
  - With BellSouth LIDB Storage
  - With Non-BellSouth LIDB Storage

NOTE: LIDB Storage is a competitive service offered by multiple vend[illegible]LECs may store their data with a LIDB Provider other than BellSouth. CLECs who elec[illegible]e their data in the BellSouth LIDB are charged lower Operator Call Processing rates, based upon revenues received by BellSouth due to the storage arrangement, than those who store in a non-BellSouth LIDB. In addition, if a Facility-based CLEC end-user wishes to use its Interim Number

Portability or Remote Call Forwarded number for alternate billing purposes, those numbers must be stored in the BellSouth LIDB until Local Number Portability is deployed. The assigned Account Team representative can provide information about LIDB storage.

6.12.1.1 Basic Service Features

Operator Call Processing is available to all CLECs. While CLEC customers will have certain transport options concerning the method of connectivity to BellSouth's Operator Service System, there are no optional network features directly associated with this service. Connectivity to BellSouth's Operator Services Platform will be accomplished via a trunk group connecting the CLEC customer's Point of Interface (POI) and the BellSouth Traffic Operator Position System (TOPS).

6.12.1.2 Basic Service Capabilities And Restrictions

Operator Call Processing provides live operator (Operator Provided Call Handling) and mechanized (Fully Automated Call Handling) functionality. BellSouth provides the following services to end-users on the CLEC customer's behalf via Operator Call Processing:

- Alternate Billing Services (collect, calling card, and third number billing)
- Person-to-Person calling
- Dialing Assistance and Instructions
- Verification/Interruption of a busy line
- General Assistance (all services BellSouth provides its own end-users)
- Operator Transfer Service
- Emergency Call Trace

The deployment of the BellSouth SS7 network and caller identification feature has reduced the number of such calls requested. The continued deployment of SS7 and its enhanced feature capability over the next 10 years will further reduce the need for Emergency Call Trace. The cost of Emergency Call Trace has not been incorporated into the price of Operator Call Processing, however, BellSouth will continue to provide this service upon request by an emergency agency (police, fire, EMT).

6.12.1.3 Selective Class Of Call Screening

Screen codes provide the CLEC's end-users with the ability to block 1+ dialing, but allow alternately billed calls. The subscribing CLEC must provide updates to the BellSouth table to support this service. Currently, Screening updates for Facility-based CLECs are submitted manually to BellSouth using the Selective Class Of Call Screening/Directory Assistance Call Completion form found in **Appendix C** of this guide.

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6.12.1.4 Branding

The BellSouth operator systems branding feature provides a definable announcement to CLEC end-users using Operator Call Processing prior to placing them in queue or connecting them to an available operator or automated operator system. This feature allows the CLEC to have its calls custom branded with the CLEC name.

BellSouth offers three service levels of branding to Facility-based CLECs ordering Operator Call Processing.

- Service Level 1 – BellSouth Branding
- Service Level 2 – Unbranded
- Service Level 3 – Customized Branding

The default Service Level for Facility-based CLECs is Unbranded Operator Call Processing. All service levels require the CLEC to order dedicated trunking from their end office's POI to the BellSouth TOPS switch.

Customized Branding includes charges for front-end, back-end, and 0-automation branding for Operator Call Processing. The recording and loading charges are non-recurring unless the CLEC elects to change the recorded name or requires access to additional TOPS switches. These charges will be populated on the CLEC's master "Q" account. The charge for loading of audio units will be billed on the state master account where the TOPS switch is located. Customized Branding is limited to the CLEC name.

6.12.1.5 How Does This Service Work?

Providing Operator Call Processing for Facility-based CLECs requires that the call be delivered to the BellSouth TOPS over a dedicated trunk facility. Modified Operator Services Signaling (MOSS) with Expanded Inband Signaling is the standard signaling format to be used to send the originating call to the Operator Services Switch. The signaling provides call control functionality such as coin control, operator hold, operator recall, ringback, and ii digits. Operator Call Processing requires that the CLEC provide Automatic Number Identification (ANI). All local and IntraLATA call completion attempts are routed over an inter-toll trunk facility on direct groups or by tandem routing to the terminating end office that serves the destination number.

6.12.2 Installation Intervals: 30 - 180 days

BellSouth will make every effort possible to complete service requests by the CLEC customer desired due date. Facility availability and construction requirements impact BellSouth's ability to always meet customer expectations. The stated interval is based upon averag for workload, facility availability, and construction requirements.

Project coordination is required.

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6.12.3 Service Inquiry and Ordering Guidelines

To obtain a copy of the *Access Service Ordering Guidelines* (ASOG), published by ATIS, visit the ATIS Web site at:

http://www.atis.org/atis/clc/obf/obfdocs.htm

Source of Information

Information is available through the Ordering Guidelines and Account Team. TOPS locations are documented in the *Local Exchange Routing Guide* (LERG). Please see the assigned Account Team representative for more information on the LERG.

Forms

Required forms include the Operator Services CLEC Questionnaire, ASR, and the Selective Class Of Call Screening/Directory Assistance Call Completion form, found in **Appendix C** of this guide.

6.12.4 Customer Education

6.12.4.1 Availability Of Material

CLEC training (for more information see the assigned Account Team representative) as well as a CLEC training manual, and ordering guidelines are available. Ongoing updates will be made to all materials to accommodate customer needs and to address any enhancements to this service. Operator Services will be represented at all CLEC Training Conferences.

6.12.4.2 How To Order

Forward completed ASR forms to the IPC.

6.12.4.3 ASR Ordering Requirements For Operator Call Processing

TRUNK TYPE - Toll & Assist - FACILITY-BASED

1. NC = SH-D
2. TRFTYP = OP
3. TTT = 4, 5, 6, or 7
4. OPS = J
5. SECLOC = BST TOPS TANDEM
6. BRAND = Y, C, or R. Y=Install, C=Change, R=Remove. When a Y or C is populated, the announcement must be populated in the ANNC field.

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7. ANNC = Company Name to be used for branding recordings
8. EML = 6
9. TK SIG = OE preferred. MOSS with Expanded Inband Signaling is standard. CLECs without this capability may use traditional operator services signaling (Please contact the assigned Account Team). Upgrades from traditional signaling to MOSS require building an entirely new trunk group.
10. D.NPA/NXX = Local Exchange Customer NPA/NXX
11. REMARKS = Branding service level and # of calls and announcement holding time or # of simultaneous connections desired or # of announcement trunks desired.

Operator Services trunk groups will be one-way and must be MF. Separate trunk groups are required for each originating NPA.

TRUNK TYPE - VE Y TRUNK

1. NC = SBX R SDXG
2. TRFTYP = VR
3. TTT = 1
4. OPS = N/A
5. SECLOC = BST TOPS TANDEM
6. BRAND = N/A
7. EML = 6
8. TK SIG = OE
9. REMARKS =

NOTE: A verification trunk should be ordered only when BellSouth is the provider of Operator Call Processing. This allows the BellSouth operator to verify numbers in the CLEC switch. Verification trunks are built from the BellSouth TOPS to the POI in each LATA.

Two-Way Inward Operator Services are available to CLECs and CLEC Operator Services Providers. Inward Operator Services should be ordered by the CLEC only when an Operator Service Provider other than BellSouth performs Operator Call Processing (0-, 0+) for the CLEC. Two-Way Inward is an Operator-to-Operator connection between the CLEC and BellSouth. It allows the CLEC operator to route to the BellSouth operator and the BellSouth operator to route to the CLEC operator. Please see the assigned Account Team about ordering Inward Operator Services for CLECs.

6.13 Directory Assistance Access Service

6.13.1 Service Description

6.13.1.1 Basic Service Features

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BellSouth will provide telephone listing information to Facility-based CLEC end-users on behalf of the CLEC customer. While CLEC customers have certain transport options concerning the method of connectivity to BellSouth's Directory Assistance (DA) locations, there are no optional network features directly associated with this service. Connectivity to BellSouth's Directory Assistance locations is accomplished by trunk groups connecting the CLEC's POI and the BellSouth DA location.

6.13.1.2 Basic Service Capabilities And Restrictions

- Directory Assistance Access CLEC customers will deliver end-user Directory Assistance calls to BellSouth DA location(s) via application specific interconnection trunks. Traffic types other than Directory Assistance calls may not originate via these trunks. DA Plus is part of the basic DA Access Service offering. BellSouth will only provide those listings residing in the BellSouth Directory Assistance Database. Addresses provided via DA Access may not reflect the end-user's actual address.

- National Directory Assistance (NDA) is provided to CLEC end-users where it is available to BellSouth end-users. It is part of the BellSouth basic Directory Assistance product and provided to the CLEC at no additional cost. NDA allows an end-user to call 411 or HNPA-555-1212 and request a listing for anywhere in the United States.

- Directory Assistance Access does not include non-published numbers. The Directory Assistance Operator will advise the end-user making a request for such a number, that the number is non-published.

- Reverse search capability is available where BellSouth provides this service to its own end-users: Alabama, Kentucky, Louisiana, Mississippi, and Tennessee.

6.13.1.3 Branding

The Directory Assistance Branding feature provides definable announcements to the CLEC end-users prior to placing them in queue or connecting them to an available operator or automated operator system. This feature allows the CLEC to have calls custom branded with the name of the CLEC.

BellSouth is currently offering three service levels of branding to Facility-based CLECs that order Directory Assistance.

- Service Level 1 – BellSouth Branding
- Service Level 2 – Unbranded
- Service Level 3 – Customized Branding

The default Service Level for Facility-based CLECs is Unbranded Directory Assistance. All service levels require the CLEC to order dedicated trunking from its end office(s) or POI to the BellSouth Directory Assistance location.

Customized Branding includes charges for recording of the branding announcement and the loading of the audio units in each TOPS switch for which the CLEC requires service. The recording and loading charges are non-recurring unless the CLEC elects to change the recorded name and/or requires access to additional TOPS switches. The recording charges will be placed on the CLEC's master "Q" account. The charge for loading of audio units will be billed on the state master account where the TOPS switch is located. Customized Branding is limited to the CLEC name.

6.13.1.4 How Does The Service Work?

Providing Directory Assistance Access for Facility-based CLECs requires that the call be delivered to the BellSouth Number Services switch over a dedicated TOPS trunk group type. Modified Operator Services Signaling (MOSS) with Expanded Inband Signaling is the standard signaling format to be used to send the originating calls to the Number Services switch. Directory Assistance Access requires that the CLEC provide Automatic Number Identification (ANI).

If the CLEC does not have the technical capability to provision MOSS, traditional operator services signaling may be used. Please see the assigned Account Team for further information. Any upgrades from traditional to MOSS signaling would require an N and a D order and the provisioning of an entirely new trunk group.

6.13.1.5 Feature Interactions

N/A

6.13.2 Installation Intervals: 30 - 180 days

BellSouth will make every effort possible to complete service requests by the CLEC customer Desired Due Date. Facility availability and construction requirements impact BellSouth's ability to always meet customer expectations. The stated interval is based upon average time for workload, facility availability, and construction requirements.

Project coordination is required.

6.13.3 Service Inquiry and Ordering Guidelines

To obtain a copy of the *Access Service Ordering Guidelines* (ASOG), published by ATIS, visit the ATIS Web site at:

http://www.atis.org/atis/clc/obf/obfdocs.htm

Source of Information

Information is available through the Ordering Guidelines and Account Team.

Forms

Required forms include the ASR and Operator Services CLEC Questionnaire. Number Services switch locations are documented in the *Local Exchange Routing Guide* (LERG). Please see the assigned Account Team representative for more information on the LERG.

6.13.4 Customer Education

6.13.4.1 Availability Of Material

CLEC training (see the assigned Account Team), BellSouth Interconnection Web site, and Ordering Guidelines are available. Ongoing updates will be made to all materials to accommodate customer needs and to address any enhancements to this service. Operator Services will be represented at all CLEC Training Conferences.

6.13.4.2 How To Order

Facility-based CLECs will order necessary POI to TOPS dedicated trunking with or without branding.

6.13.4.3 ASR Ordering Requirements

TRUNK TYPE - DA WITHOUT CALL COMPLETION - FACILITY-BASED

- NC = SH-J
- TRFTYP = DA
- TTT = 2
- OPS = N/A
- SECLOC = BST TOPS TANDEM
- BRAND = Y, C, or R. Y=Install, C=Change, R=Remove. When a Y or C is populated, the announcement must be populated in the ANNC field.
- ANNC = Company name to be used for branding recordings
- EML = 6
- TK SIG = OE. MOSS with Expanded Inband Signaling is standard. CLECs without this capability may use traditional operator services signaling. Please contact the assigned Account Team. Upgrades from traditional signaling to MOSS require building an entirely new trunk group.
- REMARKS = If customized branding is ordered, please provide # of calls and announcement holding time or # of simultaneous connections desired or # of announcement trunks desired.

Operator Services trunk group will be one-way and must be MF. Separate trunk groups are required for each originating NPA.

6.14 Directory Assistance Call Completion

6.14.1 Service Description

6.14.1.1 Basic Service Features

Directory Assistance Call Completion (DACC) Access will be offered to CLECs who also subscribe to Directory Assistance (DA) Access Service. DACC will allow a CLEC end-user's calls to BellSouth Directory Assistance to be automatically (without having to dial the number) completed after obtaining a directory listing number. Following the provisioning of the number from Directory Assistance, a standard announcement will advise the end-user of an option to have the call completed.

6.14.1.2 Basic Service Capabilities And Restrictions

All local and IntraLATA call completion attempts are routed over an intertoll trunk facility on direct groups or tandem routing to the terminating end office that serves the designated number. An Automatic Message Accounting (AMA) record that includes conversation time, originating, terminating number, and billing details is made for each call completion attempt. The record is in addition to the record made of the Directory Assistance transaction. CLECs that order DACC must also order Directory Assistance. DACC does not stand alone as a service. Directory Assistance Access may, however, be ordered without DACC.

DACC Access Service is available to CLECs subject to the following conditions:

- CLEC must subscribe to BellSouth Directory Assistance Service.
- CLEC must provide Automatic Number Identification (ANI).
- The requested listing must be a published number.
- The number retrieved from the database must be local or intraLATA with respect to the end-user originating number.
- DACC Access Service is provided via mechanized means. No live Operator Assistance will be provided in conjunction with DACC at this time.
- End-users must indicate via keypad DUAL Tone Multi-Frequency (DTMF) input that they desire call completion.

DACC Access Service may be provided to a CLEC only if all the above conditions are met. NPAs 500, 700, 800, and 900 are not eligible for DACC Access Service. Certain NXXs are also excluded.

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The basic DACC Access Service offering does not include the following:

- Speech recognition
- Alternate Billing capability
- Access from Public Access Telephones
- Detail Billing
- InterLATA Call Completion
- Retry or sequence calling
- Live Operator Access after selecting Call Completion
- Access from Selective Class of Call Screened Line
- Access from Hotel/Motel or Cellular

6.14.1.3 Blocking

Blocking of DACC for CLEC end-users can be provided. The subscribing CLEC must provide updates to the blocking database to support this service. Currently DACC end-user blocking updates are submitted manually to BellSouth using the Selective Class Of Call Screening/Directory Assistance Call Completion form found in **Appendix C** of this guide.

6.14.1.4 Feature Interaction

N/A

6.14.2 Installation Intervals: 30–180 days

The provisioning of DACC is done simultaneously with that of Directory Assistance Access Service.

BellSouth will make every effort possible to complete service requests by the CLEC customer desired due date. Facility availability and construction requirements impact our ability to always meet customer expectations. The stated interval is based upon average time for workload, facility availability, and construction requirements.

Project coordination is required.

6.14.3 Service Inquiry and Ordering Guidelines

To obtain a copy of the *Access Service Ordering Guidelines* (ASOG), published by ATIS, visit the ATIS Web site at:

http://www.atis.org/atis/clc/obf/obfdocs.htm

Source of Information

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Information is available through the Ordering Guidelines and Account Team.

Forms

Required forms include the ASR and Operator Services CLEC Questionnaire.

6.14.4 Customer Education

6.14.4.1 Availability Of Material

CLEC Training (see the assigned Account Team), BellSouth Interconnection Web site, and Ordering Guidelines are available. Ongoing updates will be made to all materials to accommodate CLEC needs and to address any enhancements to this service. Operator Services will be represented at all CLEC Training Conferences.

6.14.4.2 How To Order

Order through the ASR process (contact the assigned Account Team to complete the Operator Services Questionnaire)

6.14.4.3 ASR Ordering Requirements For DAC

TRUNK TYPE - DA WITH DACC - FACILITY-BASED

1. NC = SH-J
2. TRFTYP = DC
3. TTT = 2
4. OPS = N/A
5. SECLOC = BST TOPS TANDEM
6. BRAND = Y, C, or R. Y=Install, C=Change, R=Remove. When a C or Y is populated, the announcement must be populated in the ANNC field.
7. ANNC = Company Name to be used for branding recordings
8. EML = 6
9. TK SIG = OE. MOSS with Expanded Inband Signaling is standard. CLECs without this capability may use traditional operator services signaling. Please contact the assigned Account Team. Upgrades from traditional signaling to MOSS require building an entirely new trunk group.
10. D.NPA/NXX = Local Exchange Customer NPA/NXX
11. REMARKS = If customized branding is ordered, please provide the # of calls and announcement holding time or # of simultaneous connections desired or # of announcement trunks desired.

Operator Services trunk groups will be one-way and must be MF. Separate trunk groups are required for each originating NPA.

6.15 Direct Access To DA Service

6.15.1 Service Description

6.15.1.1 Basic Service Features

DADAS provides a CLEC with direct access to BellSouth's Directory Assistance Listing Database, Directory Assistance Search Application, and Database Administration Call Control for the sole purpose of providing a traditional voice directory assistance service. Non-published listings and listings of BellSouth customers requesting to be omitted are not provided.

6.15.1.2 Basic Service Capabilities And Restrictions

DADAS provides the CLEC's operators with the ability to search all eligible BellSouth listings in its database using a BellSouth standard Directory Assistance (DA) search format. BellSouth will provide DADAS from its Directory Assistance (DA) location in Jackson, Mississippi. The CLEC is responsible for providing the physical links and facilities required for connecting to the point of availability in Jackson, Mississippi. These facilities may be purchased from the Telephone Company at rates and charges billed separately from the charges associated with this service.

CLECs are responsible for providing their own switch, operator workstations, audio subsystem (optional), and transport facilities. The minimum service period is one month.

6.15.1.3 How Does This Service Work?

BellSouth's DADAS product provides high volume customers an alternative to traditional Directory Assistance Service. DADAS permits direct access to BellSouth's Directory Assistance Listing Database, Directory Assistance Search Application, and Database Administration Call Control. To interface, the CLEC must provide its own switch, operator workstations, audio subsystem (optional), and transport facilitates. The CLEC will be able to search all available BellSouth subscriber-listing records. Queries to the database will be answered using the standard DA service format. Non-published listings will not be available to the CLEC. DADAS will have the same functionality as traditional Directory Assistance service. DADAS will be available to accept queries 24 hours a day, 7 days a week and will be updated

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daily. DADAS will also provide the capability to connect an optional CLEC Audio Subsystem that will release automated messages and telephone numbers.

6.15.1.4 Feature Interaction

N/A

6.15.2 Installation Intervals

Normal installation intervals do not apply and project coordination is required.

6.15.3 Service Inquiry and Ordering Guidelines

6.15.3.1 Information Required

Ordering of the service is accomplished by contacting Operator Services wholesale product management, Interconnection Services, Industry Relations Account Team, and the CLEC Account Team. The DADAS-ASR-like application will be prepared by Operator Services personnel and forwarded to the appropriate LCSC group to input the service order.

6.15.3.2 How To Order

CLECs are responsible for providing their own switch, operator workstations, audio subsystem (optional), and transport facilities. The CLEC is responsible for providing the physical links and facilities required for connecting to the point of availability. These facilities may be purchased at rates and charges billed separately from the charges associated with this service.

A manual ASR is required.

6.16 Intercept Access

Utilize BellSouth Intercept Tandems form located in **Appendix C** of this guide.

6.16.1 Service Description

6.16.1.1 Basic Service Features

BellSouth will provide Intercept Access to CLEC end-users on behalf of the CLEC. Intercept Service refers calls from a disconnected or non-working number to the proper number. A database lookup is performed to retrieve the referral number. The referral number is provided to the calling party by a recorded audio announcement.

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A separate dedicated intercept trunk facility to the TOPS switch is required for intercept. Standard trunk signaling is used to send the intercepted number to the Number Services switch.

6.16.1.2 Basic Service Capabilities and Restrictions

For Facility-based CLECs, a separate, dedicated intercept trunk facility to the TOPS switch is required for intercept. Standard trunk signaling is used to send the intercepted number to the Number Services switch. Locations of the BellSouth Switches used for intercept can be found in the *Local Exchange Routing Guide* (LERG). (Please see the assigned Account Team representative for more information on the LERG.)
The subscribing CLEC must provide updates to the intercept database to support the service. Initially, updates will be done via a manual process. Intercepted numbers will be available within 72 hours after being properly provided to the intercept database. Intercept service is provided for three months.

NOTE: Intercept Access provided on behalf of the CLEC by BellSouth is a service the CLEC would use for end-users that are disconnecting their service from the CLEC or changing their telephone number within the CLEC. End-users disconnecting service from BellSouth or changing telephone numbers within BellSouth are provided intercept by BellSouth.

Basic Intercept Access Service does not include the following:

- Custom Announcements
- Call completion
- Detail Billing

6.16.1.3 Updates To The Intercept

The subscribing CLEC must provide updates to the Intercept database to support the service. Intercepted numbers will be available within 72 hours after being correctly provided by the CLEC to BellSouth. Intercept Service is provided for an average of 3 months or until a limited supply of numbers requires a reassignment. Currently, Intercept updates are submitted manually using the BellSouth LIDB and/or Intercept Service Order form found in **Appendix C** of this guide.

6.16.1.4 Feature Interaction

N/A

6.16.2 Installation Intervals: 30-60 days

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BellSouth will make every effort possible to complete service requests by the CLEC's desired due date. Facility availability and construction requirements impact BellSouth's ability to always meet CLEC expectations. The stated interval is based upon average time for workload, facility availability, and construction requirements.

Project coordination is not required.

6.16.3 Service Inquiry and Ordering Guidelines

To obtain a copy of the *Access Service Ordering Guidelines* (ASOG), published by ATIS, visit the ATIS web site at:
http://www.atis.org/atis/clc/obf/obfdocs.htm

Source of Information

Information is available through the Ordering Guidelines and Account Team.
Forms

Required forms include the ASR and Intercept Update form.

6.16.4 Customer Education

6.16.4.1 Availability Of Material

Material is available through the Account Team and the BellSouth Interconnection Web site. Ongoing updates will be made to all materials to accommodate CLEC needs and to address any enhancements to this service. Operator Services will be represented at all CLEC Training Conferences.

6.16.4.2 How To Order

Order through the ASR process.

6.16.4.3 ASR Ordering Requirements

Trunk Type - Intercept - Facility-based

1. NC = SDYB OR SBYB
2. TRFTYP = IR
3. TTT = 2
4. OPS = N/A
5. SECLOC = BST TOPS TANDEM
6. BRAND = N/A

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7. EML = 6
8. TK SIG = TS

Separate trunk groups are required from each originating NPA.

6.17 Operator Systems Branding

6.17.1 Operator Call Processing – Directory Assistance

6.17.1.1 Basic Service Features

The BellSouth Operator Systems Branding feature provides a definable announcement to CLEC end-users using Directory Assistance/Operator Call Processing prior to placing them in queue or connecting them to an available operator or automated operator system. This feature allows the CLEC to have its calls branded with the CLEC name.

BellSouth offers three service levels of branding to Facility-based CLECs ordering Directory Assistance and/or Operator Call Processing:

- Service Level 1 –BellSouth Branding
- Service Level 2 – Unbranded
- Service Level 3 – Custom Branded

Unbranding is the default service level. All service levels require the CLEC to order dedicated trunking from its end office(s) or POI to the BellSouth TOPS switch.

Customized Branding includes charges for the recording of the branding announcement and the loading of the audio units for front end, back end, and 0-automation branding. The recording and loading charges are non-recurring unless the CLEC elects to change the recorded name or requires access to additional locations. Customized branding is limited to the CLEC name.

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7.0 Electronic Interfaces and Gateways

This section provides an overview of the electronic interfaces and gateways available to CLECs to perform Pre-Ordering, Ordering, and Trouble Maintenance functions. They include:

- Local Exchange Navigation System (LENS)
- Electronic Data Interchange (EDI)
- Telecommunications Access Gateway (TAG)
- BellSouth® Robust Telecommunications Access Gateway (RoboTAG™ software)
- Trouble Analysis Facilitation Interface (TAFI)
- Electronic Communications Trouble Administration (ECTA)

7.1 Local Exchange Navigation System (LENS)

LENS is an on-line, interactive, menu driven system that permits subscribers to perform pre-order inquiry functions and process requests for various products, features and services currently offered by BellSouth. CLECs can use LENS for either new service (no existing telephone number) or existing service. The CLEC is also able to view Firm Order Confirmations (FOC), Completion Notices (CN), and LSR errors. CLECs using LENS can cancel pending orders or change due dates on pending orders that have been placed via LENS. For more information about LENS, the CLEC should contact its Account Team representative or review the Customer Guides section of the BellSouth Interconnection Services Web site at:

http://www.interconnection.bellsouth.com/guides/guides.html

7.2 Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) is an application-to-computer exchange of business documents in a standard format over a communications path. EDI requires the use of industry guidelines that define the format and the data content of the business transaction. This permits computers to clearly understand the transaction expected and the data necessary to conduct that transaction. Trading partners (e.g., BellSouth and the CLEC) must define the business information and supported standards that are necessary to transact business. This information is then encoded to fit a standard EDI transaction set for data transmission. EDI requires the use of industry guidelines that define the format and the data content of the business transaction. Currently, BellSouth's EDI gateway only supports specific guidelines applicable to ordering. For more information about these standards and the communication requirements, the CLEC should contact its Account Team representative or review the Customer Guides section of the BellSouth Interconnection Services Web site at:

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http://www.interconnection.bellsouth.com/guides/guides.html

7.3 Telecommunications Access Gateway (TAG)

TAG is similar to EDI in that it is a computer-to-computer exchange of business documents in a standard format over a communications path. TAG provides a bi-directional flow of information from a CLEC to BellSouth's Operational Support Systems (OSS) and from BellSouth's OSS to the CLEC. The TAG interface provides both pre-ordering and ordering functionality through the CLEC's own application interface. Again, similar to EDI, TAG supports specific guidelines applicable to pre-ordering and ordering. For more information about these standards and the communications requirements, the CLEC should review the *TAG API Reference Guide* at the web address listed below or contact the Account Team representative:

http://www.interconnection.bellsouth.com/markets/lec/oss_info.html

NOTE: This Web site only contains a link to the TAG documentation Web site address, which is password-protected. Only those CLECs requiring access are granted a User ID and password. For more information, the CLEC should contact its Account Team representative.

7.4 BellSouth® Robust Telecommunications Access Gateway (RoboTAG™ software)

BellSouth® RoboTAG™ software is an interface to the Telecommunications Access Gateway. CLECs can use RoboTAG software to perform pre-ordering inquiry functions (address validations, telephone number assignments, loop makeup requests, etc.) and to submit firm orders for ports, loops, port/loop combinations, ADSL, line share and resale orders. In addition, RoboTAG software manages the orders that are submitted to BellSouth and the responses that BellSouth returns to the CLEC. For more information about RoboTAG software, the CLEC should contact the BellSouth RoboTAG Software Account Team at SalesSupport.Account@bridge.bellsouth.com or call 770-936-3743.

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7.5 Trouble Analysis Facilitation Interface (TAFI)

CLEC TAFI is a rules-based, machine-to-machine interface, that automates trouble receipt and screening functionality. TAFI is an application that guides its users through a series of questions and instructions to resolve or route Plain Old Telephone Service (POTS) customer service problems. These questions and instructions, called flows, trigger the collection of relevant data from the customer as well as from BellSouth's downstream applications/systems. TAFI processes the data to provide rapid, consistent, and efficient problem analysis and generates a recommendation for resolving the problem. Results from TAFI fall into one of three categories: resolved/closed, routed to the appropriate entity for resolution, or canceled.

With TAFI, the CLEC is restricted to accessing BellSouth records for its customers only.

For more information about TAFI, the CLEC should contact its Account Team representative or review the Customer Guides section of the BellSouth Interconnection Services Web site at:

http://www.interconnection.bellsouth.com/guides/guides.html

7.6 Electronic Communications Trouble Administration (ECTA)

The Electronic Communications Trouble Administration (ECTA) gateway is a machine-to-machine interface built to the ANSI T1.227 and T1.262 national standards. Using ECTA, the CLEC can enter a trouble report, modify an existing trouble report, close an open trouble report, and receive proactive status messages about open trouble reports in BellSouth's Loop Maintenance Operations System (LMOS) and Workforce Administration (WFA) system.

For information about ECTA the CLEC should contact its Account Team representative.

8.0 Requesting Customer Service Records

In general, Customer Service Records (CSRs) provide end-user account information. A CLEC cannot access any other CLEC's end-user information.

The CLEC can obtain an end-user's record in one of the following ways:

1. Submitting a Letter of Authorization (LOA) prior to a Firm Order

   Prior to submitting a firm order request for local service, the CLEC may provide BellSouth with an end-user LOA request for records. This form can be found in **Appendix D** of this guide.

2. Online Interface

   Account information for customers can be obtained online. Larger accounts can be provided electronically via a batch process.

BellSouth will provide CSR information to the CLEC via U.S. mail, fax, or electronic interface, provided the CLEC has submitted the appropriate Letter(s) of Authorization. BellSouth will provide the following Data Elements: Telephone Number or other means of identification, Listed Name, Listed Address, Directory Listing Information, Directory Delivery Information, Billing Name, Billing Address, Service Address, and Product and Service Information.

The CLEC agrees to compensate BellSouth for all BellSouth incurred expenditures associated with providing such information to the CLEC. The CLEC will adopt and adhere to the BellSouth guidelines associated with each method of providing end-user record information.

9.0 BellSouth CLEC Training

BellSouth offers training courses to CLECs to help them interface efficiently with BellSouth. The classes are designed to aid the CLEC's understanding of the CLEC/BellSouth relationship and the procedures and services involved.

Seminars are taught by certified instructors experienced in BellSouth and the telecommunications industry. Seats are available on a first-come, first-serve basis.

Training information can be accessed on the BellSouth Interconnection Services Web site:

http://www.interconnection.bellsouth.com/training/html/clec_training_info.html

BellSouth also offers onsite delivery of each course. Call 888-404-9899 for details (some restrictions apply).

9.1 Course Schedule

The CLEC training course schedule is available for viewing or download from the BellSouth Interconnection Services Web site:

http://www.interconnection.bellsouth.com/training/doc/CLEC.pdf

A copy of the schedule can be mailed to the CLEC upon request.

Note that the schedule may change based upon attendance totals and other factors. Please verify course availability by calling 888-404-9899 for details.

9.2 Course Registration

The CLEC training course registration form is available for viewing or download from the BellSouth Interconnection Services Web site:

http://www.interconnection.bellsouth.com/training/doc/CLEC.pdf

A copy of the registration form can be mailed to the CLEC upon request. Call 888-404-9899 for details.

9.3 Course Offerings

CLEC course offerings are listed and described below. Check the BellSouth Interconnection Services Web site for current courses since offerings are subject to change.

http://www.interconnection.bellsouth.com/training/html/clec_class_info.html

9.3.1 CLEC Basic

Course Description
CLEC Basic was created to meet the needs of anyone requiring fundamental knowledge of the CLEC/BellSouth relationship. Designed for CLECs who have established "Q" accounts, this course also addresses Pre-Ordering, Ordering, Provisioning, Billing, and Maintenance of BellSouth products and services. The role of account teams and the Provisioning process for resale services are also addressed.

As the cornerstone course of the CLEC training curriculum, CLEC Basic includes critical skills and knowledge necessary for success in the additional courses of the CLEC curriculum. This course is for those who issue orders and maintain CLEC orders within the BellSouth region. Accordingly, this is a prerequisite for the more specially focused courses in the CLEC training curriculum.

Target Population
- All personnel who need a working knowledge of the CLEC/BellSouth interface in the area of non-complex resale services
- CLEC employees involved in the daily activities of ordering, customer services/support, provisioning, and maintenance

9.3.2 CLEC Basic Service Ordering

Course Description
This 2-day course is a condensed version of the 5-day CLEC Basic course. In this course attendees are provided a very broad overview of BellSouth business procedures. The class focuses on how to read a Customer Service Record (CSR) and how to complete Local Service Request (LSR) forms. In addition, the course also provides guidance on using BellSouth's databases, reading BellSouth's tariffs, and navigating several user guides.

Completion of either this course or CLEC Basic is required before attending LENS and EDI courses.

Target Population
- Customer service representatives who will conduct order input activities

- Management or others who manage order processing

Prerequisites
- An established Q Account

9.3.3 Unbundled Network (UNE) Overview

Course Description
This three-day course introduces the concept of Unbundled Network Elements (UNE) available from BellSouth. General descriptions of some of the more common UNEs are provided with instructions for ordering these services, as well as a brief description of the billing elements involved. The area of Maintenance and Repair is also covered in this course.

Target Population
- Personnel responsible for placing orders for UNEs
- Personnel involved in network planning, design, provisioning, and their managers

Prerequisites
- CLEC Basic or CLEC Basic Service Ordering

9.3.4 Data CLECs (DLEC) Unbundled Network Elements

Course Description
This three-day course introduces the concept of Unbundled Network Elements (UNE) in BellSouth focused on Data CLECs (DLECs). General descriptions of the UNEs related to DLECs are provided with instructions for ordering these services, both manually and electronically, as well as a brief description of the billing elements involved. The area of maintenance/repair is also covered in the course.

Target Population
- Personnel responsible for placing orders for UNEs
- Personnel involved in network planning, design, provisioning, and maintenance, and their managers

Prerequisites
- CLEC Basic (CLEC 100), CLEC Basic Service Order (CLEC 101) or Customer Service Order Reading.

9.3.5 Complex Products Service Overview

Course Description
This 3-day course provides information on BellSouth's voice and data communications products and services targeted at the Business market. Coverage of each product includes the

service description, tariff reference, technical functionality, features, and service order procedures (including appropriate service order forms and an example of each complex order type).

Voice Products included are BellSouth's MultiServ/MultiServ Plus Service, Centrex, PBX Trunks, DID Service and Private Line Services.

Data Services reviewed are BellSouth's Synchronet, MegaLink, MegaLink Channel Service, Integrated Services Digital Network Services (ISDN – Basic Rate Interface and Primary Rate Interface), and Frame Relay Service.

Target Population

- Customer Service ordering personnel
- CLEC administrators

Prerequisites

- CLEC Basic or CLEC Basic Service Ordering

9.3.6 Trouble Analysis Facilitation Interface (TAFI)

Course Description

TAFI training provides students with an understanding of BellSouth's rules-based computer system for automated trouble receipt and screening of residence and business customer service problems with non-complex, Plain Old Telephone Service (POTS).

This two-day training class provides students with a high level of simulation and hands-on interaction with the TAFI training database. The lectures and hands-on exercises prepare students to effectively use TAFI for processing trouble reports and routing them for restoration. Upon completion of the course, CLEC students are expected to be able to effectively handle initial and subsequent trouble reports.

The *TAFI End-User Guide* is covered with students during the class to facilitate use of the document as a training text and operational reference. The course is designed to enable CLEC employees to return to their respective companies and facilitate TAFI training or use the TAFI system effectively to handle non-complex service repair calls from end-user customers.

Target Population

- CLEC maintenance administrators
- CLEC-appointed trainers, supervisors, or managers

Prerequisites

- Completion of CLEC Basic or CLEC Basic Service Ordering or experience in either provisioning or maintenance of local exchange service

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- Commitment from sending company that trained resource will utilize acquired skills and knowledge immediately

9.3.7 Local Exchange Navigation System (LENS)

Course Description

This three-day course is designed to acquaint attendees with LENS (Local Exchange Navigation System) and enable them to successfully demonstrate use of LENS in a live production mode. Functions covered in the class include Inquiry, Firm Order, Supplement Existing Request, Bulk Orders and View LSR/Order Information. The class is designed to allow students the opportunity to follow along with the instructor as LENS functions are demonstrated and then a series of exercises help attendees develop navigation skills to effectively master each function covered.

Target Population

- Order entry personnel
- Customer appointed trainers

Prerequisites

- CLEC Basic or CLEC Basic Service Order or current knowledge of how to properly submit orders
- Typical PC user skills

9.3.8 Telecommunications Access Gateway (TAG)

Course Description

The TAG training course provides information and instruction to CLEC programmers to prepare them to design and develop client applications for the BellSouth TAG gateway. The course provides detailed documentation and information concerning the standard interface (API) that TAG provides to CLECs for use in developing their TAG-related OSS infrastructures.

The course includes one day of classroom instruction followed by one day of hands-on programming in a PC environment. During classroom instruction, the students learn about the Pre-Ordering and Ordering processes available through TAG. These processes enable CLECs to exchange information about current and future retail service. Students also are provided with examples of the exchange of information through the TAG API necessary for CLECs to service their customers. During the hands-on portion of the class, students put this knowledge into practice as they examine and execute a prototype of a TAG client application using pre-built source code components provided to them by their instructor(s).

Target Population

- System designers and programmers

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Prerequisites

- C++ programming language
- Good understanding of the CLEC's business requirements

9.3.9 Customer Products Service Records

Course Description

This 2-day course provides customer service record information on BellSouth's voice and data communications products and services targeted at the Business market. Coverage of each product includes the service description, tariff reference, technical functionality, features, and USOC codes.

A CSR example of each product will be reviewed.

Voice Products included are BellSouth's MultiServ/MultiServ Plus Service, ESSX, Centrex, PBX Trunks, and DID Service.

Data Services reviewed are BellSouth's Synchronet, MegaLink, MegaLink Channel Service, Integrated Services Digital Network Services (ISDN - Basic Rate Interface and Primary Rate Interface), and Frame Relay Service.

Target Population

- Customer Service Ordering Personnel
- CLEC Administrators

Prerequisites

- None

9.3.10 Collocation Overview

Course Description

This 2-day course introduces the concept of both Physical and Virtual Collocation in BellSouth. General descriptions of the collocation processes are provided with instructions for completing the applications, as well as a brief description of the billing elements involved. The areas of central office access, maintenance and repair are also covered in the course.

Target Population

- Personnel responsible for completing collocation applications
- Personnel involved in network planning, design, provisioning, and maintenance, and their managers

Prerequisites

- None

9.3.11 Directory Listings Forms Course

Course Description

Directory Listings is a 1-day course, which instructs participants on how to complete Directory Listings Forms and Caption Request Forms correctly.

Target Population

- All personnel who need extensive knowledge of how to complete the Directory Listing and Caption Request forms.

Prerequisites

- CLEC Basic or CLEC Basic Service Ordering.

9.3.12 Switched Port Loop Combination

Course Description

This 2-day course introduces the concept of Switched Port/Loop Combinations in BellSouth. General descriptions of the products are provided with instructions for ordering these services, as well as a brief description of the billing elements involved. The area of maintenance/repair is also covered in the course.

Products included

- 2 Wire Analog Port and Voice Grade Loop for Residence, Business and PBX
- DID 2-Wire Trunk Port and Voice Loop
- 2-Wire ISDN/BRI Digital Loop & Port
- 4-Wire ISDN/PRI Digital Loop & Port
- Digital Direct Integration Termination Service - 4-Wire Digital Loop & Trunk Port

Target Population

- Personnel responsible for placing orders for switched combinations.
- Personnel involved in network planning, design, provisioning, and maintenance, and their managers.

Prerequisites

CLEC Basic (CLEC 100) or CLEC Basic Service Order (CLEC 101) and Customer Service Ordering or Complex Products (which includes the product architecture)

9.4 Access Service Request (ASR) – Order Local Interconnection

Course Description

This 3-day course introduces students to the concepts of requesting local interconnection trunking from BellSouth. The curriculum includes overviews of the architecture of local interconnection trunking for call transport and termination as well as guidelines for using the ASR for ordering these specific types of services. Students will be introduced to both manual and mechanized ordering environments. The *Access Service Ordering Guide* (ASOG) will be used as the primary reference document to teach students specific Access Service Request (ASR) forms and data element requirements for preparation of Access Service Requests.

Target Population

- Employees of facility-based CLECs responsible for ordering Local Interconnection Trunking

Prerequisites

- CLEC Basic or CLEC Basic Ordering
- CLEC Unbundled Network Elements (UNEs) Overview

9.4.1 Access Service Ordering Guideline (ASOG) for Basic Access Service Request (ASR)

Course Description

This three day course introduces students to the concepts used in requesting Special and Switched Access Service from BellSouth. The curriculum includes overviews of the architecture of Special and Switched Access Service, as well as guidelines for using the Access Service Request (ASR) for ordering these services. Access Service Ordering Guide (ASOG) will be used as the primary reference document to teach students specific ASR forms and data element requirements for preparation of Access Service Requests.

Target Population

- Employees of Carriers responsible for ordering Special and Switched Access Service.
- Management or other personnel who manage Access Ordering Processes.

Prerequisites

- None

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9.4.2 Special Access for ASR

Course Description
Technical, legal and regulatory changes may affect information provided in this course. Changes made subsequent to the publications of this are not reflected in this course material.

Performance Objectives – Course Agenda
This three-day course provides information on BellSouth's enhanced Access Services. Coverage of each product includes service description, tariff reference, technical functionality, features and ordering procedures.

The course covers BellSouth SPA Point to Point Network (LIGHTGATE-DS3), BellSouth Dedicated Ring (SMARTRING), Ring Activation, BellSouth SPA DS1 Shared Ring (SMARTPATH), BellSouth Customer Reconfiguration (FlexServ), BellSouth Exchange Access Frame Relay Service (XAFRS), BellSouth exchange Access Asynchronous Transfer Mode (XAATM) and BellSouth SPA DS1 Diversity.

Target Population
- Employees of Carriers initiating Access Service Requests for BellSouth enhanced Access Services.

Prerequisites
- Access Service Ordering Guidelines (ASOG) for Basic ASR.

9.4.3 Common Access Front End – 2-day course

This two-day course is designed to acquaint attendees with CAFÉ (Common Access Front End) and enable them to successfully demonstrate use of CAFÉ in a live production mode. The CAFÉ User Guide is used as a reference tool throughout the class. Functions covered in class include Pre-Order Inquiry/Validation of end user address, CFA's, NC, NCI, SECNCI and Facility Availability. Attendees will also successfully create an ASR template, submit an ASR using a template and create an ASR from a blank screen. In addition, attendees will view the status and details of an ASR that has been submitted, issue an update to a pending ASR and view reports.

Target Population
- Entry Personnel
- Customer Appointed Trainers

Prerequisites
- ASR 600: Access Service Ordering Guidelines (ASOG) for Basic Access Service Requests (ASR)

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- ASR 601: Special Access for Access Service Requests or
- CLEC 500: Access Service Request (ASR) Ordering Local Interconnection Trunking.

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10.0 Business Process Overviews

This section provides a high-level process overview for the following areas:

- Pre-Ordering
- Ordering
- Provisioning
- Maintenance & Repair
- Billing
- Collocation
- Local Number Portability Ordering Process

Each overview is intended to give the CLEC a primer of each business process. Since the overviews are not meant to supply details of the business processes, references are provided for more specific information.

10.1 Pre-Ordering Process

Pre-Ordering is the first step in the local ordering process with BellSouth. The Pre-Ordering process begins when the CLEC submits a request completed with the appropriate customer data. Once the request is submitted, data validation is performed to ensure that there is complete and accurate information provided on the LSR. If the CLEC is using one of the provided BellSouth electronic interfaces (e.g., LENS, RoboTAG™ software), data validation is a function of the interface. Data will be validated including information provided on address, telephone reservation, feature/service availability, installation intervals/scheduling and customer record information. In the case of the CLEC developed interfaces (e.g., TAG, EDI), the CLEC is responsible for designing the interface with its desired level of data validation functionality.

If the CLEC submits the LSR package of forms manually (i.e., fax or mail), the data validation is performed by the Local Carrier Service Center (LCSC) as part of the ordering process. Requests to the CLEC for clarification on the LSR are a component of data validation. If the CLEC chooses to submit the LSR manually, it is recommended that the CLEC complete the electronic pre-ordering process to ensure accurate ordering.

In addition to the LSR form, the CLEC must also provide the End-user Information Form (EU) and the appropriate combination of the service specific forms (Resale Service, Loop Service, Number Portability, Loop Service with Number Portability, Port Service, and Directory Listing Request) during the Ordering processes. To improve the CLEC's efficiency and effectiveness, BellSouth has developed the *BellSouth Business Rules for*

Local Ordering document for assisting the CLEC in identifying the correct form and relevant information necessary to accurately complete each form. This document can be found on the BellSouth Interconnection Services Web site at:
http://www.interconnection.bellsouth.com/guides/guides.html

Service inquiries are performed as needed to ensure facilities availability for some service requests. Service inquiries are made by the CLEC Account Team once the LSR has been received from the CLEC. The Account Team sends the service inquiry to the appropriate downstream BellSouth organizations (e.g., Outside Plant Engineering, Circuit Provisioning Group, and Circuit Capacity Management) to ensure facilities are available.

The Pre-Ordering process available electronically can be divided into six distinct sub-processes. These sub-processes allow for a logical breakdown of the pre-ordering process. Listed below are the sub-processes and descriptions.

Address Validation: This sub-process is performed to validate a customer address.

Telephone Number Reservation: This sub-process is performed to select and reserve a telephone number.

Feature/Service Availability: This sub-process is performed to validate the availability of a requested feature/service in a particular switch.

Installation Intervals & Scheduling: This sub-process is performed to assign a target installation interval and service dates.

Customer Service Record Information: This sub-process is performed to reference records for the CLEC's customers and existing BellSouth customers.

Service Inquiry: This sub-process is performed by BellSouth for CLEC service requests, as needed, once the service request is received by the CLEC Account Team. The activities in this sub-process differ based on the type of service ordered.

For more detailed information on the Pre-Ordering process, please refer to *the BellSouth Pre-Ordering and Ordering Overview Guide*, the *Pre-Order Business Rules*, and the *Pre-Order Business Rules Data Dictionary*. These documents can be found at on the BellSouth Interconnection Services Web site at http://www.interconnection.bellsouth.com/guides/guides.html

10.2 Ordering Process

NOTE: Since the Pre-Ordering process overview contains information that is relevant to the Ordering process as well, review the Pre-Ordering process overview before reading this section.

The Ordering process is used by a CLEC to submit orders for products and services offered by BellSouth. The process begins when the CLEC transmits a LSR to BellSouth either electronically via the Local Exchange Navigation System (LENS), Electronic Data Interface (EDI), the Telecommunications Access Gateway (TAG), or the Robust Telecommunications Access Gateway (RoboTAG™ software) or manually via fax or mail to the Local Carrier Service Center (LCSC).

The Ordering process validates the LSR data and generates a service order. Since incomplete, incorrect, or conflicting information can result in BellSouth's inability to issue orders as requested, the LSR may be returned to the CLEC for clarification as necessary. Once the LSR is validated and a service order has been issued by the LCSC, BellSouth issues a Firm Order Confirmation (FOC) to the CLEC. At that point, the Ordering process is considered complete and provisioning of the service begins.

NOTE: The Ordering process may differ depending on whether the requested service/product is Simple, Complex, or an Unbundled Network Element (UNE).

The Ordering process can be divided into three distinct sub-processes. Listed below are the Ordering sub-processes and descriptions.

Order Process Submission: The CLEC submits an LSR electronically through LENS, EDI, TAG, or RoboTAG™ software or manually to the LCSC via fax or mail.

Order Process Validation & Clarification: BellSouth validates the LSR by performing accuracy, completeness, and validity checks. This sub-process also involves the return of the LSR to the CLEC for explanation of information provided or not provided.

Order Process Confirmation: Order Process Confirmation occurs when the service request becomes a service order(s) and is recorded in BellSouth's Service Order Control System (SOCS) for provisioning. At this point, a FOC is sent to the CLEC.

For more detailed information on the Ordering process, please refer to the *BellSouth Pre-Ordering and Ordering Overview Guide*, *BellSouth Business Rules for Local Ordering*, the *Local Exchange Ordering Implementation Guide (LEO IG) Volume II, the LEO IG Volume III*, the *BellSouth EDI Specifications Guide*, the *Local Exchange Navigation System (LENS) User Guide*, and the *TAG API Reference Guide*. These documents can be

found at on the BellSouth Interconnection Services Web site at http://www.interconnection.bellsouth.com/guides/guides.html

Please contact the assigned Account Team representative for more information regarding the documents that require a password to view.

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10.3 Provisioning Process

The Provisioning process includes all of the activities necessary for BellSouth to provide telecommunications services on a CLEC order. Provisioning begins once a complete and accurate service order is produced by BellSouth's Service Order Control System (SOCS). The provisioning process includes facilities assignment, software changes, circuit design, issuance of technician work orders, service coordination/installation and testing/activation procedures. Provisioning is considered complete once the completion information is received by SOCS and routed to the appropriate systems.

The process for Provisioning is determined by various factors such as the type of service(s) order (designed or non-designed), the service(s) being requested, features, and number of new connects. The complexity of the service(s) ordered may dictate additional activities to ensure accurate provisioning of the order.

The Provisioning process can be divided into four logical sub-processes. Listed below are the Provisioning sub-processes and descriptions.

Order Assignment: This sub-process begins at SOCS and includes all assignment activities. Once the service order information is received by SOCS, it is transmitted to the necessary downstream systems based on the information contained in the service order. These systems provide assignment information back to SOCS.

Order Design: This sub-process includes all circuit design activities. If circuit design is needed (designed orders only), the order will be sent to the Circuit Provisioning Group (CPG).

Service Work: This sub-process begins once the order assignment and design information is received by the various BellSouth service centers via the appropriate systems, depending on service type. Installation occurs during this sub-process. Service work ends when all appropriate centers have completed their portion of the provisioning process.

Provisioning Completion: This sub-process begins once service completion information is received by the appropriate BellSouth systems. Provisioning is complete once completion notice information is sent to the appropriate systems and billing information has been sent to BellSouth's billing systems. Depending upon the CLEC's billing period, a bill may not be generated for 20-30 days after completion.

For more detailed information on the Provisioning process, please refer to the *Products and Services Interval Guide* at http://www.interconnection.bellsouth.com/guides/guides.html or contact the assigned Account Team representative.

10.4 Maintenance and Repair Process

The Maintenance and Repair process involves the procedures in place to receive and resolve service trouble issues. Typically, this will involve a CLEC (i.e., Facility-Based or Reseller) reporting a problem with its customer's local service. BellSouth will follow a set of standard procedures to locate the trouble, identify the correct course of action, and resolve the problem in the minimal amount of time possible. CLECs are responsible for the retention and administration of records and end-user communications related to all repair and maintenance activities.

The process begins when a CLEC customer calls his/her local service provider to report a service problem. Facility-based carriers are required to first check their own facilities to see if the problem resides within their own or customer provided equipment. If the trouble is related to BellSouth's equipment, the CLEC will then call either the BellSouth Resale Maintenance Center (BRMC) or the Unbundled Network Element Center (UNEC). The BRMC provides a single point of contact and accountability for all Resale CLECs, for the maintenance of Non-Complex Resale Services, and for the provisioning and maintenance of Complex Resale Services. The UNEC provides provisioning and maintenance support for all Facility-Based CLEC products.

Depending upon the type of service, a BRMC or UNE center agent will enter the trouble ticket into one of BellSouth's two trouble management systems. After the trouble ticket is entered, the equipment and facilities are tested to locate the source of the trouble. Based on the type of service, a center agent tests the circuit and interfaces by utilizing mechanized and non-mechanized testing systems to locate the trouble.

Upon locating the trouble, the trouble ticket is electronically dispatched to a technician to make the repair. The technician makes the repair and restores service to the customer.

Once the technician/agent has restored the service, the CLEC is notified that service has been restored and the technician/agent closes the trouble ticket in the Trouble Management System.

NOTE: Electronic interfaces (i.e., TAFI and ECTA) are available to CLECs to perform trouble maintenance functions. More detail about these options can be found in the *Electronic Interfaces* section of this guide.

As described above, the Maintenance and Repair process can be divided into four distinct sub-processes:

Trouble Ticket Reporting: This sub-process includes the collection and entry of all relevant trouble information into BellSouth's Trouble Management Systems.

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Testing and Analyzing the Trouble: This sub-process involves testing to determine the location of the trouble (Facilities, Equipment, Customer Provided Equipment, and Software).

Correcting the Trouble: This sub-process involves the procedures followed to restore service. This may or may not involve dispatching a trouble ticket to a technician; however, in either case, the service provider's (i.e., BellSouth) agent is assigned a trouble ticket and is responsible for restoring service to the customer.

Closing the Trouble Ticket: This sub-process includes closing of the trouble ticket in BellSouth's Trouble Management System and notification that service has been restored.

For more detailed information on the Maintenance and Repair process, please contact the assigned Account Team representative.

10.5 Billing Process

The Billing process includes daily processing of service orders for account creation and updating, collection of usage to be applied to an account, calculation of charges for usage and services to be applied to an account, and issuance of a bill to the CLEC. The Billing process is a continuous cycle, but a billing period can be viewed as a completion of one cycle of the entire billing process. The billing period begins with the aggregation and calculation of usage charges, recurring charges, and non-recurring charges. The billing period ends when a bill is transmitted to the customer. BellSouth has 20 billing periods, grouped by accounts. The CLEC will be assigned a billing period, which will remain constant.

CLEC billing takes place in either the Customer Records Information System (CRIS) or the Carrier Access Billing System (CABS). CRIS processes billing information for resale services sold to CLECs. CABS processes billing information for access services sold to Interexchange Carriers (IXCs) and central office access services sold to companies such as CLECs without central office access to the customer but needing access to the customer along the "final mile".

Billing can be divided into six, distinct sub-processes; however, from a high level it is helpful to categorize the billing sub-processes into Daily Processing and Bill Period Processing. Daily Processing is a continuous process and functions independently of bill periods and customers. Daily Processing includes Daily Service Order Processing and Message Processing. Bill Period Processing is account-specific and is the set of processes that occurs during an actual billing period, including Bill Calculation, Bill Format, Bill Verification, and Bill Distribution.

Examine the descriptions below for a better understanding of each sub-process.

Daily Service Order Processing: This sub-process receives and processes completed service orders on a daily basis from BellSouth's Service Order Control System (SOCS) and updates customer accounts in CRIS and CABS with the appropriate services and billing indicators.

Message Acquisition and Processing: This sub-process collects usage data, edits and validates the usage, then packages and routes the usage to the appropriate billing system (CRIS or CABS) for processing and guiding to the appropriate account.

Bill Calculation: This sub-process identifies and collects all customer data that is scheduled for billing. Bills are calculated based on the service on the account, fractional month charges when appropriate, usage, surcharges, and taxes. This sub-process also applies aggregation rules and discounting.

Bill Format: This sub-process produces variable sized and formatted invoices (e.g., face page, bill messages) based on specific customer criteria or industry standards.

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Bill Verification: This sub-process checks for accuracy of bill content and format in order to catch billing problem trends. Bill Verification occurs daily and problem trends that are detected are investigated and corrected.

Bill Distribution: This sub-process prints and distributes billing invoices through electronic media and paper.

For more detailed information on the billing process, please refer to the BellSouth Interconnection Services Web site at http://www.interconnection.bellsouth.com or contact the assigned Account Team representative.

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10.6 Collocation Process

Collocation is the process of locating CLEC equipment and facilities in BellSouth Central Offices. There are two types of BellSouth collocation offerings: Physical Collocation and Virtual Collocation.

Physical Collocation is a negotiated service that offers installation of collocator-owned equipment and facilities in leased BellSouth central office floor space for the purpose of connecting to the BellSouth network. The collocator is solely responsible for the timing, alarming, monitoring, performance, maintenance, provisioning and repair of its installed equipment.

Virtual Expanded Interconnection Service (VEIS), or Virtual Collocation, is a tariffed service that offers placement of collocator-owned transmission facilities and equipment in BellSouth's central offices and the interconnection of this equipment to BellSouth's network services. BellSouth leases the equipment from the collocator and is responsible for the maintenance of the equipment.

Collocation begins when BellSouth receives the collocation application form from the CLEC. It is complete when a space acceptance meeting is conducted between the CLEC and BellSouth Representatives and the CLEC accepts the space. Early acceptance cases in which the CLEC has the ability to install its equipment prior to the completion of provisioning also exist.

Collocation can be divided into two distinct sub-processes:

Application: Application begins when the CLEC prepares and submits the collocation application form, with the appropriate application fees, and ends when the BellSouth Account Team Collocation Coordinator (ATCC) returns a full response to the application to the CLEC. The response includes an estimate of the cost to provision the arrangement. There is an intermediate milestone in which the ATCC responds to the CLEC regarding space availability.

Provisioning: Provisioning begins when the CLEC returns a Firm Order, including 50% of the estimated cost to provision the arrangement, to BellSouth and ends when the collocation arrangement has been accepted by both the CLEC and BellSouth. This sub-process consists mainly of the work required to prepare the BellSouth central office collocation space.

For more detailed information concerning the Collocation process, please refer to the *Physical Collocation* and *Virtual Collocation* sections of this guide and to the *Collocation Handbook* at http://www.interconnection.bellsouth.com/guides/guides.html

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10.7 Local Number Portability Ordering Process

The Local Number Portability (LNP) allows end-users to retain their telephone number when switching local exchange carriers. This particular form of local number portability is known as service provider portability.

The LNP ordering process begins when a CLEC submits an LNP LSR to BellSouth. Upon receipt and validation of a LSR, BellSouth issues a FOC to the CLEC with a due date and service orders are issued, if applicable. It is the CLEC's responsibility to send a "Create Subscription Version (SV)" to the Number Portability Administration Center (NPAC) upon receiving a FOC. This indicates the CLEC's intent to port the number. BellSouth then sends a "Concur SV" to NPAC. The CLEC then sends an "Activate SV" to NPAC on the due date, indicating that the number has been ported.

After receiving notification from NPAC about the CLEC's "Activate SV," BellSouth issues or completes a Disconnect service order, and listing order if applicable, depending on the type of request. BellSouth then sends an E911 Unlock message to SCC, a neutral third party responsible for the E911 database administration. The CLEC sends an E911 Migrate message to SCC.

It is important to note that a supplemental LSR is needed to modify the due date or add or remove phone numbers from the request. BellSouth will return a FOC for the supplemental LSR. At that time, the CLEC must modify the SVs for each telephone number at the impact.

The LNP ordering process can be divided into four sub-processes :

Order Submission: CLEC sends an LNP LSR to the BellSouth LCSC via manual or electronic interface.

Order Validation: BellSouth validates the CLEC LSR for errors, and requests clarification when necessary.

Order Administration: BellSouth issues service orders for LNP requests, if applicable. BellSouth sends a FOC to the CLEC, if clarification is not needed. The CLEC receives the FOC and immediately sends a "Create SV" to NPAC. BellSouth then sends a "Concur SV" to NPAC. The CLEC sends the "Activate SV" to NPAC on the due date, porting the number.

Order Completion: BellSouth issues or completes the Disconnect order, and listing order if applicable, and sends E911 Unlock message to SCC. The CLEC sends E911 Migrate message to SCC.

For more detailed information concerning the LNP ordering process, please refer to the *Local Number Portability Ordering Guide for CLECs* at:

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http://www.interconnection.bellsouth.com/guides/guides.html

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11.0 Resources and Contact Information

The resources included in this section are available to assist the CLEC in becoming familiar with the information available from BellSouth for the CLEC community.

11.1 BellSouth Interconnection Services Web Site

The most current CLEC information is always available on the BellSouth Interconnection Services Web site, including all contact information included in this section of the Start-Up Guide. In addition, the Web site features an easy to use e-mail option.

http://www.interconnection.bellsouth.com

Other helpful information is also available on the BellSouth Interconnection Services Web site.

11.1.1 Customer Letters/Announcements

http://www.interconnection.bellsouth.com/

From the BellSouth Interconnection Services home page, click on "Carrier Notifications" on the menu on the left of the page. From there, click on "Customer Letters/ Announcements" to view specific documents.

Recommendation: Check this location weekly.

11.1.2 Carrier Network Notifications

http://www.interconnection.bellsouth.com/

From the BellSouth Interconnection Services home page, click on "Carrier Notifications" on the menu on the left of the page. From there, click on "Carrier Notification Letters" to view specific documents.

Recommendation: Check this location regularly.

11.1.3 Tariffs & Notifications

http://cpr.bellsouth.com/

11.1.4 Technical References

http://www.interconnection.bellsouth.com/products/tech_ref.html

11.1.5 Keyword Search Feature

http://www.interconnection.bellsouth.com/

From the BellSouth Interconnection Services home page, click on "Search." Enter a "keyword" to search for information of interest.

11.2 Local Exchange Carrier Web Site

http://www.interconnection.bellsouth.com/markets/lec.html

From the "Local Exchange Carriers" menu the following topics can be accessed:

CLEC Brochure	http://www.interconnection.bellsouth.com/markets/lec/clec_brochure.html
CLEC Products	http://www.interconnection.bellsouth.com/markets/lec/clec_prod.html
CLEC Training	http://www.interconnection.bellsouth.com/training/announce.html
CLEC Reports	http://www.interconnection.bellsouth.com/markets/lec/clec_report.html
Customer Guides	http://www.interconnection.bellsouth.com/guides/guides.html
Customer Newsletters	http://www.interconnection.bellsouth.com/news/clecnews.html
Customer Service Centers	http://www.interconnection.bellsouth.com/markets/lec/ics_cntr.html
Disaster Basic 911/E911 by State/Co	http://www.interconnection.bellsouth.com/markets/lec/911/911_availability.html
Enhanced Service Provider Service Center (ESPSC)	http://www.interconnection.bellsouth.com/about/centers/ESPSC.html
CLEC Forms	http://www.interconnection.bellsouth.com/forms/lec/lec_form.html
Network Operations Centers	http://www.interconnection.bellsouth.com/markets/lec/net_cntr.html
OSS Information Center	http://www.interconnection.bellsouth.com/markets/lec/oss_info.html

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11.3 Additional Resources

Additionally, the following resources are available to assist CLECs:

Topic	Resource	Contact & Additional Information
• Initial Point of Contact • General CLEC Questions • Activation	Pre-Sales Quality Team (PQT)	Phone Number 888-560-CLEC (888-560-2532) http://www.interconnection.bellsouth.com/contact/contact.html
• BellSouth Advertising and Publishing Corporation (BAPCO) contracts and directory delivery	BAPCO	Director- LEC Interface Room 270 59 Executive Park South Atlanta, Georgia 30329 Phone Number 404-982-7105 Fax Number 404-982-6907
• Listings in Customer Guide Pages of BellSouth Printed Directories	BAPCO	Please see above CLEC must complete Competitive Local Exchange Carrier Information for BellSouth Advertising & Publishing Corp. Customer Guide Pages form found in **Appendix E**
• Daily Operations Reports (PF Report and PON Status Report)	Interconnection Services Daily Operational Report Web site	https://clec.bellsouth.com NOTE: This is a secure site and requires user IDs and passwords. Contact the assigned Account Team for additional information.
• Monthly Performance Measurement	Monthly Performance Measurement Web site	https://pmap.bellsouth.com NOTE: This is a secure site and requires user IDs and passwords. Contact the assigned Account Team for additional information.

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Topic	Resource	Contact & Additional Information
• Disaster Response	Disaster Response Area on Interconnection Web site	http://www.interconnection.bellsouth.com/network/disaster.html
• Provisioning Customer Support	Provisioning Customer Support (please see Interconnection Agreement)	8am - 5pm (local time), Monday - Friday (excluding holidays) 8am - 5pm (local time), Saturday (excluding holidays) for non-designed, non-coordinated services. Any requests for provisioning and installation services outside of the hours listed in the interconnection agreement may be subject to extra billing charges.
• Maintenance Centers	Maintenance Centers (please see Interconnection Agreement)	BellSouth Maintenance Centers are available 24 hours a day, 7 days a week
Billing • Processing Local Service Requests	Local Carrier Service Center (LCSC)	UNE, Consumer, Complex, Small Business LCSC: http://www.interconnection.bellsouth.com/about/centers/LCSC_locations.html Billing LCSC: http://www.interconnection.bellsouth.com/forms/billing&collections.html The LCSC is responsible for providing the following services for its customers: • Handling billing inquiries and payment arrangements • Delivering authorized end-user record information • Processing service order requests

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Topic	Resource	Contact & Additional Information
• Maintenance and Repair of Resale Services	Business Resale Maintenance Center (BRMC)	BellSouth Resale Maintenance Center 2445 Commerce Ave. Building 2300 Duluth, GA 30096 Phone Number 888-461-0612 http://www.interconnection.bellsouth.com/about/centers/BRMC_locations.html
• Maintenance Support • Provisioning of Design Services • Provisioning of Non-Design Services	UNE Center (UNEC)	Maintenance Support is available 24 hours a day, 7 days a week Provisioning of Design Services is available Monday - Friday from 8am - 5pm (local time). Provisioning of Non-Design Services is available Monday - Saturday from 8am to 5pm (local time). UNE Center 2445 Commerce Ave. Building 2300 Duluth, GA 30096 Phone Numbers • CLECs in AL, KY, LA, MS, and TN: 557-6108 • CLECs in FL, GA, NC and SC: 770-780-6108 • CLECs outside of BellSouth territory: 800-795-0153 UNE Center 19th Floor 600 North 19th Street Birmingham, AL 35203 Phone Numbers • CLECs in AL, KY, LA, MS, and TN: 557-6144 • CLECs in FL, GA, NC and SC: 770-780-6144 • CLECs outside of BellSouth territory: 888-385-1350 http://www.interconnection.bellsouth.com/about/centers/UNEC_locations.html

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Topic	Resource	Contact & Additional Information
• Processing of Orders and Invoices for Local Interconnection Trunks	Interconnection Purchasing Center (IPC)	The IPC is available 8am - 4:30pm (Central Standard Time), Monday - Friday Interconnection Purchasing Center 7th Floor 600 North 19th St. Birmingham, AL 35203 Phone Numbers 800-666-0580 Fax Numbers 205-321-4449 http://www.interconnection.bellsouth.com/about/centers/IPC_locations.html
• Resale & Facility-based Provider Questions	Account Team	BellSouth assigns an Account Team to CLECs as appropriate. The Account Team can assist the CLEC in completing start-up and activation requirements. Some other specific functions of the Account Team include: • Contract Negotiations Assistance • BellSouth Services/Product Contracts • Enhanced Billing Options Negotiations • Initial Contact/Negotiator for Complex Services • Transport Percentage Negotiations • Completion of Class of Service Request Form for Selective Routing * • Selection of Customized Calling Restrictions (Dialing Options) * • Customer Education (i.e., how to do business with BellSouth) • Technical Assistance • General Problem Resolution (i.e., customer advocate) • Tariff Interpretation • Rate Quotations • Project/Order Coordination * Must be completed in conjunction with the up-front planning and/or negotiation process and submitted to the Account Team. No orders should be placed prior to the completion of required network activities.

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12.0 Appendices

12.1 Appendix A

12.1.1 Tax Exemption Certificate Request

"Date"

"Company"
"Address1"
"Address2"
"City", "State" "Postal Code"

Dear Customer:

In compliance with the Internal Revenue Code of the U.S. Government you must provide to BellSouth Telecommunications a tax exemption certificate *in the name that appears on your telephone bill* before an exemption from the Federal Excise Tax on telecommunications services can be allowed. Additionally, the State laws require that you provide BellSouth your Reseller's registration number before an exemption from state and/or local taxes can be allowed.

A BellSouth provided tax exemption certificate (Form 6318-FED) is attached, so please complete pages 1 and 4 on this form, list all qualifying account numbers and sign the form. Form 6318-FED along with the Kentucky State provided exemption certificate, if applicable, should be mailed to us as indicated below or you may call the service center number listed on your telephone bill with any questions.
NOTE: Exemption from Federal excise tax and State excise tax cannot be established until the completed BellSouth provided Form 6318-FED and a Kentucky exemption form, if applicable, are received.

Your cooperation in the matter is deeply appreciated. Although this procedure is time-consuming for both of us, it must be done to comply with federal and state laws. We want our customers to receive every tax exemption that they are legally entitled to claim. This is just another service that BellSouth provides to help you save money.

BELLSOUTH TELECOMMUNICATIONS
Comptrollers - Tax Section
23rd Floor Section B-3
600 North 19th Street
Birmingham, AL 35203
FAX: (205) 321-3434

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12.1.2 Certificate Of Continuing Exemption From Federal Excise Tax On Telecommunication Services

Certificate of Continuing Exemption from Federal Excise Tax on Telecommunications Services

[ ] New
[ ] Renewal

The undersigned represents he/she is authorized to execute this certificate and hereby claims exemptions from taxes imposed by Section 4251 of the Internal Revenue Code under the following provisions. The appropriate section of this form must be completed, qualifying account numbers must be listed and this form must be signed, dated and returned to BellSouth before an exemption can be allowed.

Complete only one of the following sections:

A. Reseller of Telecommunications Services

The undersigned certifies the communications services furnished by the telephone company will be used exclusively in the rendering of a communications service upon which tax is imposed by Section 4251 of the Internal Revenue Code. It is understood that no tax will be collected by the telephone company on charges for said service and it will be the responsibility of the undersigned to collect such tax as may be due from its' customers and remit the tax to the Internal Revenue Services.

I. TYPE OF CHARGES (Please check one)

a. ( ) exempt from both local and toll charges
b. ( ) exempt from toll charges only

II. TYPE OF RESELLER (Please check one)

a. ( ) Interexchange Carrier
b. ( ) Reseller
c. ( ) Personal Communications System (PCS)
d. ( ) Competitive Local Exchange Company (CLEC)
e. ( ) Customer owned Customer Operated Telephone Systems (COCOT)
f. ( ) Paging
g. ( ) Cellular/Mobile
h. ( ) Internet Provider

III. TYPE OF TAXES (RESELLER CHECK - Please check all states and/or Federal taxes for which you are claiming exemption and include registration number and state certificate where required.)

a. ( ) AL Registration # _____
b. ( ) FL Registration # _____ for State Sales Tax (Chapter 212)
Registration # _____ for Gross Receipts Tax (Chapter 203)
[ ] exempt | | not exempt for Local Tax (Chapter 166)
c. ( ) GA Registration #
d. ( ) KY* Registration # _____
e. ( ) LA Registration # _____
f. ( ) MS Registration # _____
g. ( ) NC Registration # _____
h. ( ) SC Registration # _____
i. ( ) TN Registration # _____
j. ( ) FEDERAL Excise Tax ( ) exempt ( ) not exempt

Certificate Of Continuing Exemption From Federal Excise Tax On Telecommunication Services (Page 1)

Form 6318-A2
Sheet 0002
(9/97)

B. Government Organizations

The undersigned claims exemption from the tax imposed on all communications service billed or to be billed to the undersigned. The undersigned certifies such exemption is allowable by law because such service is being and will be furnished to and charges paid from the funds of (check one).

1. ( ) The United States (Section 4253).
2. ( ) A state or political subdivision thereof (Section 4253(j)).
3. ( ) An Indian tribal government or political subdivision (Section 4253(l), Section 7871).
4. ( ) A Public International Organization (Section 4253(i), Section 7701(a)(18)) made tax exempt by Presidential Executive Order No. _____
5. ( ) An organization created and specifically designated tax exempt by Act of Congress. Public Law No. _____
6. ( ) A quasi-governmental organization performing the civic function of _____; paid from the funds of _____(name of exempt organization).

C. Ambassadors, Ministers or other Diplomatic Representatives (check one)

1. ( ) The undersigned certifies that he/she is an ambassador, minister or other duly accredited diplomatic representative of a foreign government or is of his or her household (excluding servants), an attaché, secretary or clerk. The undersigned further certifies that he/she is a national of the country of the diplomatic mission where employed and is not a citizen or a permanent resident of the United States or immigrant status.

or

2. ( ) The undersigned certifies that he/she is an officer of a mission in the United States serving in a representative capacity or is a family member living with such an officer.

D. Consular Officers whose foreign governments have treaties with the United States

The undersigned claims exemption from the taxes imposed on charges billed or to be billed the undersigned for telephone service without regard to whether the transaction is official or personal. The undersigned certifies that such exemption is allowable by law in accordance with the provision of the Government's Treaty with the United States and that the undersigned is not engaged in professional business, trade, or commerce and is not a citizen of the United States.
Name of Foreign Government _____
Name of Treaty _____
Date of Treaty _____

E. Consulates, Agencies and Commissions of Foreign Governments

The undersigned claims exemption from the taxes or charges billed or to be billed for services used in the performance of office functions for which payment is made by _____ (Name of foreign government).

Certificate Of Continuing Exemption From Federal Excise Tax On Telecommunication Services (Page 2)

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Form 6311-FED
Sheet 0313
(9/97)

F. **Nonprofit educational organizations, including schools operated as an activity of a religious body.**

The undersigned certifies that the communications services or facilities furnished or to be furnished to the organization will be paid from funds of the organization and are for the exclusive use of the organization in the educational activities which qualify it for exemption from tax under Section 4253(j) of the Internal Revenue code. The exempt must maintain a regular faculty and curriculum, normally have a regularly enrolled body of students in attendance at the place where its activities are regularly carried on, and have as its principal function the providing of formal instruction.

The organization claiming exemption is a 501(c)(3) organization exempt from income tax under 501(a) and is an organization described in one of the following code sections:

1. ( ) A non-profit educational institution described in Section 170(b)(1)(A)(ii) or
2. ( ) A non-profit school who maintains a regularly faculty and curriculum and normally has a regularly enrolled body of pupils or students in attendance.

NOTE: A determination letter (or ruling) stating the applicable code section must be returned with this form.

G. **Nonprofit Hospital**

The undersigned received a determination letter or ruling) from the Internal Revenue Service holding the organization to be a 501(c)(3) organization exempt from income tax under Section 501(a) of the Internal Revenue Code (or has received such determination letter (or ruling) under the corresponding provisions of prior revenue laws) AND the undersigned certifies that it is a "hospital" as defined in Section 170(b)(1)(A)(iii) and the attendant regulations. The date of such determination letter (or ruling) is _____ and such letter (or ruling) has not been withdrawn or revoked.

Paid from the funds of _____.

NOTE: The determination letter (or ruling) mentioned above must be returned with this form.

H. **Wide Area Telephone Service (WATS)**

The undersigned claims exemption under Section 4253(f) of the Internal Revenue Code for the tax imposed on toll telephone service as described in Section 4252(b)(2) - WATS. The undersigned certifies that such service has been and will continue to be used exclusively in the conduct of its business as a (check one).

1. ( ) Common Carrier
2. ( ) Telephone Company
3. ( ) Telegraph Company
4. ( ) Radio or Television Broadcasting Station or Network

I. **Other Reason**

Acceptable only if accompanied by a determination letter from the Internal Revenue Service explaining the basis of exemption from Federal Excise Tax on telecommunications services. ATTACH LETTER FROM THE INTERNAL REVENUE SERVICE.

Certificate Of Continuing Exemption From Federal Excise Tax On Telecommunication Services (Page 3)

Form 68.8-FED
Sheet 0004
(9/97)

The undersigned agrees to notify the provider of services in writing when the basis for tax exemption indicated above changes or ceases to exist. The undersigned certifies that the exemption claimed is allowable under applicable laws and understands that the fraudulent use of this certificate for the purpose of securing this exemption will subject each and all guilty parties to a fine of not more than $100,000 ($500,000 for corporations), or to imprisonment for not more than five years, or both, together with costs of prosecution.

ACCOUNT/BILLING TELEPHONE NUMBER: The undersigned is claiming exemption for the following telephone numbers>

Note: You must include all account numbers (including area code) that you want exempted from Federal excise tax.

_____ _____ _____

_____ _____

_____ _____ _____

_____ _____

_____ _____ _____

_____ _____

_____ _____ _____

_____ _____

BILLING NAME "Company"

MAILING ADDRESS "Address1"
"Address2"
"City," "State" "Postal Code"

TITLE _____ **SIGNATURE**
_____

For Official Use Only:

Received by: _____ **Date Received:** _____

Location: _____

_____

Telephone Number: _____

Certificate Of Continuing Exemption From Federal Excise Tax On Telecommunication Services (Page 4)

12.1.3 Credit Profile

BELLSOUTH

Interconnection Services

Credit Profile

Return By Fax to: 404-983-3979

Attention: Interconnection Services Finance

For questions concerning this application call 888 [illegible] or 404 927 1389.

Please Print And Complete All Information

Type Of Business Activity Is:

☐ Corporation ☐ Partnership ☐ Sole Proprietor ☐ Other

Company Information

Business Name | Doing Business As (DBA)

Please Check One

☐ Corporation ☐ Partnership ☐ Sole Proprietor ☐ Other

Street Address | City | State | Zip

Mailing Address (If Different From Above) | City | State | Zip

Phone Number | Fax Number | Contact Person Name | Title

Are you receiving BellSouth Interconnection Services in another state or territory?

☐ Yes ☐ No

Officers' Names

President | CEO | Other

Company History

Year Business Established | Previous Company Name

Business Credit References

Company Name | City | State | Phone Number

Account Number | Contact Name

Company Name | City | State | Phone Number

Account Number | Contact Name

Company Name | City | State | Phone Number

Account Number | Contact Name

Bank Reference

Bank Name | City | State | Account Number

Banking Officer | Phone Number | Fax Number

I hereby authorize you to release to BellSouth any and all information which may be necessary to process my account. I understand that such information will be held strictly confidential and can result in [illegible] credit extension. I understand that security may be required by BellSouth to establish service. I certify that the above information provided on this credit profile is true and correct to the best of my knowledge.

Signature (Authorized Individual Only) | Print Name | Date (MM/DD/YY)

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12.1.4 Surety Bond

SURETY BOND

KNOW ALL PERSONS BY THESE PRESENTS, that _____ (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety"), a corporation organized and existing under the laws of the State of _____, and duly authorized to conduct and carry on general surety business in the State of Georgia, are held and firmly bound unto BellSouth Telecommunications, Inc. (hereinafter referred to as "BellSouth"), a corporation organized and existing under the laws of the State of Georgia, as Obligee in full and just sum of _____ Dollars ($_____) (hereinafter referred to as the "penal amount"), lawful money of the United States of America, for the payment of which sum, well and truly to be made, Principal and Surety hereby bind themselves, their respective heirs, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has applied for, or contracted for, certain telecommunications services and/or facilities, and

WHEREAS, BellSouth has requested Principal to furnish security for the prompt payment of all amounts billed to Principal by BellSouth for itself or for others (hereinafter referred to as "said charges").

NOW THEREFORE, in consideration of the present forbearance by BellSouth to seek to compel Principal to make a cash deposit as a condition of furnishing such services and or facilities, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Principal and Surety agree as follows: that if Principal shall well and faithfully perform the obligations herein recited and shall promptly pay said charges, then this obligation shall be null and void, but otherwise, this obligation shall remain in full force and effect, and Surety herein agrees to pay said charges within thirty (30) days after written demand by BellSouth to Surety, which demand shall be made only after Principal has failed to pay said charges on or before the due date for said charges, and if payment is not made by Surety within said thirty (30) days, Surety further agrees to pay to BellSouth all of its costs for collection, legal expenses and attorneys' fees paid or incurred by BellSouth in collecting the penal amount or said charges.

Surety Bond (Page 1)

This Bond is issued and executed subject to the following conditions:

1 That the term of this Bond shall be indefinite.

2 That Surety reserves the right to cancel this Bond by giving thirty (30) days prior written notice to BellSouth at _____

_____, and on the effective date of cancellation, Surety is discharged and released from further liability hereunder, it being understood and agreed, however, that Principal and Surety will be liable for up to the penal amount for any and all of said charges accruing up to the effective date of cancellation.

3. The liability of Surety for the penal amount shall be direct and primary, and BellSouth may collect the penal amount without proof that Principal is insolvent or unable to pay said charges.

4 An increase or decrease in the type, volume and charges for telecommunications services and/or facilities, either with or without Surety's knowledge, shall in no event affect the penal amount of this Bond or Surety's obligations under this Bond.

5 No extension, modification, or other alteration of payment terms or arrangements, either with or without Surety's knowledge, shall affect Surety's liability hereunder.

6. The posting of this Bond shall not affect the right of BellSouth to require any additional or increased security of Principal, or to exercise any remedy it may have under contract or its lawfully filed tariffs, and Surety hereby waives notice of any such additional or increased security or exercise of such remedy. A requirement of additional or increased security from Principal or exercise of any remedy against Principal under contract or BellSouth's lawfully filed tariffs shall in no event affect the penal amount of this Bond.

7 The laws of the State of Georgia shall govern the validity, construction, interpretation, and performance of this Agreement. The jurisdictional venue for any legal proceedings involving this Agreement shall be held in any applicable local, state or federal court located within the State of Georgia.

Surety Bond (Page 2)

8 Surety expressly waives the following:

(a) Notice of the acceptance of this Bond by BellSouth.

(b) Notice of the amount of indebtedness now existing or which may hereafter exist, from time to time.

(c) Notice of the type, volume and charges for the telecommunications services and/or facilities requested by Principal, and any increase or decrease of such charges.

(d) Notice of any payments, whether prepaid, timely paid, partially paid, or delinquent, any demand for payment, notice of default of nonpayment, presentment, protest, and notice of protest as to any obligation arising hereunder or any delay in billing or any extension of time for payment granted by BellSouth for said charges.

(e) All other notices to which the undersigned might otherwise be entitled in connection with this Bond or the indebtedness or obligation hereby guaranteed.

(f) The right, pursuant to O.C.G.A. § 10-7-24, to give notice to BellSouth at any time after the debt is due instructing BellSouth to first proceed to collect the debt from Principal.

9 There are no conditions or limitations to this Bond except those contained in writing herein at the date hereof, and thereafter no alteration, change or modification hereof shall be binding or effective unless executed in writing and signed by the undersigned.

IN WITNESS WHEREOF, Principal and Surety have duly executed or caused to be executed this Bond this _____ day of _____, 19____.

PRINCIPAL		SURETY	
Company:	_____	Company:	_____
By:	_____	By:	_____
Name:	_____	Name:	_____
Title:	_____	Title:	_____

Surety Bond (Page 3)

12.1.5 Standby Letter Of Credit

STANDBY LETTER OF CREDIT

To Be Reproduced on Issuing Bank's Letterhead

Date
Letter of Credit No. _____

To Whom It May Concern:

We hereby open our Irrevocable Letter of Credit in your favor available by your drafts drawn on (Name issuing or correspondent bank) at Sight for any sums not exceeding in total (face amount) U.S. Dollars for account (Corporate name and address of account party)

Draft must be accompanied by:

I.

A. Your signed statement certifying that the funds drawn hereunder are due you on account of (Account Debtor) as a result of failure to pay, within terms quoted therein, invoice(s) issued to them by you and demand for payment has been made and the funds have not been forthcoming from (Account Debtor) or any source, and

B. A photocopy of unpaid invoice(s)

OR

II.

A. Your signed statement certifying that the funds drawn hereunder represent the amount of payments you have received from or for the account of (Account Debtor) within 90 days prior to the occurrence of one of the following: (i) the filing of a petition by or against (Account Debtor) with a United States Bankruptcy Court, (ii) the making by (Account Debtor) of an assignment for the benefit of creditors or (iii) (Account Debtor) became the subject of any proceeding, voluntary or involuntary, which under applicable State or Federal law could result in the return of such payment(s), and

B. The amount of such payment(s) has been (or will promptly after payment of the accompanying draft be) returned to (account debtor) or otherwise to the appropriate person.

Each draft must bear on its face the clause "Drawn under Letter of Credit No. _____ dated _____, of (Name of issuing bank).

Standby Letter Of Credit (Page 1)

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In the event that you receive, prior to the expiration date herein set forth, any payment (from a source other than drafts drawn under this Letter of Credit) for invoices on the debtor's account and within ninety (90) days after receipt of said payment (i) a petition is filed by or against (Account Debtor) with a United States Bankruptcy Court; (ii) (Account Debtor) is the subject of any other proceeding, voluntary or involuntary, which under applicable State or Federal law could result in the return of such payment then the expiration date hereof shall automatically be extended to a date that is one hundred twenty (120) days after the date of such filing, assignment or proceeding and, if this letter of credit has previously expired, our obligations hereunder shall be reinstated up to the amount of such payment only, but in no event more than (face amount) in the aggregate.

This Letter of Credit shall cover invoices issued or dated on or to, on or after the date hereof

Except so far as otherwise expressly stated herein, this Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits (1993 Revision), International Chamber of Commerce Publication No. 500."

We hereby agree with you that drafts drawn under and in compliance with the terms of this Letter of Credit will be duly honored if presented to the above-mentioned drawee bank on or before (expiration date) (or as such expiration date may be extended pursuant to the provisions hereof).

Very truly yours,

(Issuing Bank)

By: _____
Authorized Officer

Standby Letter Of Credit (Page 2)

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12.1.6 BellSouth Master Account Application

BELLSOUTH MASTER ACCOUNT APPLICATION
COMPETITIVE LOCAL EXCHANGE COMPANY

Date ___/___/___

ACCOUNT INFORMATION

☐ Reseller ☐ Facilities Based Carrier Tax Exempt_____ Tax Code_____ State_____
☐ LNP
☐ UNE Loops ☐ UNE Combos

Certificate of Authority Attached ☐Yes ☐No Estimated Average Monthly Bill_____

Company Name/Operating Company Number_____
Local Address_____
City_____ State_____ ZIP_____-____

Corporate Address_____
City_____ State_____ ZIP_____-____

Billing Address_____
City_____ State_____ ZIP_____-____

Contact Name & Telephone # for:
Billing_____ Telephone # (_____) _____-_____
Orders_____ Telephone # (_____) _____-_____
Others_____ Telephone # (_____) _____-_____

CREDIT INFORMATION

Previous BellSouth Services Telephone # (_____)-_____-_____ Last Date of Service___/___/___
☐Yes ☐No Telephone # (_____)-_____-_____ Last Date of Service___/___/___

Other Current BellSouth Svs Telephone # (_____)-_____-_____ Last Date of Service___/___/___
☐Yes ☐No Telephone # (_____)-_____-_____ Last Date of Service___/___/___

Ownership
☐ Individual ☐ Partnership
Name_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____
Name_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____
Name_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____

☐Corporation
President_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____
Vice President_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____
Secretary_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____
Treasurer_____ **Tel.#** (_____)-_____-_____ **SSN**___-__-____

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Have you been informed concerning BellSouth's Line Information DataBase (LIDB)(contract? ☐ Yes ☐ No
Have you signed a LIDB contract? ☐ Yes ☐ No Note: Checking "NO" indicates that the CLEC is Aware of the consequences of declining i.e., That BellSouth cannot guarantee processing Or restriction of LIDB handled calls.

12.2 Appendix B

12.2.1 NECA Non-Member Company Code Request Form

NECA
NATIONAL EXCHANGE
CARRIER ASSOCIATION

NECA NON-MEMBER COMPANY CODE REQUEST FORM

CONTACT INFORMATION

REQUESTOR'S NAME* TELEPHONE NUMBER

ADDRESS FAX NUMBER

DATE OF REQUEST

* This contact will also be listed in Bellcore Routing Products as "Agent for Service of Process". If you would like a different contact for this purpose, please notify Bellcore-TRA at 908-699-6700.

COMPANY INFORMATION

COMPANY NAME

ADDRESS OF CORPORATE HEADQUARTERS

STATE(S) IN WHICH COMPANY OPERATES

TYPE OF SERVICE COMPANY PROVIDES (e.g., Wireless [Paging Beeper, Cellular, PCS], Certified Local Exchange, Competitive Access Provider, Local Reseller, etc.

NECA must be notified of any mergers/acquisitions and/or changes.

Companies operating in more than one state may be assigned multiple codes, one code for the overall company and an additional code for each state in which the company operates. Companies operating in only one state will be assigned

Please attach articles of incorporation as proof of existence and either certification by the state Public Utilities Commissioner or a copy of the company's FCC radio license which authorizes this company to provide telecommunications service.

RETURN FORM TO: MANAGER - TARIFF NO. 4
NECA
100 S. JEFFERSON ROAD
WHIPPANY, NJ 07981

TEL # 800-223-7751
FAX # 800-551-3038

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12.2.2 BellSouth Blanket Agency Agreement Letter For Local Service Providers

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BELLSOUTH BLANKET AGENCY AGREEMENT LETTER FOR LOCAL SERVICE PROVIDERS

I am an official of (Company) _____ and am authorized to commit my company to the conditions stated herein:

1. (Company) _____ will not submit any requests or inquiries for resale or facility based local service activations under Blanket Agency Agreement procedures on BellSouth for which it does not have proper authorization from the End User upon whose behalf service is affected.

2. (Company) _____ has entered into an agreement to provide local service for the End User.

3. The agreement between (Company) _____ and the End User provides that the (Company) _____ is solely responsible for representing the end user in all requests relative to local service. The agreement between (Company) _____ and the End User holds the End User responsible to (Company) _____ for all charges incurred on the End User's behalf for local service. However, (Company) _____ is responsible to BellSouth for all charges that may be incurred in connection with service requests for End Users regardless of whether the End User meets current responsibilities to (Company) _____.

4. The End User will deal directly with (Company) _____ on all inquiries concerning their Local Service. This may include, but is not limited to, billing, repair, directory listings, and number portability.

5. BellSouth is authorized to release All information regarding the End User's local service to (Company) _____.

6. In the event that the End User challenges actions taken by BellSouth as a result of the above mentioned service requests, (Company) _____ will provide evidence of proper End User authorization and indemnify and hold harmless BellSouth and it's affiliates for any damages or losses, including but not limited to unauthorized charge changes, resulting from (Company) _____ preparation and submission of service requests for which it did not have proper End User authorization.

7. In the event that the End User disputes billing which resulted from local service requests submitted to BellSouth by (Company) _____ under this Blanket Agency Agreement, then (Company) _____ will indemnify and hold harmless BellSouth and it's affiliates for any damages, losses, costs and attorney's fees, if any, arising from BellSouth provisioning and maintenance of the End User's local service due to errors in the ordering of said service by (Company) _____.

8. In the event that an End User disputes actions taken by BellSouth as a result of a submission by (Company) _____ of a service request for disconnection or termination of a previously submitted local service request for which it did not have proper End User authorization, then (Company) _____ will indemnify and hold harmless BellSouth and it's affiliates for any damages, losses, costs and attorney's fees, if any, resulting from said dispute.

9. This Agreement shall continue in effect unless canceled by prior written notice by BellSouth or (Company) _____ thirty (30) days prior to the effective date of cancellation. Cancellation shall not release or limit any matters occurring prior to the cancellation of this Blanket Agency Agreement.

_____
Signature of Officer

_____
Title of Officer

_____
Company Name

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12.2.3 Telephone Number For Misdirected CLEC Calls-CLEC Contact Numbers

TELEPHONE NUMBER FOR MISDIRECTED CLEC CALLS
CLEC CONTACT NUMBER

Fax: 800-872-7059

A. CLEC Name_____

OCN_____

B. Single Point-of-Contact Telephone Number for CLEC End-users to contact when BellSouth is called in error. Check the State(s) and Provide the Appropriate Number.

☐ Alabama	☐ Kentucky	☐ North Carolina
☐ Florida	☐ Louisiana	☐ South Carolina
☐ Georgia	☐ Mississippi	☐ Tennessee

(_____) _____-_____

C. Customer Name and Address (CAN) number for BellSouth to contact when investigating toll calls placed by their end-users to CLEC end-users:

(_____) _____-_____

Information Provided By:

Name_____

Title_____

Address_____

Telephone Number_____

Date_____

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12.2.4 Toll Call Investigations

Date: _____

Re:

From:
BellSouth Local Carrier Service Center

Re: Toll Investigations

When it is necessary to secure information concerning a BellSouth telephone number for the purpose of authorizing or billing a call, BellSouth will assist by providing Customer Name and Address Information (CNA). This service is provided free of charge as a part of a reciprocal agreement. When appropriate, BellSouth will receive similar assistance from your company.

CNA assistance may be obtained as follows:

1. Dial the number shown below.
2. When the attendant answers, provide your company access code
3. After acknowledgment, provide the 10-digit BellSouth number in question from your end user billing record.
4. The BellSouth attendant will provide the listed name, city and state for the telephone number. They will not have any additional information.
5. Only two requests for listing information may be made on each call.

Following are the telephone number and access code that have been assigned to your company. *

CNA Access Telephone Number _____

CIEC Access Code _____

* THIS TELEPHONE NUMBER AND ACCCESS CODE ARE FOR THE SOLE PURPOSE DESCRIBED ABOVE AND ONLY FOR THE COMPANY DESIGNATED IN THIS LETTER. ANY OTHER USE IS STRICTLY PROHIBITED.

12.2.5 PIC/LPIC Change Notification Form

PIC/LPIC CHANGE NOTIFICATION FORM

☐ New CLEC ☐ Delete/Disconnect ☐ Name/Address Change ☐ Transmission Mode Change

_____
Date

Manager – Equal Access Service Center
BellSouth Interconnection Services
Floor 15
600 19th ST North
Birmingham, AL 35203

Subject: PIC/LPIC Activity Notification Report

_____
Local Service Provider
requests that BellSouth provide PIC/LPIC Activity Notification Reports in the following manner:

_____ affiliate long distance company (if any) _____
(NPM or FCS) (CIC)

_____ Magnetic Tape _____ Paper
(1600 BPI or 1600 EPI)

_____
Local Service Provider (LSP) Contact

_____
LSP Address

_____

_____

LSP ID (OCN) _____

_____
Signature of LSP Representative Telephone Number

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BELLSOUTH

Interconnection Services

Request For Unbundled Capabilities

RF-2754
5-1998

CLEC Name			Contact Name		
(Area Code) Telephone Number			(Area Code) Telephone Number		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
CLEC Request Number			Date Submitted (MMDDYYYY)		

The following information is required for BellSouth to understand and evaluate your request.

1. Provide technical and functional requirements or characteristics of the requested capability.

2. What are the geographic coverage area(s) in which the service/application is to be accessible or is to provide access (City, LATA, State)?

3. If Known, provide the serving address, central office(s) and NXX(s) involved.

4. Is this service available from any other ILEC? ☐ Yes ☐ No ☐ Unknown
If yes, which ILECs?

5. Are you requesting this same capability from other ILECs?
If so, please provide the ILEC name(s) and the name of the service.

Provide a diagram of the requested service. Attach additional pages as necessary.

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12.2.7 Application For BellSouth Directory Assistance

Application For BellSouth Directory Assistance Exemption

Area Code _____ Telephone Number _____

Billing Name _____

Street Address _____

City, State, Zip _____

(First Name) (Middle Name or Initial) (Last Name)

Name of Disabled User _____

Relationship to Person Billed for Service _____

(e.g., self, mother, father, brother, husband, employer, etc.)

Explain the nature of the disability which prevents the use of the Directory.

_____

_____

_____

_____

Residence and Business Exemptions:

Signature of Disabled User _____

Business Only:

Telephone Number Assigned to Disabled User _____

Signature of Person Responsible for Billing _____

Title, Department Name _____

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12.2.8 Application for Reduction in BellSouth Long Distance Charges

a	1. Name of the person applying for reduction 2. Address	First Initial Last Street: City State and ZIP Code
b	3. Name of the customer to whom telephone is billed 4. Billing address (if different from 2)	First Initial L Su City State and ZIP Code
c	5. Telephone Number	Area Code Telephone Number
d	6. List the manufacturer's name, model number, and serial number of the TDD or TTY device	
e	7. Signature of authorized agency representative or physician, otolaryngologist or licensed speech-language pathologist or audiologist OR 8. Check box and provide copy of previously obtained certification 9. Name and address of authorized agency or person making certification	I certify that the applicant has impairment of hearing or severe speech impairment, on the basis of the procedure shown on page 3 of this application, and qualifies for reduction in charges for TDD/TTY communications ■
	Signature of person applying for reduction (or if signature of person signing for applicant, please indicate relationship).	Signature Date Relationship

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12.3 Appendix C

12.3.1 Selective Class Of Call Screening / Directory Assistance Call Completion

TO: OPERATOR SERVICES
INDUSTRY

Attachment A

FROM: _____ CLEC CONTACT: _____
CLEC Name Name/Number

SELECTIVE CLASS OF CALL SCREENING

The following information is provided for an addition, or deletion of Selective Class of Call Screening:

1. Action Addition_____
Change _____
Deletion_____

2. Screening Codes:

Code	Billing Allowed
__21	Sent paid, Collect, Calling Card, Bill to 3rd, Verify--COIN (Smart Line)
__74	Collect – COIN (Inmate)
__64	Collect – NCN (Primary Dorm Lines)
__79	Collect, Calling Card, Bill to 3rd, Verify--NCN (Cellular)
__88	Collect, Calling Card, Bill to 3rd, Verify--COIN (Smart Set)
__93	Collect, Calling Card, Bill to 3rd, NCN (Hospital)
__94	Collect, Calling Card, Bill to 3rd – HOTEL (Hotel/Motel)
__98	Collect, Calling Card, Bill to 3rd, Verify – COIN (Coinless Coin)

3. Telephone number(s) involved (enter 10-digit number)
_____ _____ _____ _____
_____ _____ _____ _____

4. Effective Date _____

DIRECTORY ASSISTANCE CALL COMPLETION (DACC)

1. Blocking requested? Yes___ No___

2. Telephone number(s) to be blocked (enter 10-digit number)
_____ _____ _____ _____
_____ _____ _____ _____

3. Effective Date: _____

All Requests should be faxed 7 working days prior to desired effective date to:
(954) 776-0382 Florida

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Selective Class Of Call Screening / Directory Assistance Call Completion (Page 1)

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Service Information:

Telephone Company and OCN	Date	Time
Type of Service Intercept ☐ LIDE ☐	Batch Number	Number of Orders in Batch
Service Order Number	Order Type New Connect ☐ Change ☐ Add ☐ Disconnect ☐	
Class of Service Residence ☐ Business ☐ Coin ☐ Outdial ☐	Listing Type Published ☐ Non-Published ☐	

Out Activity:

Area Code and Telephone Number: ( ) -
LIDB No Bill To Third ☐ No Collect ☐ No 3rd nor Collect ☐ None ☐
Calling Card Data: Unrestricted PIN: Restricted PIN: Special Billing Number and PIN: ( ) -
Intercept: Transfer of Calls (TC) No Yes TC To Number: TC From Number TC Cancel FR Number: TC NP:

In Activity:

Area Code and Telephone Number: ( ) -
LIDB No Bill To Third ☐ No Collect ☐ No 3rd nor Collect ☐ None ☐
Calling Card Data: Unrestricted PIN: Restricted PIN: Special Billing Number and PIN: ( ) -
Intercept: Transfer of Calls (TC) No Yes TC To Number: TC From Number TC Cancel FR Number: TC NP:

Selective Class Of Call Screening / Directory Assistance Call Completion (Page 2)

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12.3.2 BellSouth LIDB And/Or Intercept Service Order Form

INTERCEPT ACCESS (continued)

BellSouth LIDB and/or Intercept Service Order Form
How to fill out the form:

Circle, X Mark, or check the appropriate box desired and fill in appropriately as identified per filed below:

Telephone Company and OCN - Telephone Company Name and Operating Company Name

Date and Time - Today's date and current time

Type of Service - Identify type of service(s) contracted with BellSouth (LIDB and/or Intercept)

Batch Number - Identified by Telephone Company sending orders to increment with each batch sent to be sure that all batches are processed in order and to ensure none are missing.

Number of Orders in Batch - Identifies the number of individual orders within this batch so that no order is missed

Service Order Number - Number identified by Telephone Company sending orders to specifically identify this particular order within a batch

Order Type - Identify New Connect, Change, Add, or Disconnect

Class of Service - Identify Residence, Business, Coin and/or Outdial service.

Listing Type - Identify listing as Published (listed and non-listed) or Non-Published (private)

Out Activity - Identifies any outgoing activity such as disconnected or being changed from

Area Code and Number - Complete

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12.3.3 BellSouth Intercept Tandems

BellSouth Intercept Tandems					
LATA	ACCESS TNDM LOCATION	TANDEM CLLI CODE	COMBINED LOCAL OFC CLLI CODE	SW TYPE #	NOTES@
BRHM	BIRMINGHAM-MAIN & TOLL	BRHMALMT0GT	NO-LOCAL	DMS 200	HOST
HNVI	HUNTSVILLE-UNIVERISTY	HNVIALUN0GT	HNVIALUNDSO	DMS ½	REMOTE
MTGM	MONTGOMERY-MAIN & TOLL	MTGMALMT0GT	MTGMALMTDSO	DMS ½	REMOTE
MOBL	MOBILE-AZALEA	MOBLALAZ0GT	MOBLALAZDSO	DMS ½	REMOTE
DYBH	DAYTONA-PORT ORANGE	DYBHFLPO01T	DBYBHFLPODSO	DMS ½	REMOTE
GSVL	GAINESVILLE-MAIN	GSVLFLMA01T	GSVLFLMADSO	DMS ½	REMOTE
JCVL	JACKSONVILLE-CLAY	JCVLFLCL05T	JCVLFLCLDSI	DMS ½	REMOTE
ORLD	ORLANDO-MAGNOLIA	ORLDFLMA04T	NO-LOCAL	DMS 200	REMOTE
PNCY	PANAMA CITY-MAIN	PNCYFLMA04T	PNCYFLMADSO	DMS ½	REMOTE
PNSC	PENSACOLA-WARRINGTON	PNSCFLWA01T	PNSCFLWADSO	DMS ½	REMOTE
SE	N.DADA-GOLDEN GLADES	NDADFLGG03T	NO-LOCAL	DMS 200	REM OPR SVC ONLY
	WEST PALM BCH-GARDENS	WPBHFLGR02T	NO-LOCAL	DMS 200	REMOTE
ATLN	ATLANTA-SANDY SPRINGS	ATLNGASS1ID	NO-LOCAL	DMS 200	INTERCEPT ONLY
LSVL	LOUISVILLE-ARMORY PL.	LSVLKYAP2GT	NO-LOCAL	DMS 200	HOST
OWBO	MADISONVILLE-MAIN	MDVIKYMA02T	MDVIKYMADSO	DMS ½	REMOTE
WNCH	WINCHESTER-MAIN	WNCHKYMA02T	WNCHKYMADSO	DMS ½	REMOTE
BTRG	BATON ROUGE-GOODWOOD	BTRGLAGW0GT	NO-LOCAL	DMS ½	REMOTE
LFYT	LAFAYETTE-MAIN	LFYTLAMA0GT	LFYTLAMADSO	DMS ½	REMOTE
NWOR	NEW ORLEANS-MAIN	NWORLAMA20T	NO-LOCAL	DMS 200	HOST OPR SVC ONLY
SHPT	SHREVEPORT-MAIN	SHPTLAMA0GT	SHPTLAMADSO	DMS ½	REMOTE
BILX	BILOXI-EDGEWATER	BILXMSED06T	BILXMSEDDSO	DMS ½	REMOTE
JCSN	JACKSON-CAPITOL PEARL	JCSNMSCP06T	NO-LOCAL	DMS ½	REMOTE
	GREENWOOD-MAIN	GNWDMSMA06T	GNWDMSMADSO	DMS ½	REMOTE
AHVL	ASHEVILLE-O'HENRY	AHVLNCOH04T	AHVLNCOH25G	DMS ½	REMOTE
CHRL	CHARLOTTE-CALDWELL	CHRLNCCA05T	NO-LOCAL	DMS ½	REMOTE
GNBO	GREENSBORO-EUGENE	GNBONCEU05T	GNBONCEU33F	DMS ½	REMOTE
RLGH	RALEIGH-NEW HOPE	RLGHNCHO01T	NO-LOCAL	DMS 200	REMOTE
WLMG	LAURINBURG-MAIN	LRBGNCMA02T	LRBGNCMA27F	DMS ½	REMOTE
CHTN	CHARLESTON-DIAL & TOLL	CHTNSCDT60T	NO-LOCAL	DMS 200	REMOTE
CLMA	COLUMBIA-SENATE ST.	CLMASCSN60T	CLMASCSN25E	DMS ½	REMOTE
FLRN	FLORENCE-MAIN	FLRNSCMA60T	FLRNSCMA66F	DMS ½	REMOTE
GNVL	GREENVILLE-DIAL & TOLL	GNVLSCDT60T	NO-LOCAL	DMS 200	HOST FOR SC & NC *
CHTG	CHATTANOOGA-9TH ST.	CHTGTNNS84T	CHTGTNNSDSO	DMS ½	REMOTE
KNVL	KNOXVILLE-MAIN	KNVLTNMA84T	KNVLTNMADSO	DMS ½	REMOTE
MMPH	MEMPHIS-MAIN	MMPHTNMA84T	MMPHTNMADSO	DMS ½	REMOTE
NSVL	NASHVILLE-MAIN	NSVLTNMT86T	NO-LOCAL	DMS 200	HOST OPR SVC ONLY
# DMS ½ is a DMS 100/200.					
@ HOST refers to the DMS TOPS HOST OPERATOR feature.					

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REMOTE or REM refers to the DMS TOPS REMOTE OPERATOR feature.
OPR SVC ONLY means the switch serves only Operator traffic.
CONS means the access tandem function will be consolidated to another Tandem.
*Host for NC and SC Toll Access Operator Services rehome to Charlotte is being evaluated.

12.4 Appendix D

12.4.1 End-user Letter Of Authorization

END-USER LETTER OF AUTHORIZATION

Date:_____

TO: BellSouth Local Carrier Services Center

Please provide the BellSouth Customer Service Record for the following end-user's account:

Customer Name:_____

Main Account Telephone Number: _____

FROM: CLEC Company:_____

CLEC Contact:_____

Contact's Telephone Number:_____

Fax Number:_____

Address:_____

_____

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12.5 Appendix E

12.5.1 Competitive Local Exchange Carrier Information For BellSouth Advertising & Publishing Corp. (BAPCO) Customer Guide Pages

Competitive Local Exchange Carrier Information for BellSouth Advertising & Publishing Corp. (BAPCO) Customer Guide Pages

CLEC Information

CLEC Name as it should Appear in Customer Guide Pages:

Directory Name to contain CLEC Information: _____

CLEC Contact Coordinating General Customer Guide Pages:

Telephone Number: _____ Fax Number: _____

General Customer Guide Pages Listing Information

CLEC Service Numbers

Establishing or Changing Service	Residential Service Business Service	(___)-___-____ (___)-___-____
Repair Service	Residential Service Business Service	(___)-___-____ (___)-___-____
Billing Information	Residential Service Business Service	(___)-___-____ (___)-___-____

CLEC Specific Customer Guide Pages Purchased

Number of CLEC Specific Customer Guide Pages Purchased: ☐ 1 ☐ 2 ☐ 4 ☐ 6

CLEC Specific Pages Contact Person, if Different from Above:

Name: _____ Telephone Number (___)-___ ____

Enclosures: Refer to Customer Guide Information and Specifications for Required Information & Media (Please check appropriate box(es))

☐ Diskette ☐ Camera Ready Copy

BAPCO Mailing Address for Customer Guide Information

Rook Barretto
Director - LEC Interface
59 Executive Park South
Room 22E
Atlanta, Georgia 30329

Telephone: 404-982-7105
Facsimile: 404-982-6907

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12.6 Appendix F

12.6.1 BellSouth Change Control Process

The Change Control Process (CCP) is a process by which BellSouth (BST) and Competitive Local Exchange Carriers (CLECs) manage requested changes to the BellSouth electronic and manual local interfaces.

Following are the electronic interfaces supported by this process:

- **Local Exchange Navigation System (LENS)** An online, interactive, menu driven system that permits subscribers to perform pre-order and firm-order inquiry functions and/or process requests for various products, features and services.

- **Electronic Data Interchange (EDI)** The process of exchanging business documents between trading partners using a computer-to-computer application over a communications path.

- **Telecommunications Access Gateway (TAG)** Provides an electronic gateway interface, or a machine-to-machine interface, for the bi-directional flow of information between BellSouth's Operational Support Systems (OSS) and CLECs. TAG is BellSouth's CORBA based API application for pre-ordering and ordering.

- **Trouble Administration Facilitation Interface (TAFI)** A rules based computer system for automated trouble receipt and screening of residence and business customer service problems with non-complex, plain old telephone service (POTS).

- **Electronic Communications Trouble Administration (EC-TA) Local** A machine-to-machine solution for the administration of end user trouble reports submitted by CLECs to BellSouth.

- **CLEC Service Order Tracking System (CSOTS)** Provides CLEC service order information from the BellSouth Service Order Communication System (SOCS) for CLEC service orders via a Web interface.

12.6.2 CCP provides information on the following:

- BellSouth System Outages (LENS, TAG, EDI, TAFI, EC-TA, CSOTS) - A system is totally unusable or there is degradation in an existing or [illegible]nality within the interface.
- Regulatory Changes - Federal Communications Commission (FCC) or state commission mandates
- Industry Standard Change - Changes based on newly agreed upon telecommunications industry guidelines

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- BellSouth Initiated Change - Change requests initiated by BellSouth
- CLEC Initiated Change - Change requests initiated by CLECs
- CLEC Impacting Defects - A problem discovered in either a production version of an application interface or in documentation

The CCP Website is located at:

www.interconnection.bellsouth.com/markets/lec/ccp_live/index.html

The following information is available:

- Carrier Release Notifications – Notifications of changes that are within CCP's scope
- Release Status – Tentative release schedule and status
- Change Request Log - Provides a status of change requests
- Defect Notifications – Notifications of validated defects submitted by either CLECs or BellSouth
- Change Request Forms (Electronic) – Forms used to communicate to the Change Control Management Team (CCMT)
- System Outage Notifications - System outages identified by interface
- Process Documents – A copy of the CCP document
- Meeting Notification and Minutes – A schedule of upcoming meetings and minutes from previous meetings

The preferred method of corresponding with the CCMT is via e-mail to:

Change.Control@bridge.bellsouth.com

12.7 BellSouth Policies

12.7.1 Guidelines For CLECs Acting As Agents

In layman's terms, an agency agreement allows the agent to act on the end-user's behalf to order, change, or discontinue service, or obtain account information for that end-user. The end-user remains BellSouth Telecommunications' customer of record and is financially responsible for all actions of the agent done in the name of the end-user. The agency agreement is a written legal document that must be signed by the end-user and provided to BellSouth when the agent orders, changes, or discontinues service in the name of the end-user.

If a CLEC comes to BellSouth with an agency agreement for an end-user, it will be directed to the VMC (vendor marketing center) in the particular state. The CLEC acting as an agent will be treated in the same manner as any other agent. The services ordered, changed, or disconnected will be done with the end-user as the customer of record. The end-user will continue to be managed by its regular BellSouth Account Team. Orders from a CLEC acting as an agent for

an end-user will not be handled by Interconnection Services unless the end-user's account is already handled by Interconnection Services. The CLEC acting as an agent is not reselling BellSouth services or purchasing Unbundled Network Elements (UNEs).

12.7.2 CLEC Collection Policy

12.7.2.1 General Information

CLEC bills from BellSouth are due when rendered and are considered past due if payment of account is not received by the bill day in the month after the original bill day. If any portion of the payment is received after the due date or if any portion of the payment is received in funds not immediately available to BellSouth Telecommunications, then a late payment charge will be due to BellSouth[1].

12.7.2.2 Policy For Billed Local Services

12.7.2.2.1 Payment Due Date

The CLEC is responsible for full payment of all BST services billed monthly prior to the next billing date. A late payment charge on any unpaid balance will be applied according to each states tariff (Tariff reference–GSST A2.4.3). A charge according to the terms of each state's tariff (Tariff reference–GSST A2.4.3) will apply whenever a check or draft for payment is not accepted by the institution on which it is written.

[1] There are no late payment charges applied for non-payment in the state of Tennessee.

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12.7.2.2.2 Refusal For Additional Service

If payment of account is not received by the bill day in the month after the original bill day, BellSouth may provide written notice to the CLEC, that additional applications for service will be refused and that any pending orders for service will not be completed if payment is not received by the fifteenth day following the date of the notice. In addition BellSouth may, at the same time, give thirty days notice to the person designated by the CLEC to receive notices of noncompliance, and discontinue the provision of existing services to the CLEC at any time thereafter

12.7.3 CLEC Billing Dispute Policy

12.7.3.1 General

A billing dispute results when a CLEC submits a claim that supports its belief that an error condition exists on a bill. The CLEC is required to submit the billing dispute in writing to the appropriate service center to begin this process. Should a CLEC's end-user submit a dispute to BellSouth, the CLEC's end-user will be referred to the serving CLEC.

12.7.3.2 Local Services

12.7.3.2.1 Reason For Billing Dispute Adjustments

There may be several reasons for disputing a claim. Typical claims include:

- Service connected in error (e.g, features were not ordered, but the CLEC was billed)
- Service not installed (e.g., blocks omitted from order from the CLEC's LSR)
- Service billed at incorrect rate (e.g., discount not applied to the CLEC's bill)

12.7.3.2.2 Resolution Of Dispute

Generally, the disputes are resolved within 30 business days from receipt of the claim and the CLEC is notified of the resolution.

12.7.3.2.3 Dispute Resolution Follow-Through

If it is determined that an adjustment to the CLEC's bill needs to be made, typically the adjustment will appear on the following bill period after resolution. When an adjustment is made three days or less before the close of the billing period, the credit/debit may not appear on the next CLEC bill. However, the credit/debit should appear no later than the second bill period after the adjustment.

12.7.3.2.4 Late Payment Charge (LPC)

Regardless of the outcome of the dispute claim, a CLEC is responsible for full payment of all services billed monthly prior to the next billing date. A late payment charge according to the terms of each state's General Subscriber Service tariff will be applied to the CLEC's bill when the previous month's bill has not been paid in full prior to the next billing date. If an adjustment is made, any late payment charge billed on the disputed amount will also be adjusted. If an adjustment is not made, the CLEC will be liable for all late payment charges.

12.7.4 Transfer Of Service Policy

12.7.4.1 Non-Contracted Services

Month-to-month services
Service previously furnished to the end-user by BellSouth may be assumed by a Reseller without financial obligation. A final bill will be rendered to the end-user. Appropriate service charges for changes to customer records will apply.

12.7.4.2 Contracted Tariff Services

Variable Term Plan, Contracted Term Special Assemblies, Tiered Plans, Contract Service Arrangements (CSAs), and Volume and Term Arrangements:

- Service previously furnished to the end-user by BellSouth may be assumed by a Reseller according to State Regulatory rulings.
- BellSouth will render a final bill to the end-user.
- The end-user is liable for any unpaid balances.
- All future bills for service from the date of conversion will be rendered to the Reseller.
- Regulations in the retail tariff concerning transfer of service will apply.
- Transfer of service charges will not be subject to the resale discount.
- Termination liabilities will not apply if the Reseller agrees to assume all terms and conditions of the end-user's contract and signs an Assumption Agreement.

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Example 1 Assumptions and Policy

Example	Assumptions	Policy
1	• BellSouth End-user A has an existing contracted service with BellSouth (i.e., Variable Term Plan, Tiered Plan, Contract Service Arrangement, Contracted Term Special Assembly). • BellSouth End-user A wants to transfer service to Reseller X at the same location(s). • Reseller X has an existing contract for resale with BellSouth and is certified to provide local service by the appropriate state regulatory body. • Reseller X is willing to assume BellSouth End-user A's contract under the same terms and conditions agreed to by BellSouth End-user A. • Reseller X agrees to sign an Assumption Agreement.	• BellSouth renders a final bill to End-user A. • Reseller X is assigned BellSouth End-user's A contract under the same terms and conditions contracted for by End-user A. • A transfer of service charge applies to End-user A as stated in the appropriate retail service tariff (General Subscriber Service or Private Line). • Reseller X assumes the contract for its remaining term and is now the Customer of Record. • There is no termination liability applied at time of assignment, but Reseller X assumes termination liability along with all other terms and conditions. • End-user A is now Reseller X's customer. End-user A is liable for any unpaid balances. • Collection procedures, if necessary, will be initiated against End-user A. • The monthly rate paid (i.e., resale rate) by Reseller X will vary by state by type of contract. For example, the resale discount will apply in all cases to services contracted from the retail services tariffs but may not apply to Contract Service Arrangements depending on the state.
Note: If another Reseller (Y) agrees to assume a contract that has already been assigned to Reseller X, the same procedures stated above apply to Reseller (Y). The contract is reassigned to Reseller Y for its remaining term.		

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Example 2 Assumptions and Policy

Example	Assumptions	Policy
2	• BellSouth End-user A has an existing contracted service with BellSouth (i.e., Variable Term Plan, Tiered Plan, Contract Service Arrangement, Contracted Term Special Assembly). • End-user A wants to transfer service to Reseller X at the same location(s). • Reseller X is not willing to assume End-user A's contract under the same terms and conditions agreed to by End-user A.	• BellSouth renders a final bill to End-user A. • Reseller X signs a new contract for the same service, chooses a month to month option or purchases new service. • Transfer of service charges do not apply. • Termination liability charges are applied on End-user A's final bill. • End-user A is liable for any unpaid balances. • Collection procedures, if necessary, will be initiated against End-user A.

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12.8 Glossary

ACAC	Access Customer Advocacy Center
ACNA	Access Customer Name Abbreviation
ADUF	Access Daily Usage File
AIN	Advanced Intelligent Network
ALBR	Additional Labor
AMA	Automatic Message Accounting
ANI	Automatic Number Identification
ASOG	Access Service Ordering Guidelines
ASR	Access Service Request
ATC	Access Tandem Carrier
ATDS	Access Ten-Digit Screening
BAPCO	BellSouth Advertising And Publishing Corporation
BFR	Bona Fide Request
BLDG	Building
BPSN	BellSouth Public Switched Network
BRI	Basic Rate Interface
BST	BellSouth Telecommunications
BSWC	BellSouth Serving Wire Center
CABS	Carrier Access Billing System
CARE	Customer Account Record Exchange
CBOS	CABS Billing Output Specifications
CC	Company Code
CCM	Circuit Capacity Management
CDS	Connectionless Data Service

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CIC	Carrier Identification Code
CLEC	Competitive Local Exchange Carrier
CLLI	Common Language Location Identification
CLUB	Customized Large User Bill
CMC	Cellular Mobile Carrier
CNA	Customer Name and Address
CNAM	Calling Name Database Service
CO	Central Office
COCOT	Customer-Owned Coin-Operated Telephone
COWG	Central Office Work Group
CPE	Customer Premises Equipment
CPM	Common Presentation Manager
CPG	Circuit Provisioning Group
CRIS	Customer Records Information System
CSA	Contract Service Arrangements
CSM	Customer Support Manager
CSR	Customer Service Record
DA	Directory Assis ance
DAAS	Directory Assistance Access Service
DAB	Diskette Analyzer Bill
DACC	Directory Assistance Call Completion
DADAS	Direct Access to Directory Assistance Service
DADS	Directory Assistance Database Service
DBAC	Database Administration Center
DCSC	Data Customer Support Center
EASC	Equal Access Service Center
EBS	Enhanced Billing Services
EDI	Electronic Data Interchange

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EGA	External Gateway Access
EIS	Expanded Interconnection Service
EMAIL	Electronic Mail
EO	End Office
ESF	Extended Super Frame
EU	End-user Form
FGD	Feature Group D
FOC	Firm Order Confirmation
FPOI	Facility Point of Interconnection
ICO	Independent Telephone Company
ICONS	Independent Company Number Services
ICSC	Interexchange Customer Carrier Center
IG	Implementation Guide
INAC	Interconnection Network Access Coordinator
INP	Interim Number Portability
INSAC	Integrated Surveillance and Administration Center
IPOC	Initial Point of Contact
ISDN	Integrated Digital Services Network
ISOC	Interconnection Services Operations Center
IXC	Interexchange Carrier
LAN	Local Area Network
LCON	Local Contact
LCSC	Local Carrier Service Center
LEC	Local Exchange Company
LENS	Local Exchange Navigation System
LEO	Local Exchange Ordering System

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LERG	Local Exchange Routing Guide
LIDB	Line Information Database
LOA	Letter of Agreement
LOCBAN	Local Billing Account Number
LPC	Late Payment Charges
LS	Loop Service Form
LSINP	Loop Service with Interim Number Portability Form
LSR	Local Service Request Form
LTP	Local Transport
MDF	Main Distribution Frame
MLT	Mechanized Loop Test
MOU	Minutes of Use
MSA	Master Service Arrangement
MSC	Mobile Switching Center
MTCE	Maintenance
NDM	Network Data Mover, now known as CONNECT:direct
NECA	National Exchange Carrier Association
NFAS	Non-Facility Associated Signaling
NRC	Non-Recurring Charge
NSEP	National Security Emergency Preparedness
NTIS	National Technical Information Service
OC&C	Other Charges and Credits
OBF	Ordering and Billing Forum
OCN	Operating Company Number
OPC	Originating Point Codes
OSS	Operational Support Systems
P/SIMS	Products and Services Information Management System

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PIC	Primary Interexchange Carrier
PLU	Percent Local Usage
POI	Point of Interconnection
POP	Point of Presence
POTS	Plain Old Telephone Service
PQT	Presale Quality Team
PSC	Public Service Commission
PSP	Pay phone Service Provider
PUC	Public Utilities Commission
PVC	Permanent Virtual Circuits
RBDC	Regional Birmingham Data Center
RC	Recurring Charge
RDN	Refusal Discontinuance Notice
RS	Resale Service Form
RSAG	Regional Street and Address Guide
RT	Remote Terminal
SCP	Signaling Control Point
SCP	Service Control Point
SF	Super Frame
SI	Service Interconnection
SIC	Standard Industry Code
SI/IT	Systems Integration/Interface Team
SOCS	Service Order Completion System
SPEC	Service and Product Enhancement Code
SPOC	Single Point of Contact
SPOI	Signaling Point of Interface
STP	Signal Transfer Point
T&M	Time and Materials

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TAFI	Trouble Administration and Facilitation Interface
TAR	County Taxing Area
TCCD	Telecommunications Center for Customers with Disabilities
TCIF	Telecommunications Industry Forum
TOPS	Traffic Operator Position System
TRFTYP	Traffic Type
TSM	Transport Solution Manager
TSP	Telecommunications Service Priority
TTT	Transport Trunk Termination Code
UC	Unbundled Channelization
UCI	Unbundled Channel Interfaces
UDF	Unbundled Dry Fiber
UDL	Unbundled Digital Loop
UIT	Unbundled Interoffice Transport
UIT-D	Unbundled Interoffice Transport – Dedicated
UIT-S	Unbundled Interoffice Transport – Shared
ULS	Unbundled Local Switching
UNE	Unbundled Network Element
UNEC	Unbundled Network Elements Center
UPS	Unbundled Packet Switching
UPS-CDS	Unbundled Packet Switching – Connectionless Data Service
UPS-FR	Unbundled Packet Switching – Frame Relay Service
UPS-SS	Unbundled Packet Switching – Switch to Switch Interface
USL	Unbundled Sub-Loop
USOC	Uniform Service Order Code
UTS	Unbundled Tandem Switching
UTS-SF	Unbundled Tandem Switching – Switching Functionality
UTS-TP	Unbundled Tandem Switching – Trunk Port

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UVL	Unbundled Voice Loop
VAN	Value Added Network
VEIS	Virtual Expanded Interconnection Service
WAN	Wide Area Network

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BELLSOUTH

Customer Guide
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BellSouth Guide To Interconnection

Interconnection Services

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Introduction

Purpose

This document is a reference resource for Access Customers (ACs) to use when dealing with Access Providers (APs) regarding access services.

Access Services are AP tariffed offerings that allow for the interconnection of an AC's premises to an end user's premises through the use of AP facilities. Access Services are composed of two categories, Switched Access Services (SAS), and Special Access Services (SPA).

ACs are communications common carriers authorized by the Federal Communications Commission (FCC) to provide interLATA and interstate communications, and/or by the Public Utilities Commissions (PUCs) to provide interLATA, intrastate, or intraLATA (Local Access and Transport Area) communications services to their customers.

Version Information

Table A Revision History

Chapter	Action Request #	Date/Issue	Description
Access Procedures	N/A	June 15, 2001 / 10e	Added ASC-EC Decision Table
Access Procedures	N/A	June 4, 2001 / 10d	Updated ASR Contact List and ICSC Codes for ASR Transmission
Access Procedures	N/A	May 30, 2001 / 10c	Updated Pre-Ordering Requirements contact information.
Access Procedures	N/A	May 14, 2001 / 10b	Updated Pre-Ordering Requirements contact information.
Access Procedures	N/A	April 9, 2001 / 10a	Updated ASR Contact List and ICSC Codes for ASR Transmission
Access Procedures	N/A	April 9, 2001 / 10a	Added Specials, Switched and Wireless Project Management Service Requests
Access Procedures	N/A	January 8, 2001 / 10	Revised to correct contact numbers under BellSouth Contact Information.

- continued -

Table A Revision History (continued)

Chapter	Action Request #	Date/Issue	Description
Access Procedures	N/A	December 6, 2000 / 9f	Revised Intervals for Jointly-Provisioned Designed Services, Intervals for Jointly-Provisioned Designed Services by State, and ASR Contact List and ICSC Codes for ASR Transmission.
Access Procedures	N/A	November 14, 2000 / 9e	Change of Provisioning Interval effective dates and intervals.
Access Procedures	N/A	October 3, 2000 / 9d	General update and revision to Provisioning Intervals.
Access Procedures	N/A	September 18, 2000 / 9c	Updated FRAME RELAY and ATM intervals. Updated Intervals For Jointly-Provisioned Designed Services. Updated Intervals For Jointly-Provisioned Designed Services by State.
Access Procedures	N/A	May 9, 2000 / 9b	Updated Intervals For Jointly-Provisioned Designed Services and Intervals For Jointly-Provisioned Designed Services by State
Access Procedures	N/A	February 8, 2000 / 9a	Updated Intervals For Jointly-Provisioned Designed Services by State to reflect ALLTEL ge to 11 days for all intervals except D
Access Procedures	N/A	January 20, 2000 / 9	Updated Intervals . ointly-Provisioned Designed Services a. . Intervals For Jointly-Provisioned Designed Services by State

1. Access Procedures

1.1 General Information

1.1.1 Access Services Overview

1.1.1.1 Working Together

1.1.1.2 AC / AP Relationship

Provisioning access often requires the ACs to request that the AP provide various facilities to be used as part of the AC's services. In these cases, the ACs and APs must work together closely to ensure that the services function properly.

1.1.1.3 Who Are Involved in the AC / AP Relationship?

Within the BellSouth region, there are 214 Local Exchange Carriers, (LEC's).

1.1.1.4 Principles that Govern AP / AC Relations

The following principles govern the relations between the ACs and the APs.

- ACs are responsible for end-to-end service to their end users.
- APs provide Special Access Service (SPA) and Switched Access Service (SAS) to ACs as set forth in their respective tariffs.
- APs may not discriminate among ACs.
- APs are responsible for SPA and SAS from the telephone company end office to the demarcation point.
- APs are not responsible for installation, operation, or maintenance of any AC or end user provided communications equipment.

1.1.1.5 Switched Access Service (SAS)

1.1.1.6 What Is SAS?

SAS is a two-point electrical communications path between an AC's premises and an end user's premises that uses the local telephone company's public switched network. It provides the AC with the ability to originate calls from end user's premises to the AC's premises, and to terminate calls from an AC's premises to an end user's premises in the LATA where the SAS is provided.

1.1.1.7 How Is SAS Provided?

The AP provides Access Services in four different arrangements called feature groups.

1.1.1.8 What are the Feature Groups?

The four feature groups are defined as follows

Feature Group	Definition
Feature Group A (FGA)	This feature group: • Provides line-side access to a telephone company switch with an associated seven-digit local telephone number for originating access. May be provided on a single-or multiple-line group basis (customer option). • May be arranged for originating calling only, terminating calling FGB only, or two-way calling (customer option).
Feature Groups • B • C • D • or (FGB), (FGC) and (FGD)	These feature groups: • Provide trunk-side connections to a telephone company switch • Use the Switching Control Center (SCC) as the control office (normally).

1.1.1.9 Special Access Service (SPA)?

1.1.1.10 What is SPA?

SPA a transmission path (channe :onnect customer designated premises, or :ustomer designated pre: : and a Wide Area Telephor vice (WATS) Office. The transmission m.. be either a direct path, r a path through a local telep: . company Hub where bridging or multiplexing functions are performed. SPA does not use local telephone company end office switching.

1.1.1.11 How is SPA Provided?

SPA is provided in nine different channel configurations, each having its own characteristic bandwidth, speed, spectrum and transmission specification.

1.1.1.12 SPA Channel Types?

The nine channel types are as follows:

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SPA Channel Type	Description
Metallic Service	Provides unconditional two-wire transmission of low-speed varying signals at rates up to 30 baud.
Telegraph Grade	Provides unconditional transmission of binary signals at rates of 0 to 75 baud or 0 to 150 baud, and may be half-duplex or duplex.
Voice Grade	Provides voice frequency transmission in the frequency range of 300 to 3000 Hz, and may have two-wire or four-wire termination.
Program Audio	Provides for one-way transmission of a complex signal voltage measured in Hertz.
Video Service	Provides a one-way transmission for a standard 525 line/60 field monochrome,or a National Television Systems Committee Color Video Signal and one or two associated 5 to 15 Khz audio signals.
Wideband Analog	Provides a Khz measured bandwidth for transmission of sideband signals.
Wideband Data Service	Provides for transmission of synchrononous or asynchronous serial data at the rate of 19.2, 50.0, or 230.4 Kbps.
Digital Data Service	Provides for four-wire transmission of synchronous serial data at a rate of 2.4, 4.8, 9.6, or 56 Kbps.
High Capacity Service	Provides for transmission of 64 Kbps or 1.544, 3.152, 44.736, or 274.176 Mbps of asynchronous serial data.

1.1.2 BellSouth Contact Information

1.1.2.1 How to Locate the Correct BellSouth Contact

The following table provides the names and telephone numbers of the BellSouth Account Teams. Please call the telephone number listed for your account and ask for the appropriate Account Executive or Systems Designer.

BellSouth Account Team	Contact Name and Address
Access Customer Sales	600 N. 19th Street Birmingham, AL 35203 (205) 321–7736
AT&T Account Team	1960 West Exchange Place Suite 410 Tucker, GA 30084 (770) 492-7550

BellSouth Account Team	Contact Name and Address
S/Wiltel unt Team	600 N. 19th Street Birmingham, AL 35203 (205) 321–7736
MCI Account Team	1960 West Exchange Place Suite 402 Tucker, GA 30084 (770) 492-7500
Sprint Account Team	Two Chase Corporate Center Suite 400 Hoover, AL 35244 (205) 988-1666

1.1.3 Special Construction

1.1.3.1 Policy

BellSouth recognizes that extraordinary circumstances might occur while provisioning AC requirements. In those cases, special construction charges will apply. The uncertainty surrounding the tariff and contractual provisioning of special construction limits any general details. Each case should be examined and judged on an individual case basis.

1.1.3.2 Who to Call

When a need for special construction does arise, ACs should contact the their appropriate Account Team Systems Designer.

BellSouth Account Team	Contact Name and Address
Access Customer Sales	600 N. 19th Street Birmingham, AL 35203 (205) 321–7736
AT&T Account Team	1960 West Exchange Place Suite 410 Tucker, GA 30084 (770) 492-7550
LDDS/Wiltel Account Team	600 N. 19th Street Birmingham, AL 35203 (205) 321–7736
MCI Account Team	1960 West Exchange Place Suite 402 Tucker, GA 30084 (770) 492-7500
Sprint Account Team	Two Chase Corporate Center Suite 440 Hoover, AL 35244 (205) 988-1666

1.1.4 Tariff Information

1.1.4.1 What is a Tariff?

A tariff is a schedule of rates and regulations governing the provision of telecommunication services. A common carrier files a document (with the proper regulatory body) that defines the offered service, establishes the customer rate, and states the common carrier's and customer's obligations.

Note: Interstate tariffs are filed with the Federal Communication Commission (FCC). Intrastate tariffs are filed with the Public Utility Commission (PUC) or equivalent.

1.1.4.2 General Subscriber Service

General Subscriber Service Tariff (GSST) contains the regulations and rates applicable for the furnishing of Basic Local Exchange Service, Long Distance Message Telecommunications Service, Mobile Telephone Service, and Wide Area Telecommunications Services offered by BellSouth within each state. This Tariff and a Map Supplement containing individual Exchange Service Area, Band Rate Area, and Base Rate Area Maps are on file in each state Public Service Commission.

Communications services described in this tariff are furnished through facilities provided by the Company for the transmission of intelligence by electrical impulse, principally by means of wire, radio, or a combination thereof.

1.1.4.3 Intrastate Access Service

Intrastate Access Services Tariff covers the access rates and regulations for intrastate, which are regulated by the individual state's Public Service Commission.

1.1.4.4 Private-Line Service

The Private-Line Service Tariff contains the regulations and rates applicable to private-line services furnished by BellSouth, hereinafter referred to as the Company, and for private-line service furnished by the Company in conjunction with a connecting company or other participating companies over facilities wholly within, or partly within and partly without the state, between locations within a state.

1.1.4.5 FCC Tariff No. 1 — Access Services Tariff

This tariff contains regulations, rates, and charges applicable to the provision of Carrier Common Line, End User Access, Switched Access and Special Access Services, Expanded Interconnection Service, Virtual Expanded Interconnection Service, Lifeline Assistance, Universal Service Fund, and other miscellaneous services.

1.1.4.6 FCC Tariff No. 2 Special Construction

This tariff contains regulations, rates, charges, and liabilities applicable for the special construction of interstate facilities provided by BellSouth.

When special construction of facilities is required, the provisions of this tariff apply in addition to all regulations, rates and charges set forth in the appropriate service tariff.

1.1.4.7 FCC Tariff No. 3 — Radio Telephone Message Telecommunications Service

This tariff applies to Radio-telephone Message Telecommunications Service furnished through land radiotelephone base stations of BellSouth or in conjunction with other carriers and to customers, as set forth in this tariff.

1.1.4.8 FCC Tariff No. 4 ILLDMTS

This tariff contains Interstate intraLATA Long Distance Message Telecommunications Service (IILDMTS) service provided by BellSouth in its operating territories. Service provided under this tariff is only applicable for interstate toll service between rate centers in a particular LATA.

1.1.4.9 FCC Tariff No. 5 — CATV Transport Service

This tariff contains regulations, rates and charges applicable to the provision of CATV Transport Service and associated maintenance services provided by BellSouth to Hunter's Creek Communications Corporation, Orlando, Florida. This tariff does not apply to any other service offered by BellSouth.

1.1.4.10 FCC Tariff No. 6 — CATV Transport Service

This tariff contains regulations, rates, and charges applicable to the provision of CATV transport service provided by BellSouth to Telecom International, Heathrow Community, Orlando, Florida. This tariff does not apply to any other service offered by BellSouth.

1.1.4.11 FCC Tariff No. 7 — CATV Transport Service

This tariff contains regulations, rates and charges applicable to the provision of CATV transport service provided by BellSouth to Access Cable Corporations, Inc., Nashville, Tennessee. This tariff does not apply to any other service offered by BellSouth.

1.1.4.12 Tariff Ordering Procedures

1.1.4.13 Ordering Copies of the Tariffs

Copies of the BellSouth tariffs are available through outside tariff advisories.

1.1.4.14 Tariff Contacts

Tariff Supplier Locations	Intrastate Tariffs	FCC Tariffs (by Number)
Brian Lem UCG Suite 1100 11300 Rockville Pike Rockville, MD 20852-3030 201-816-8950 Ext 228	All (9-State BellSouth Region)	Nos. 1,2,3 and 4
William Goddard Telecommunication Information Svcs. 280 N. Providence Rd Media, PA 19063 215-891-6857	All (9-State BellSouth Region)	Nos. 1,2,3 and 4
Janice C. Kromer Tele-Tech Svcs P.O. Box 757 McAfee, NJ 07428 201-827-4421 800-433-6181	All (9-State BellSouth Region)	Nos. 1,2,3 and 4

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Tariff Supplier Locations	Intrastate Tariffs	FCC Tariffs (by Number)
Connie Wightman Technologies Management 163 E. Morse Blvd, Suite Winter Park, FL 32790 407-740-8575	All (9-State BellSouth Region)	Nos. 1,2 and 3
Misty Mason Valucom, Inc. 415 Church St. NE, Suite Vienna, VA 22180 617-703-255-0700	All (9-State BellSouth Region)	Nos. 1 and 4

Tariff Supplier Locations	Intrastate Tariffs	FCC Tariffs (by Number)
(Electronic Media only - CD ROM) Ken Shafter Communications Image Tech, Inc. Suite 160 2222 Gallows Rd. Dunn Loring, VA 22027 703-698-7050 800-944-CITI	All (9-state BellSouth region)	Nos. 4 and 5
Maureen Osorno Product Manager Tariff Services Room 2B41 100 S. Jefferson Road Whippany, NJ 07981 201-884-8088		Nos. 4 and 5

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Tariff Supplier Locations	Intrastate Tariffs	FCC Tariffs (by Number)
Public Reference Room In the FCC Room 514 1119 M Street NW Washington, D.C. 20554	All	All
International Transcription Service (ITS) Room 140 21 M Street N W Washington, D.C. 20037 202-857-3800	All	All

1.2 Ordering

1.2.1 Introduction

This chapter provides an overview of the pre-ordering requirements necessary for customers to order access service within the BellSouth region.

Information on ordering the current version of the Access Service Ordering Guideline is included in this chapter.

This chapter also describes access customer codes, carrier identification codes, and provisioning intervals.

1.2.2 Pre-Ordering Requirements

1.2.2.1 General Information

1.2.2.2 The Access Services Ordering Guidelines

Before the AC orders access services from the AP, it may be helpful to read the Access Service Ordering Guidelines (ASOG).

The document describes the various ordering forms used by ACs to request access services that are provided by the APs. The specific ordering details are found in BR 471-050-001 through BR 471-050-022.

1.2.2.3 Ordering the ASR/ASOG

Ordering information for the Access Service Request Guidelines (ASR/ASOG) is available at: http://www.atis.org

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1.2.2.4 Mechanized Requests

Mechanized requests should be directed to the assigned Account Team Systems Designer. Mechanized entry of access service requests to BellSouth include the following:

- Mainframe-to-mainframe.
- Dial-up input from a personal computer.

1.2.2.5 Obtaining an Inter-exchange Access Customer Code (ACNA)

The ACs should contact Telcordia to obtain a new Interexchan[illegible] Access Customer code used for Access Service Requests (ASRs), forecasts, and oth[illegible]r access s[illegible]ice administrative processes.

To obtain a copy of this information, Telcordia can be reached [illegible]n:
Telephone Number: (877) 699–5577

1.2.2.6 Information Necessary to Obtain an ACNA

To order Special and/or Switched Access from BellSouth, the customer must have an Access Customer Name Abbreviation (ACNA).

To obtain an ACNA, the customer must write a letter requesting as such and forward to Telcordia, following the requirements listed below:

- Letter must be written on your Company letterhead.
- The company address must be provided (not a Post Office Box).
- [illegible]vide a contact person and th[illegible] title.
- [illegible]vide a contact telephone nu[illegible]er and, if available, a fax number.
- [illegible]ude a maximum of three al[illegible]a combinations of an ACNA, and if not already assigned, [illegible]cordia will attempt to provide it for you.
- Provide the names of any other companies under common ownership or control.
- List any other ACNA codes your company or any other company under common control may have.
- Provide a legal document with your company's name.

Telcordia should be contacted at (877) 699-5577 for further information.

The information will be processed within BellSouth and forwarded to Telcordia for assignment. Telcordia will assign the ACNA within fourteen (14) working days. You will be notified in writing once the ACNA is received.

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1.2.2.7 Information Necessary to Obtain a CIC

To order Switched Access from BellSouth, the customer must have a Carrier Identification Code (CIC) in addition to the Access Customer Name Abbreviation (ACNA) outlined in the previous section.

To obtain a CIC, the customer must write a letter requesting as such, following the requirements listed below:

- Letter must be written on your Company letterhead.
- The company address must be provided (not a Post Office Box).
- Provide a contact person and their title.

  Note: THIS MUST BE AN EMPLOYEE OF THE INTEREXCHANGE CARRIER, NOT A CONSULTANT OR OUTSIDE CONTRACTED EMPLOYEE.

- Provide a contact telephone number and, if available, a fax number.
- Include a maximum of three numeric combinations of a CIC, and if not already assigned, Telcordia will attempt to provide it for you.

  Note: CIC expansion has required that all new CICs will be issued as four digits. Therefore, your CIC requests must include either a 5 or 6 as the first digit. For example, 5XXX or 6XXX.

- A completed ASR, Feature Group D and Translation Questionnaire must accompany the written request. Telcordia will not issue a CIC without these order forms.

  Note: Current procedures allow for a window of time for casual dialing of 3 digit CICs, i.e. 1ŭ222. New CICs will be assigned as 4 digits (101-5XXX) or (101-6XXX). Upon exhaust of 5 and 6 digit CICs, all CICs will convert to 7 digit dialing, i.e. 101-0222.

- Provide the names of any other companies under common ownership or control.
- List any other CIC codes your company or any other company under common control may have.

1.2.2.8 Information Necessary to Obtain a CIC

The above information should be forwarded to:
Lisa McKenzie
Project Manager
BellSouth
Room 29U60
675 West Peachtree Street, N.E
Atlanta, GA 30375
Telephone Number: (404) 927–7677

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Fax Number (404) 927–7770

1.2.2.9 Processing the CIC Request

The information will be processed within BellSouth and forwarded to Telcordia for assignment. Telcordia will assign the CIC code within 14 working days. You will be notified in writing once the CIC code is received.

1.2.2.10 Exhibit: Sample CIC Assignment Request Letter

(Date)

(Company Name)
(Systems Designer)
(Address)
(City, State, Zip Code)

Dear

(AC Company Name) is requesting a carrier identification code to complete an order for Feature Group (B and/or D) Service. Our ACNA is ( ).

Listed below, in order of preference, are three possible four-digit CICs for F
1.
2.
3.

Listed below, in order of preference, are three possible four-digit CICs for FGD.
1.
2.
3.

We understand that these selections cannot be guaranteed.

Thank you for your prompt assistance in this matter.

John Doe
Officer

1.2.3 Provisioning Intervals

1.2.3.1 Service Interval Definition

BellSouth offers service intervals for Access Services based upon the type and quantity ordered. An **interval** is a unit of time, measured in business days, during which a specific aspect of the work order should be accomplished, or (with non-designed services) the business days required to provide the service.

1.2.3.2 BellSouth Service Interval Determination

Access Service Requests (ASRs) received via batch files, BDS Telis, the Common Access Front End system, etc. must be received by 3 P.M. EST and be complete and accurate for the Access Order to be processed and to receive an **Application Date** of that day's date. The service interval is then calculated with day 1 being the first business day after the Application Date. A service date is communicated to the customer via the Firm Order Confirmation (FOC). This service date is also referred to as the BellSouth Committed Due Date (CDD) or Committed Date (CD).

1.2.3.3 BellSouth Business Days

BellSouth business days are defined as: any day that is not Saturday, Sunday, or one of the following holidays:

- New Year's Day (January 1) - All states
- Memorial Day (Last Monday in May - date changes annually) - All states
- Independence Day (July 4) - All states
- Labor Day (First Monday in September - date changes annually) - All states
- Thanksgiving (Fourth Thursday in November - date changes annually) - All states
- Friday after Thanksgiving - All states
- Christmas (December 25) - All States
- Mardi Gras (date changes annually) - Louisiana only

Holiday's falling on Saturday will be observed on the Friday before the holiday.

Holiday's falling on Sunday will be observed on the Monday after the holiday.

1.2.3.4 BellSouth Holidays

BellSouth Holidays for Year 2000

Saturday's, Sunday's, and the following Holiday's are not recognized as business days by BellSouth for 2000:

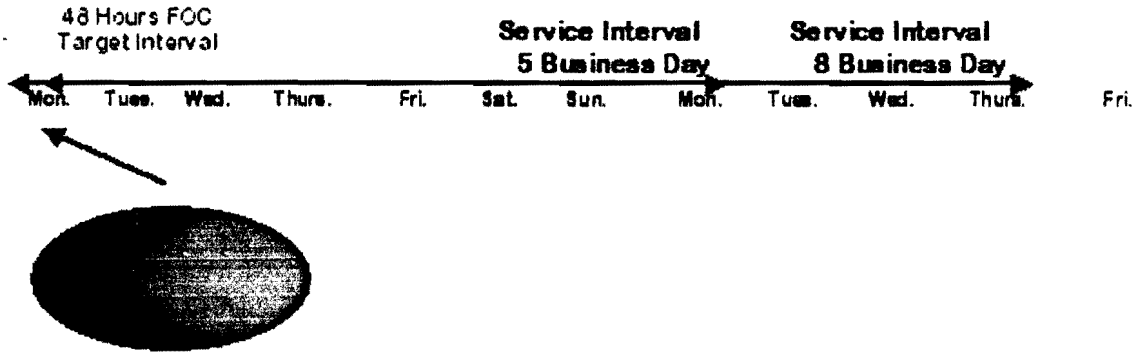
- New Year's Day (Saturday, January 1) - All states
- Memorial Day (Monday, May 29) - All states
- Independence Day (Tuesday, July 4) - All states
- Labor Day (Monday, September 4) - All states
- Thanksgiving (Thursday, November 23) - All states
- Day after Thanksgiving (Friday November 24) - All states
- Christmas (Monday, December 25) - All States

1.2.3.5 Hours of Operation:

For hours of operation, please refer to the BST Interconnection Services WEB site at the following address:

htttp://www.interconnection.bellsouth.com

1.2.3.6 Service Interval Calculation Example



1.2.3.7 Standard & Negotiated Intervals

Standard intervals and Negotiated intervals are available for non-project service requests. The criteria for project and non-project service requests is based upon the service type and its complexity, and the quantity of circuits ordered. Negotiated intervals are available for project service requests and are determined on an individual case basis. Negotiated intervals are established for non-project service requests by submission of a firm service inquiry. With project service requests a BellSouth Project Manager is assigned and coordinates the development of a service interval that is mutually agreeable to the customer and BellSouth.

1.2.3.8 Handling of Project Service Requests

Access Services, which due to quantity or service type require project management, will have service dates, established on an individual case basis. Project Managers will be assigned to your service request and a date that is mutually agreeable to the customer and BellSouth will be negotiated.

Table B Specials

SPECIAL	NON -PROJECT	PROJECT
DIGITAL (AKA BellSouth SPA DS0 Digital Data)	1 - 48 circuits	49 circuits and over
DS1 (AKA BellSouth SPA DS1) (New Install Only)	1 - 24 circuits	25 circuits and over
DS1 (AKA BellSouth SPA DS1) (Rearrangement Same Location)	1 - 24 circuits	25 circuits and over
DS3 (AKA BellSouth SPA DS3) same location (New Install Only)	1 - 9 circuits	10 circuits and over
DS3 (AKA BellSouth SPA DS3) rearrangement (same location)	-	all
FLEXSERVE (AKA BellSouth SPA Customer Reconfiguration) End User Projects Only	-	all
LIGHTGATE SUPER (AKA BellSouth SPA Point to Point Network OC-12 thru OC-192 Capacity) new entrance facilities at POP	-	all
LIGHTGATE SONET (AKA BellSouth SPA Point to Point Network OC-12 thru OC-192 Capacity) new entrance facilities at POP	-	all
MSNS (AKA BellSouth SPA Shared Managed Network Service) -conversion (Access only)	-	all
SMARTGATE (AKA BellSouth SPA Managed Shared Ring Network) -conversion	-	all
SMARTRING (AKA BellSouth SPA Dedicated Ring) - Additional Nodes	-	all
SMARTRING (AKA BellSouth SPA Dedicated Ring) - Ring Level	-	all

- continued -

Table B Specials (continued)

SPECIAL	NON -PROJECT	PROJECT
VOICE GRADE (AKA BellSouth SPA DS0 VG)	1 -48 circuits	49 circuits and over
CLEC cell site buildout	-	all
POP move	-	all
New POP	-	all

Table C Switc

SWITCHED	NON-PROJECT	PROJECT
FGA (AKA BellSouth SWA FGA) at the same tandem	1-24 trunks	25 trunks and over
FGB (AKA BellSouth SWA FGB) (New or Rearrangement)	1-192 trunks	193 trunks and over
FGB ENDUSER	1-48 trunks	49 trunks and over
FGD (AKA BellSouth SWA FGD) (New or Rearrangment)	1-192 trunks	193 trunks and over
FGD (AKA BellSouth SWA FGD) - New Trunk Group	1-192 trunks	193 trunks and over
SS7 (AKA Bell SWA CCSAC, Adding to existing point code	1-192 trunks	193 trunks and over
SS7 (AKA Bell SWA CCSAC) - New links and trunks	-	all
New POP	-	all
POP Move	-	all
CIP-adding state or regionwide	-	all
CIC Activations	-	all
FlexANI adding state or regionwide/over 24 trunks at the same time	-	all

* All information for switched obtained from Staff process documents/job aides

Table D Wireless

WIRELESS	NON PROJECT	PROJECT
New DS1s with trunks*	any number less than 193 trunks	any number 193 trunks or more
New DS1 Point to Point (Megalinks)	any number less than 10	10 or greater
New Lightgate-ordered alone	all	-
New Lightgate ordered with rolls	-	all
Existing Lightgate ordered with additional DS1s	See DS1 quantifies	See DS1 quantifies
Number Rolls- dedicated NXX or single C.O. repoint route index	all	-
Number Rolls -shared #'s or multiple dedicated NXX's (several C.O.'s)	-	all
SMARTRING-Additional Nodes	-	all
SMARTRING-Ring Level		all
New SS7		all
SS7, adding to existing network	any number less than 193 trunks	any number 193 trunks or more
OPSIT	1 -95 trunks	96 trunks or more
Ring level rolls	-	all
New Cell Site Build outs**	any number less than 10	10 or greater
*** Originating in a single BellSouth C.O.**		
**** Within an established start and complete negotiated timeframe (same geographical location e.g. city)**		

1.2.3.9 Service Interval Availability Inquiries

Availability of a 5-business day interval for basic non-project BellSouth SPA DS1 service at a desired customer location can be determined by accessing the Common Access Front End system after November 28, 2000. The Common Access Front End system provides web-based access to the most current ASR standard via the Public Internet. Pre-order validation and ASR processing is supported.

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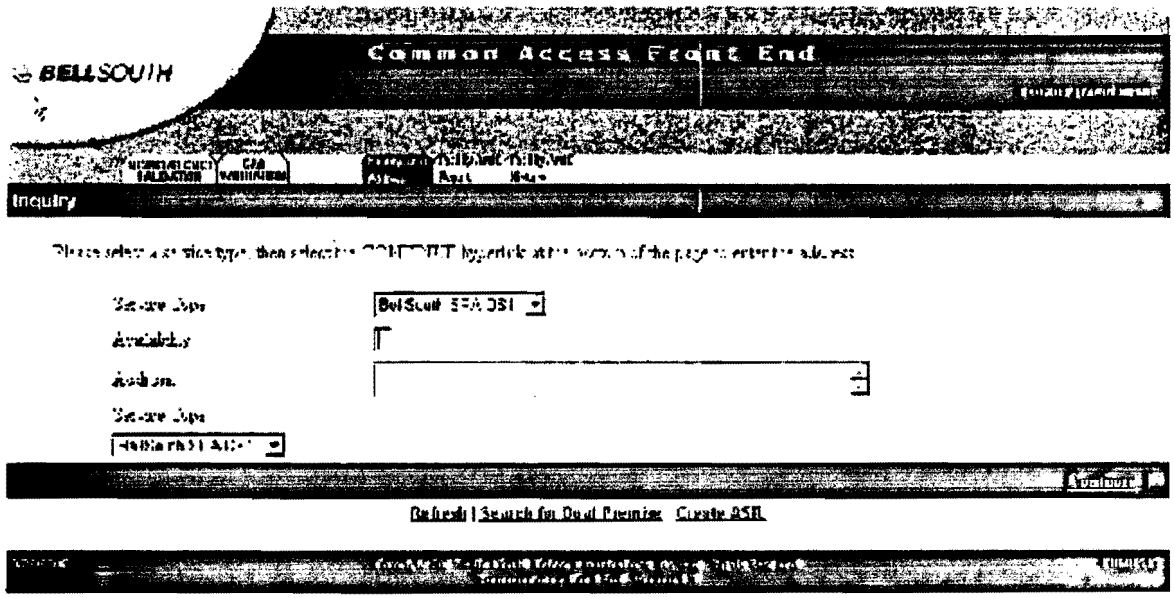
Note: The offer of 5 and 8 busir days for non-project BellSouth SPA DS1 is dependent upon the approval of the servic vancement charge tariff filing. Please see applicable tariffs."

By initiating an inquiry in thi system access services customers may:

- Determine if DS. ities are available at given address.
- Generate a report of all addresses with DS1 facilities available by metro area, wire center, or community.

The URL to access the Common Access Front End system is:

https://café.bellsouth.com



The Common Access Front End system provides an interface into the BellSouth Facility Availability System (FAS) and supports customer address specific inquiries. If the system response indicates that a 5-business day interval is not available then this location is eligible for an 8-business day interval, if facilities are confirmed available when the ASR is processed.

1.2.3.10 Common Access Front End System Inquiries

When a customer submits an order based upon a FAS inquiry before it is confirmed, the BellSouth service representative will validate that the customer on submitted is eligible for the requested interval and that facilities are available. After comple of the validation process, the BellSouth service representative completes ordering processing and the FOC is released. If the service interval confirmed is less than the standard or negotiated interval the FOC will indicate, "service advancement charges will apply".

Customer addresses submitted must be RSAG valid for the system to return a response. The customer also has the option to generate an ASR via the Common Access Front End system. Any inquiry made in a given business day is valid for an order submitted by 3 P.M. EST that same day.

1.2.3.11 Ordering Requirements for 1-4 Service Intervals

Customers must provide access to premises until 9:00 PM Local Time and not require coordinated testing for basic BellSouth SPA DS1 with requested service intervals less than 5 business days. Customers will receive a note on the FOC -"9PM ACCESS REQUIRED"- for these service intervals.

1.2.3.12 Same Day Service Requests

Same day or "zero" day service intervals will only be available for Telecommunications Service Priority (TSP) emergencies and will not be available for other Access Service Requests (ASRs). Please see the following Web site for qualifying criteria:

http://tsp.ncs.gov.

1.2.3.13 Order Confirmation & Statusing

A customer may request a **Pending Order Confirmation** prior to the Firm Order Confirmation (FOC). The POC will provide the BellSouth service order number and assigned Circuit ID. The Firm Order Confirmation will be sent once a committed due date is established. The BellSouth target is to communicate the service date commitment to you via the Firm Order Confirmation (FOC) within 48 hours when facilities are available.

Additional time may be required to respond when facilities must be constructed. A service date will generally be available in no later than 5 days. Order confirmations may be updated when unforeseen circumstances require a change in the original service date.

1.2.3.14 BellSouth Switched Access Service

BellSouth Switched Access non- project service requests will generally have service dates which equal the customer's desired due date. Project service requests will be handled on an individual case basis and will have a negotiated service date. (Please see applicable table.)

1.2.3.15 Changes for BellSouth SPA DS1 Service Intervals

Effective November 28, 2000, the service date for non-project BellSouth SPA DS1 will be a standard interval of 5 business days in BellSouth for customer locations found in the Facility Availability System (FAS) database; and 8-business days in all other customer locations where facilities are confirmed available. If the customer location requested is not eligible for a 5-business day interval, an assessment will be made and the best available service date will be communicated via the FOC. The Special

Access Table lists the service intervals for all BellSouth Special Access services and the changes for Bell South SPA DS1.

Note: The offer of 5 and 8 business days for non-project BellSouth SPA DS1 is dependent upon the approval of the service advancement charge tariff filing. Please see applicable tariffs."

1.2.3.16 Charges for Intervals Less than 5 Business Days

A nonrecurring charge (Short Interval Charge) applies to BellSouth Special Access and Switched Access service requests that are requested and delivered in less than 5 business days. The Short Interval calculation process begins with the Application date:

- Day "0" is the Application Date. The first day in the interval. This day is a business day for BellSouth.
- Day "1" is the second business day for BellSouth
- Day "2" is the third business day for BellSouth.
- Day "3 is the fourth business day for BellSouth.
- Day "4" is the fifth business day for BellSouth.

Below is an example of the calculation process to describe the use of "Day 0 "

Table E 0-4 Business Days Short Interval Charge Calculation Process

This scenario based on an Application Date 12/31/98 - Due Date of 01/07/99 Order completed on expedited date 01/07/99			
Dates	**Interval Calculation**	**Business day**	**Short Interval Charge**
Thursday, 12/31/98	Day "0"	Thursday 12/31/98 is a business day for BellSouth	
Friday, 01/01/99	Holiday	Friday, 01/01/99 is New Year's day. January 1, is not a business day for BellSouth	
Saturday, 01/02/99	Saturday	Saturday is not a business day for BellSouth	
Sunday, 01/03/99	Sunday	Sunday is not a business day for BellSouth	

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Table E 0-4 Business Days Short Interval Charge Calculation Process (continued)

Monday, 01/04/99	Day "1"	Monday, 01/04/99 is a business day for BellSouth	
Tuesday, 01/05/99	Day "2"	Tuesday, 01/05/99 is a business day for BellSouth	
Wednesday, 01/06/99	Day "3"	Wednesday, 01/06/99 is a business day for BellSouth	
Thursday, 01/07/99	Day "4"	Thursday, 01/07/99 is a business day for BellSouth	• Short Interval Charge will apply to this service request. • Service Installation Guarantee credits will not apply.

B. Short Interval Charge when the order is supplemented:

The Short Interval Charge is applicable when a customer changes their service date and it results in a short interval service order. The tariff states that the service interval is measured from application date to service date and that Short Interval Charge applies to service orders issued with intervals of 4 business days or less as measured from the application date of the order. If a customer requests to move his original service date forward so that it creates a 0-4 day service interval (application date to (new) service date), a Short Interval Charge will apply. In addition, a Service Date Change Charge is applicable as well as other Access Order Modification charges that may be appropriate.

When a customer sends in a "Supplement ASR" 5 business days or more after the original ASR and request to move their original service date forward so that it creates a 0-4 day service interval, a Short Interval Charge will apply. Service Installation Guarantee Credits would not apply.

This scenario based on an Application Date 07/27/99 - Original requested Due Date of 08/13/99 Supplement ASR is received on 08/04/99 - Customer request service on 08/09/99 Order completed on expedited date 08/09/99

Table F Scenario

Dates	Interval Calculation	Business day	Short Interval Charge
Wednesday, 08/04/99	Day "0"	Wednesday, 08/04/99 is a business day for BellSouth	
Thursday, 08/05/99	Day "1"	Thursday, 08/05/99 is a business day for BellSouth	
Friday, 08/06/99	Day "2"	Friday, 08/06/99 is a business day for BellSouth	
Saturday, 08/07/99	Saturday	Saturday is not a business day for BellSouth	
Sunday, 08/08/99	Sunday	Sunday is not a business day for BellSouth	
Monday, 08/09/99	Day "3"	Monday, 08/09/99 is a business day for BellSouth	• Short Interval Charge will apply to this service request. • Service Installation Guarantee credits will not apply.
Tuesday, 08/10/99	Day "4"	Tuesday, 08/10/99 is a business day for BellSouth	

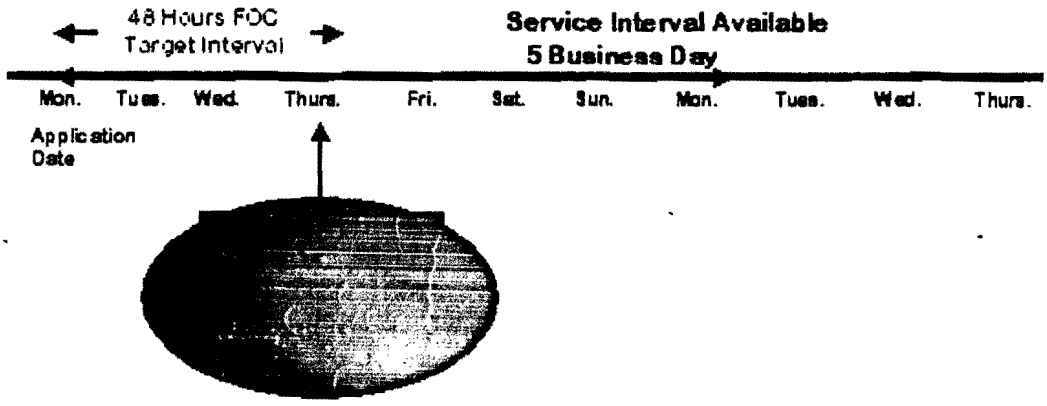
1.2.3.17 Charges for Service Intervals less than the Standard or Negotiated Intervals

Customers desiring a service interval less than the standard or negotiated interval have the option to improve the service date to an earlier service date. Under a proposed BellSouth tariff revision that will establish a Service Date Advancement Charge, a customer has the option to improve the service date from the standard or negotiated interval for BellSouth SPA DS1 and DSO. This tariff revision is anticipated to be effective November 28, 2000 The Service Date Advancement Charge will apply at rate of $200 per circuit for each day the circuit is advanced from the standard or negotiated interval.The number of per day charges will equal the standard interval minus the number of days within which service was installed. The actual charge will be this number times the tariffed rate (See BellSouth FCC Tariff 1, section 5.1.1.E.6 for current rates, after November 28, 2000). If a customer requests to change the original service date so that it creates a service interval that is less than 5 business days, a service advancement charge will apply.

Special Access Services Customer

Example: **ASR received Monday at 2:00 p.m. EST**

- Quantity 2
- 9 pm Access contact listed
- Class of Service XDH1X
- Desired Due Date Thursday



Note: The offer of 5 and 8 business days for non-project BellSouth SPA DS1 is dependent upon the approval of the service advancement charge tariff filing. Please see applicable tariffs."

1.2.3.18 Tables

BellSouth Special Access Service Intervals Non- Project Services	Quantity	Interval Business Days
ALTERNATE SERVING WIRE CENTER		Negotiated*
AUDIO (AKA BellSouth SPA Program Audio)	1-4 circuits	6
DIGITAL 19.2Kb-56Kb (AKA BellSouth SPA DS0 Digital Data)	1-24 circuits	6
	1-12 circuits	6
DIGITAL 2.4Kb-9.6Kb (AKA BellSouth SPA DS0 Digital Data)	1-24 circuits	6

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BellSouth Special Access Service Intervals Non- Project Services	Quantity	Interval Business Days
DS1, non channelized, with or without B8ZS (AKA BellSouth High Capacity) - **Effective 11/28/00***		
- Customer locations in the BellSouth FAS*** database		5
- Customer locations, not in the FAS*** database, where facilities are available	1-10 Circuits	8
DS1, channelized, with or without B8ZS (AKA BellSouth SPA DS1) - **Effective 11/28/00***		
- With Connecting Facility Assignments (CFA)		5
- Without Connecting Facility Assignments (CFA)		8
DS1-ESSX/CENTREX with or without B8ZS	1-10 circuits	Negotiated*
DS1 Diverse (AKA BellSouth SPA DS1 Diverse)	N/A	Negotiated*
DS3 (AKA BellSouth SPA DS3) collocation or not	All	Negotiated*
FLEXSERVE (AKA BellSouth SPA Customer Reconfiguration)-Additional	N/A	Negotiated*
FLEXSERVE (AKA BellSouth SPA Customer Reconfiguration)-New	N/A	All
FRAME RELAY (AKA BellSouth Exchange Access Frame Relay Service) & ATM		
- DS0/DS1	1-10	10
- DS3 & higher	All	Negotiated*
- PVC only	1-24	
LIGHTGATE (AKA BellSouth SPA Point to Point Network 1-24 DS3 Capacity) collocation or not	All	Negotiated*
LIGHTGATE SUPER (AKA Bellsouth SPA Point to Point Network OC-3 thru OC-48 Capacity)	N/A	Project/ Negotiated**
MSNS (AKA BellSouth SPA Shared Managed Network Service)	All	Negotiated*
MSNS (AKA BellSouth SPA Shared Managed Network Service)-conversion	N/A	Project/ Negotiated*
MULTIPOINT	1-12 circuits	Negotiated*
PULSELINK	1-24 circuits	Negoti

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BellSouth Special Access Service Intervals Non- Project Services	Quantity	Interval Business Days
SMARTGATE (AKA BellSouth SPA Managed Shared Ring Network)- adding DS1s	1-10	Negotiated*
SMARTGATE (AKA BellSouth SPA Managed Shared Ring Network)- adding DS3s	All	Negotiated*
SMARTGATE (AKA BellSouth SPA Managed Shared Ring Network)-conversions	N/A	Project/ Negotiated**
SMARTPATH (AKA Bellsouth SPA Shared Ring)- DS3	All	Negotiated*
SMARTPATH (AKA BellSouth SPA Shared Ring)-DS1	N/A	Negotiated*
SMARTRING (AKA BellSouth SPA Dedicated Ring)-Additional Nodes	N/A	Project/ Negotiated**
SMARTRING (AKA BellSouth SPA Dedicated Ring)-Ring Level	N/A	Project/ Negotiated**
VIDEO (AKA Bellsouth SPA Video)	1-4 circuits	Negotiated*
VOICE GRADE (AKA BellSouth SPA DS0 VG)	1-24 circuits	6
CUSTOMER NETWORK MANAGEMENT CONVERSIONS (CNM)	N/A	Negotiated*
Note: The offer of 5 and 8 business days for non-project BellSouth SPA DS1 is dependent upon the approval of the service advancement charge tariff filing. Please see applicable tariffs."		

*Negotiated -these service requests are processed as a firm service inquiry and intervals are established on an individual case basis. **Project/Negotiated - these requests require special coordination and must be project- managed. ***(FAS)- Facility Availability System

Table G Specials

SPECIAL	NON -PROJECT	PROJECT
DIGITAL (AKA BellSouth SPA DS0 Digital Data)	1 - 48 circuits	over 48 circuits
DS1 (AKA BellSouth SPA DS1)	1 - 24 circuits	over 24 circuits
DS3 (AKA BellSouth SPA DS3) same location	1 - 9 circuits	over 9 circuits

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Table G Specials (continued)

SPECIAL	NON -PROJECT	PROJECT
DS3 (AKA BellSouth SPA DS3) rearrangement		all
FLEXSERVE (AKA BellSouth SPA Customer Reconfiguration) End User Projects Only		all
LIGHTGATE SUPER (AKA BellSouth SPA Point to Point Network OC-3 thru OC-48 Capacity) new entrance facilities at POP		all
MSNS (AKA BellSouth SPA Shared Managed Network Service) -conversion		all
SMARTGATE (AKA BellSouth SPA Managed Shared Ring Network) -conversion		all
SMARTRING (AKA BellSouth SPA Dedicated Ring)-Additional Nodes		all
SMARTRING (AKA BellSouth SPA Dedicated Ring)-Ring Level		all
VOICE GRADE (AKA BellSouth SPA DS0 VG)	1 -48 circuits	over 48 circuits
CLEC cell site buildout		all
POP move		all
New POP		all

Table H Wireless

WIRELESS	NON PROJECT	PROJECT
New DS1s with trunks*	any number less than 193 trunks	any number 193 trunks or more
New DS1 Point to Point (Megalinks)	any number less than 10	10 or greater
New Lightgate-ordered alone		all
New Lightgate ordered with rolls		all
Existing Lightgate ordered with additional DS1s	See DS1 quantifies	See DS1 quantifies

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Table H Wireless (continued)

WIRELESS	NON PROJECT	PROJECT
Number Rolls- dedicated NXX or single C.O. repoint route index		all
Number Rolls -shared #'s or multiple dedicated NXX's (several C.O.'s)		all
SMARTRING-Additional Nodes		all
SMARTRING-Ring Level		all
New SS7		all
SS7, adding to existing network	any number less than 193 trunks	any number 193 trunks or more
OPSIT	1 -95 trunks	96 trunks or more
Ring level rolls		all
New Cell Site Build outs**	any number less than 10	10 or greater
Customer Network Management (CNM) Conversions		all
Commercial Mobile Radio Service (CMRS) Conversions		all
*** Originating in a single BellSouth C.O.**		
**** Within an established start and complete negotiated timeframe (same geographical location e.g. city)**		

Table I Service

SERVICE	STANDARD INTERVAL
Opening of 10XXX Intralata	20 business days
Add/Delete CFD on OTS	10 business days
Add/Delete/Change optional features on existing trunk groups	20 business days

- continued -

Table I Service (continued)

SERVICE	STANDARD INTERVAL
Multiple CICs against common trunk groups;adds and deletes	30 business days
Open International (IDDD) Access	30 business days
Open Domestic Access	30 business days
M: e 950-XXXX against common tr roup	30 business days
90( ) code additions and changes	40 business days

Table . Acronyms Commonly Used with Designed Special Service Intervals

APP	Application Date	ASR must be received by 3:00 pm Eastern Time.
SID	Scheduled Issue Date	
LAM	Loop Assignment and Make-up Date	Designed Services Only
EIRD	Engineering Information Record Date	Designed Services Only
CDLRD	Confirming Design Layout Report Date	Designed Services Only
DLRD	Design Layout Report Date	Designed Services Only
TRID	Traffic Record Issue Date	Designed Services Only
RID	Record Issue Date	Designed Services Only
DVA	Designed, Verified, and Assigned Date	Designed Services Only
WOT	Wired and Office Tested	Designed Services Only
FCD	Frame Continuity Date	Designed Services Only
PTD	Plant Test Date	Designed Services Only
DD	Due Date	

1.2.4 Intervals For Jointly-Provisioned Designed Services

Most Independent Telephone Company (ICO) and inter-company (involving other Local Exchange Companies) ordered services intervals must be coordinated since BellSouth cannot commit for another company.

Table K Intervals For Jointly-Provisioned Designed Services

INT NO	Number of days from APP	SID	LAM	EIRD	DLRD / RID	DVA	WOT	FCD	PTD	DD
1	22 (ASC)	1	2	5	3	6	1	1	1	2
1	22 (non-ASC)	2	1	5	3	6	1	1	1	2
2	17 (ASC)	1	2	3	3	3	1	1	1	2
2	17 (non-ASC)	2	1	3	3	3	1	1	1	2
3	17 (ASC)	1	0	7	1	3	2	1	0	2
3	17 (non-ASC)	2	0	6	1	3	2	1	0	2
4	17 (ASC)	1	3	4	1	3	2	1	0	2
4	17 (non-ASC)	2	2	4	1	3	2	1	0	2
5	15 (ASC)	1	2	3	2	2	1	1	1	2
5	15 (non-ASC)	2	1	3	2	2	1	1	1	2
6	11 (ASC)	1	2	1	1	1	1	1	1	2
6	11 (non-ASC)	2	1	1	1	1	1	1	1	2

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Note: While ASC applies to access circuits the interval should also be used for all non-access services. ASC-EC agreements are only negotiated with GTE and Sprint for access services; For all other ITCs BST is the SC

Table L ASC-EC Decision Table

2-Point, Non-Channelized (with NO CFA)	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	The EC with the POP Location
INDIANA BELL	The EC with the Ed User Location
All other ECs	BellSouth
Multipoint (with no CFA)	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	The EC with the Bridge Location
All other ECs	BellSouth
Channelized DS1s and DS3s (switched and special access) 2pt or Multipoint w/CFA	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	The EC with the Multiplexor Location (MUXLOC field on the ASR)
All other ECs	BellSouth
Feature Group A/B/C/D Directory Assistance Operator Services	

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Table L ASC-EC Decision Table (continued)

Note: If trunks and DS1 are ordered on a common ASR, the ASC-EC will be determined by the DS1	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	The EC that owns the SECLOC (the first point of switching)
All other ECs	BellSouth
WATS	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	The EC that owns the WATS office
INDIANA BELL	the EC that owns the WATS office
All other ECs	BellSouth
CCSAC	
If Service is Jointly Provisioned With:	**The ASC_EC Is:**
VERIZON (previously GTE and Contel) AL - 4424, 4331; KY - 0407, 0410; NC - 0509, 4334; SC - 0526, 4335 SPRINT (previously United/Central/Centel) FL - 0340, 0341; NC - 0470, 0471 SC - 0506	STP Owner
All other ECs	BellSouth
All Other Access Services	BellSouth

Note: For Access Svc, ICSC centers must exchange information with ITCs regardless if ITC has standard interval or not.

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Note: For Frame Relay services, the speed of the service will determine the interval. Also on Frame Relay services, see the NNI list on the Knowledge Database for applicable billing option or see ITC WEB site at eponine.bst.bls.com/nimg. This is for non-access services only.

Table M Intervals For Jointly-Provisioned Designed Services by State

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
AL	ALLTEL (see note 5)	ATL	0302	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
AL	ARDMORE		0280	#6=11 days	#6=11 days	#6=11-days	#6=11 days	SVC INQ	#6=11 days
AL	BLOUNTSVILLE		0282	#5=15 days	#5=15 days	#5=15 days	SVC INQ	SVC INQ	#1=22 days
AL	BRINDLEE MTN		0283	#5=15 days	#5=15 days	#5=15 days	SVC INQ	SVC INQ	SVC INQ
AL	BUTLER	TDS	0284	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
AL	CASTLEBERRY		0285	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	CONTEL	GTE	4424	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
AL	FARMERS		0290	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	GENERAL	GTE	4331	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
AL	GOSHEN	TDS	0296	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
AL	GRA CEBA		0295	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	GROVE HILL	TDS	0297	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
AL	GULF		0298	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#1=22 days
AL	HAYNEVILLE		0299	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
AL	HOPPER		0300	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	MILLRY		0304	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	MON CRE		0305	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	MONROEVILLE		0306	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	MOUNDVILLE		0307	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	NATIONAL	TEC	0286	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	NEW HOPE		0308	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	OAKMAN	TDS	0311	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
AL	ONEONTA		0312	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
AL	PEOPLES	TDS	0314	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
AL	PINE BELT		0315	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
AL	RAGLAND		0316	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	ROANOKE	TEC	0317	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	SOUTHLAND		4464	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
AL	UNION SPRINGS		0322	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
FL	ALLTEL (see note 5)	ALT	0336	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
FL	CENTEL	SPU	0340	Note 3	Note 3	Note 3	Note 3	SVC INQ	Note 3
FL	GTComm INC, FL		0291	CDDD	CDDD	CDDD	CDDD	SVC INQ	CDDD
FL	GTComm INC, FL		0339	CDDD	CDDD	CDDD	CDDD	SVC INQ	CDDD
FL	INDIANTOWN		0331	CDDD	CDDD	CDDD	CDDD	SVC INQ	CDDD
FL	NORTHEAST FL		0335	#1=22 days	#1=22 days	#1=22 days	#1=22 days	SVC INQ	#1=22 days
FL	QUINCY	TDS	4454	CDDD	CDDD	CDDD	CDDD	SVC INQ	#6=11 days
FL	SOUTHLAND		4465	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
FL	UNITED	SPU	0341	Note 3	Note 3	Note 3	Note 3	SVC INQ	Note 3
FL	VISTA-UNITED		0330	CDDD	CDDD	CDDD	CDDD	SVC INQ	CDDD
GA	ALLTEL (see note 5)	ALT	0357	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
GA	ALLTEL (see note 5)	ALT	4425	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
GA	ALLTEL (see note 5)	ALT	4332	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
GA	ALLTEL (see note 5)	ALT	0364	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
GA	ALLTEL (see note 5)	ALT	0386	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
GA	ALMA		0344	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	BLUE RIDGE	TDS	0346	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
GA	BRANTLEY		0347	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	BULLOCH CTY		0348	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	CAMDEN	TDS	0351	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
GA	CITIZENS		0355	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	COASTAL		0356	#6=11 days	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	DARIEN		0358	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	ELLIJAY		0360	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	FRONTIER OF GA	FNTR	0362	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	GLENWOOD		0365	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	HART CNTY		0368	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	HAWKINSVILLE		0369	#6=11 days	#6=11 days	#6=11 days	SVC INQ	SVC INQ	#6=11 days
GA	INTERSTATE $$		0371	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	#2=17 days
GA	NELSON BL GRD	TDS	0375	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
GA	PEMBROKE		0376	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	PINELAND		0377	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	PLANT TEL & PWR		0379	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	PLANTERS RUR		0378	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	PROGRESSIVE RUR		0380	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	PUBLIC		0381	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
GA	QUINCY	TDS	4455	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
GA	STATESBORO	FNTR	0387	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	VALLEY $$		0324	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	WAVERLY HALL		0392	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	WILKES TEL		0394	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
GA	WILKINSON CTY		0395	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	ALLTEL (see note 5)	ALT	0402	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
KY	BALLARD RUR		0396	#2=17 days	#2=17 days	#2=17 days	#2=17 days	SVC INQ	#2=17 days
KY	BRANDENBURG		0398	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	CONTEL	GTE	0410	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
KY	DUO COUNTY		0401	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	FOOTHILLS		0406	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	GENERAL	GTE	0407	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
KY	HAROLD		0408	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	HIGHLAND		4002	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	LESLIE CTY	TDS	0411	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
KY	LEWISPORT	TDS	0412	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
KY	LOGAN		0413	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	MOUNTAIN RUR		0414	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	N CENTRAL RUR		4001	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	PEOPLES RUR		0415	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	S CENTRAL RUR		0418	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
KY	SALEM	TDS	0417	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
KY	THACKER GRIGSBY		0419	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
KY	WEST KY RURAL		0421	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
LA	CAMERON	CMRN	4476	#6=11 days	#6=11 days	#3=17 days	#4=17 days	SVC INQ	#6=11 days
LA	CAMPTI-PLSNT HL		0426	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
LA	CTY OF CENTRAL LA	CTE	0423	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF CHATHAM	CTE	0427	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF E. LA	CTE	0440	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF EVANGELINE	CTE	0434	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF N. LA	CTE	0436	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF N. W. LA	CTE	0431	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF RINGGOLD	CTE	0439	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	SVC INQ
LA	CTY OF S. E. LA	CTE	0424	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	CTY OF S. W. LA	CTE	0442	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	DELCAMBRE		0428	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	EAST ASCENSION		0429	#2=17 days	#2=17 days	#4=17 days	#4=17 days	SVC INQ	#3=17 days
LA	ELIZABETH	CMRN	0430	#6=11 days	#6=11 days	#3=17 days	#4=17 days	SVC INQ	#6=11 days
LA	KAPLAN		0432	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
LA	LAFOURCHE		0433	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
LA	NORTHEAST LA		0435	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1:544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
LA	RESERVE		0438	#6=11 days	#6=11 days	#3=17 days	#4=17 days	SVC INQ	#6=11 days
LA	STAR		0441	#1=22 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	ALLTEL (see note 5)	ALT	0453	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
MS	BAY SPRI...	TEC	0446	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	BRUCE		0447	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	CALHOUN CITY	TDS	0448	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
MS	DECATUR		0451	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	DELTA	POT	0452	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	FRANKLIN	POT	0454	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	FULTON	FAIL	0455	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	GEORGETOWN		0456	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	GLEN ALLEN (LKSIDE)		0457	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	LAMAR CTY &&		0301	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	MID-SOUTH	TDS	0460	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
MS	MOUND BAYOU	FAIL	0462	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	MYRTLE	TDS	0449	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
MS	NOXAPATER		0461	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	S. E. MISS	TDS	3301	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
MS	SLEDGE		0466	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
MS	SMITHVILE		0467	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	ALLTEL (see note 5)	ALT	0476	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
NC	ATLANTIC TEL MBR		0468	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	BARNARDSVILLE	TDS	0469	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
NC	CAROLINA	SPU	0470	Note 3	Note 3	Note 3	Note 3	SVC INQ	Note 3
NC	CENTRAL	SPU	0471	Note 3	Note 3	Note 3	Note 3	SVC INQ	Note 3
NC	CITIZENS		0473	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	CONCORD		0474	#5=15 days	#2=17 days	#2=17 days	#4=17 days	SVC INQ	#3=17 days
NC	CONTEL	GTE	0509	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
NC	ELLERBE		0478	#2=17 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
NC	GENERAL	GTE	4334	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
NC	LEXINGTON		0483	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
NC	MEBTEL		4085	#5=15 days	#5=15 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
NC	NORTH STATE		0491	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
NC	PIEDMONT		0497	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	PINEVILLE		0494	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
NC	RANDOLPH		0495	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	RANDOLPH TEL MBR		0496	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	SALUDA	TDS	0498	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
NC	SERVICE	TDS	0500	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
NC	SKYLINE		0501	Note 2	Note 2	Note 2	Note 2	SVC INQ	Note 2
NC	SURRY		0503	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	WILKES		0510	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
NC	YADKIN VALLEY		0511	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
SC	ALLTEL (see note 5)	ALT	0517	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
SC	BLUFFTON &&		0512	#2=17 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	SVC INQ
SC	CHESNEE		0515	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	CHESTER		0516	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	CONTEL	GTE	0526	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
SC	FARMERS		0520	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
SC	FORT MILL &&		0521	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
SC	GENERAL	GTE	4335	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
SC	HARGRAY &&		0523	#2=17 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	SVC INQ
SC	HEATH SPRINGS		0524	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
SC	HOME		0527	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
SC	HORRY		0528	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	LANCASTER &&		0531	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
SC	LOCKHART		0532	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	MCCLELLANVILLE	TDS	0533	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
SC	NORWAY	TDS	0535	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
SC	PALMETTO RUR		0536	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	PIEDMONT RUR		0538	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	POND BRANCH		0539	#6=11 days	#2=17 days	#2=17 days	#2=17 days	SVC INQ	#2=17 days
SC	RIDGEWAY		0541	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	ROCK HILL &&		0542	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
SC	SAND HILL		0546	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	ST STEPHEN	TDS	0544	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
SC	UNITED	SPU	0506	Note 3	Note 3	Note 3	Note 3	SVC INQ	Note 3
SC	W CAROLINA RUR		0550	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
SC	WILLISTON	TDS	0551	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
TN	ALLTEL (see note 5)	ALT	4425	#6=11 days	#2=17 days	#2=17 days	#6=11 days	SVC INQ	#6=11 days
TN	ARDMORE		4000	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	#6=11 days
TN	BEN LOMAND		0553	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	BLEDSOE		0554	#6=11 days	#6=11 days	#6=11 days	SVC INQ	SVC INQ	SVC INQ
TN	CHICKAMAUGA		0354	#6=11 days	#6=11 days	#6=11 days	SVC INQ	SVC INQ	SVC INQ
TN	CITIZENS	CTZN	0577	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	NOTE 4
TN	CITIZENS	CTZN	4336	#6=11 days	#6=11 days	#6=11 days	#6=11 days	SVC INQ	NOTE 4
TN	CLAIBORNE	CTE	0557	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	CONCORD	TDS	0559	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
TN	CROCKETT	TEC	0561	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
TN	CTY OF ADAMSVILLE	CTE	0552	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	CTY OF N. MS &&	CTE	0458	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	CTY OF OOLTEWAH-C	CTE	0574	#5=15 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	DEKALB		0562	#2=17 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
TN	HIGHLAND		0565	#6=11 days	#2=17 days	#2=17 days	#2=17 days	SVC INQ	#3=17 days
TN	HUMPHREYS	TDS	0566	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
TN	LORETTO		0570	#6=11 days	#6=11 days	#6=11 days	SVC INQ	SVC INQ	#6=11 days
TN	MILLINGTON		0571	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ

- continued -

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Table M Intervals For Jointly-Provisioned Designed Services by State (continued)

ST	COMPANY	HLDG CO	CO #	VG/PL/ WATS / FGA / FX/ msp type 1	DSD / SYNCHRONET (2.4-9.6kb)	19.2kb / 56kb / 64/kb FLEX-Serv	HIGH-CAP DS-1 / MEG (1.544Mb) RT	DS3	SWITCHED ACC(FGB,C,D) Wireless T2A, 2B, 2D
TN	NORTH CENTRAL		0573	#6=11 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
TN	PEOPLES	TEC	0576	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
TN	RINGGOLD		0382	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
TN	TELLICO	TDS	0578	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
TN	TENNESSEE TEL (see note 6)	TDS	0575	#6=11 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	#6=11 days
TN	TRENTON		0389	#6=11 days	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ
TN	TWIN LAKES		0579	#2=17 days	#5=15 days	#5=15 days	#5=15 days	SVC INQ	#5=15 days
TN	UNITED		0581	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ
TN	W. TENNESSEE	TEC	0583	#2=17 days	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ
TN	YORKVILLE		0584	#2=17 days	SVC INQ	SVC INQ	SVC INQ	SVC INQ	SVC INQ

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note 1 For GTE/Contel non access orders (excludes FCC/Tariff E) GTE & Contel interval = 10 days;15 days = project (6+ circuits) going to the same location, same due date. This includes all LEC to LEC, Wireless, Broadband Svcs, etc., not access. DS3 and frame relay requires a SI.
note 1a For GTE/Contel **access services** where an ACNA is present **(excludes Z++ for end users)** CDDD = 5 days. Anything less is an expedite. **Coordination with GTE/Contel is still required for FOC and includes frame relay and DS3s.**

note 2 Skyline uses a 30 day interval for LEC to LEC (CRIS) orders; 22 day interval for access orders
note 3 Sprint intervals.

T1s	Frame Relay	Analog Data, FX, Wireless DID tks	ISDN PRI	ISDN BRI
FL = 10	FL = 15	FL = 5	FL = 10	FL = 15
NC = 13	NC = 11	NC = 11	NC = 13	NC = 15
SC = 11	SC = 11	SC = 11	SC = 13	SC = 15

note 4 Citizens Tennessee - switched access only new service carries 30 business day interval when an IXC orders direct trunks to their tandem; additions to existing trunk groups carry the 17 day interval; translations only carries 11 day interval

note 5 ALLTEL must review each request for ISDN before service order is issued

note 6 Tennessee Tel will not allow BST to extend PRI ISDN into it's territory

1.3 Design and Engineering

1.3.1 Introduction

When provisioning access service to a Local Access and Transport Area (LATA), AP and ACs must maintain close communication to ensure that circuit designs meet access tariff parameters. Two documents provide this communications link: The AP-originated Design Layout Report (DLR), and the AC-originated Confirming Design Layout Report (CDLR).

There are also times during the normal course of business when the APs must initiate orders to rearrange working access service to maintain and modernize the circuit network.

Section B provides the AC/AP industry-agreed guidelines and procedures for the rearrangements.

1.3.2 Circuit Design Information Exchange

1.3.2.1 The Design Layout Report

1.3.2.2 What is a Design Layout Report?

The Design Layout Report (DLR) is an AP-generated document that responds to an AC's request for access service. The DLR contains the technical and administrative information that describes the AP access service. The AC uses this information to design the overall service.

1.3.2.3 DLR Minimum Contents

The minimum contents for the DLR are defined in the **Ordering and Billing Forum (OBF) Generic DLR Guidelines, October 1985**, SR STS-000304. This document is printed and distributed by Telcordia (under the auspices of the OBF). The most current Design Layout Report - Industry Standard Interface (DLR-ISI) is available from BellSouth. To obtain copies of this document, OBF changes, and updates, contact

Joann P. Boisdore, Staff Manager
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3535 Colonnade Parkway
North Bldg, Rm W2G1
Birmingham, AL 35243
Telephone No: 205 977-3007

1.3.2.4 Initiating the DLR

The AP Circuit Provisioning Center (CPC) initiates the DLR after the circuit design is completed. The report contains all of the pertinent data so that the AC can review the proposed AP design and make an informed evaluation about its ability to perform the ordered service.

1.3.2.5 DLR Distribution

DLRs are distributed via the US Mail or mechanically to a printer at the access customer's location.

To establish mechanical distribution, the customer must have a printer, a data set equivalent to a 212 data set and an 800 number.

The access customer's Account Team Systems Designer will obtain required information using the form found at the end of this section.

Upon receipt of the request for mechanical distribution, the access customer will be assigned a routing code. A test DLR will be distributed within two (2) weeks of request. The routing code will appear in the remarks of the test DLR and should be used immediately. To ensure proper distribution of the DLR,

the routing code must be populated in the Design Routing Code (DRC) field located in the Administrative Section of the ASR (SR-STS-4710001).

If the DRC is blank and the CPC cannot determine the routing code, the DLR will be distributed via US Mail to the address shown for the Design Contact (DSGCON) in the Administrative Section of the ASR.

1.3.2.6 Services that do not require a DLR

The AP initiates DLRs for all services ordered under the LATA Access Tariff with the following exceptions:

- AT&T and AP combined trunk groups
- Intrastate WATS
- Intrastate 800 services
- Interstate WATS
- Interstate 800 Service
- Occasional Audio Channels
- Occasional TV Channels
- Message Telecommunications Service (MTS).

1.3.2.7 When to Reissue a DLR

APs will reissue a DLR when it is necessary to reflect modifications to the circuit design. They will not reissue a DLR to reflect a change in dates.

1.3.2.8 When the AP Initiates a Project

The APs initiate orders to rearrange working access services due to network modernization or circuit maintenance reasons. APs classify the rearrangements as projects or individual circuit activity, then notify the ACs early in the planning process to establish joint discussions concerning the proposed changes in relation to the following items:

- Category
- Access Service Request (ASR) requirements
- Schedules
- Application of changes
- Appropriate contacts

1.3.2.9 Impact

AP initiated rearrangements that affect AC Access Services can be categorized in the follow three ways.

Category	Definition	Process
A	Processes that affect data elements found on the Customer Service Record (CSR) (for example, CKT, ID, NCI, LSO) and/or customer billing, such as, changes in the V and H parameters.	For projects or individual services, the following events will occur: • APs notify the ACs (initial contact). • APs issue a DLR or maintenance release request to the ACs (describes the rearrangement). • ACs respond with contact information. • APs/ACs hold joint meetings to discuss details, work load, critical dates, and so forth. • If required, ACs issue ASRs and APs issue FOCs. • APs issue DLRs if the minimum content of the DLR is affected. • CDLR information is optional.

Category	Definition	Process
B	Processes that affect the design characteristics of the access service affecting minimum content of the DLR without altering the CSR or customer billing.	For projects, the following events will occur: • APs notify the ACs (initial notification.) • APs issue a DLR or maintenance release request to the ACs (describes the rearrangement). • ACs respond with contact information. • APs/ACs hold joint meeting. • APs issue a DLR. • CDLR information is optional. For individual services: • APs notify the ACs. • APs issue a DLR or maintenance release)request to the ACs (describes the rearrangement). • ACs respond with contact information. • APs/ACs hold joint meeting (optional). • APs issue a DLR. • CDLR information is optional.

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Category	Definition	Process
C	Processes that impact facilities or equipment without affecting the CSR customer billing and/or DLR.	For projects, the following events will occur: • APs notify the ACs. • APs issue a DLR or maintenance release request to the AC (describes the rearrangement. • ACs respond with contact information. • APs/ACs hold joint meeting.

1.3.2.10 How to Handle the Circuit Turndown

The Network Operations Forum (NOF) Access Services Installation and Maintenance Operations Reference Document defines the procedures for circuit turndown and acceptance requirements. All categories are handled according to these procedures.

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1.3.2.11 Single AP

Rearrangement Responsibilities		
Access Provider (AP)	**Access Customer (AC)**	**Joint (AP/AC)**
• Identify the necessary rearrangements. • Identify AC access service involved. • Perform a timely initial notification to the AC, including the following data elements: - AP Central Office involved. - Description of change. - Existing AP circuit identification. - AC circuit reference (CKR). - AP desired due date. - AP contact name. - AP contact telephone number. - AP project/order number. • Establish project team. • Provide minimum fields for ASR processing (when required) BAC, BIC, TEL, BIC ID. • Determine subsequent data elements (data elements vary with service type). • Develop schedule for providing the AC with subsequent data elements. • Issue DLR, as necessary.	• Provide positive and timely response to AP notification. • Provide appropriate contact data for: - Design. - Installation. • Participate in project team activities. • Issue ASRs when necessary and agreed upon. • Confirm DLR when necessary. • Notify customers, where required.	• Determine if ASR is required. • Apply charges acording to the AP's access tariffs. • Work together to resolve any discrepancies. • Establish time lines and intervals for AP to provide DLRs to AC. • Negotiate critical dates that are mutually agreeable.

1.3.2.12 Multiple AP

When the rearrangements or changes involve one or more APs in a jointly provided Access Service, the initiating AP notifies the Access Service Coordinator Exchange Carrier (ASC-EC) of the changes, providing the information listed above. The ASC-EC is then responsible for AC and other AP notification.

1.3.2.13 Definition: Access Service Coordinator — Exchange Carrier

The Access Service Coordinator- Exchange Carrier (ASC-EC) concept provides for both a single AP point-of-contact or interface between the AC and the APs, and a coordinator for the activities of the involved APs.

1.3.2.14 How to Determine ASC-EC Assignments

ASC-EC assignments and functions are detailed in the **Multiple Exchange Carriers Ordering and Design (MECOD) Guidelines for Access Services. (Formerly Bellcore Document SR-STS-002643, now maintained by ATIS).** However, the ASC-EC functions for these rearrangements or changes may be performed by an AP other than the normal ASC-EC, as determined locally

1.3.2.15 The Confirming Design Layout Report

1.3.2.16 What is a Confirming Design Layout Report?

The Confirming Design Layout Report (CDLR) is an AC-generated document that responds to the DLR. This document either confirms the AC's acceptance of the AP Access Service Design (DLR), or requests specific design changes. The AC may waive this confirmation report.

1.3.2.17 Initiating the CDLR

The AC initiates the CDLR in response to the AP's DLR. This review is prepared and forwarded to the respective AP only when the AC has not waived the design review.

1.3.2.18 CDLR Updates to the System

The CPC updates the mechanized system when the CDLR arrives. Depending on certain dates, the ICSC copy can identify jeopardy conditions.

1.3.2.19 Choosing to Review or to Waive the Review

When filling out the ASR, the AC indicates whether to review or to waive design review by placing the appropriate entry in the D/CDLRW space. A **"blank"** entry indicates that the AC wants to waive the DLR review.

1.3.2.20 When the CDLR Might Be Waived

The AC might waive the CDLR when circuits are added to an existing group, or when the request involves an installation with a very short time frame.

1.3.2.21 Request for Mechanized DLR Delivery

Request for Mechanized
DLR Delivery

Access Customer Name: _____
ACNA: _____

Customer Contact: _____ _____
Address: _____
Telephone: _____ __

Type of Printer:

800 #:

Type of Data Set:

Speed of Data Set:

_____ BellSouth Use Only _____

RRO Code:

LTERM:

Resource ID:

Inode Address:

Activated:

1.4 Installation and Maintenance

1.4.1 Introduction

This chapter outlines the responsibilities for installing and maintaining Special Access Services (SPA) and Switched Access Services (SAS) furnished to ACs and other customers.

1.4.2 General Information

1.4.2.1 Overview

1.4.2.2 What do SPA and SAS Include?

If the Access Service Category is. . .	THEN the Access Services included are . . .
SAS	FGB, FGC, and FGD
SPA	Special Access and WATS Access Lines (WAL) and FGA

1.4.2.3 Who Is a Customer?

A customer is any individual, association, corporation, government entity, or any other entity that subscribes to access services (SPA and/or SAS). The ACs may request that APs provide various facilities to be used as part of the ACs' services.

1.4.2.4 What do APs Provide?

APs provide SPA and SAS that include all wiring, cable, and facilities up to the point-of-termination (POT).

1.4.2.5 What is the Point-of-Termination?

The POT is the connection point between the APs' Access Service and the ACs' facilities or equipment.

1.4.2.6 What the AP does Not Provide?

APs do not install, operate, or maintain any AC end user-purchased communications equipment, or provide service beyond the POT. This includes intercarrier facilities leased by the AC from other ACs.

1.4.2.7 AP Participation

APs are not joint participants, but only provide certain facilities in connection with the service ACs furnish to their end users.

1.4.2.8 Installation Responsibilities

1.4.2.9 ACs and Installation

ACs have the overall installation and maintenance responsibility (end-to-end) for SPA and SAS.

1.4.2.10 AC Responsibilities

ACs are responsible for the following activities:

- Providing trained personnel with adequate, compatible, test equipment to install and maintain their services.
- Coordinating with the APs to ensure that circuits are installed in accordance with the service requests.
- Notifying the appropriate AP Interexchange Customer Service Center (ICSC) when the service due date is to be changed.
- Providing a trouble reporting number that is readily accessible 24 hours, 7 days a week.
- Receiving all trouble reports relating to furnished service from their end users.
- Sectionalizing any detected trouble to determine if the trouble is located in an AC facility or service, or in an AP provided access service.
- Participating with the APs to isolate and clear existing trouble that cannot be sectionalized to the AP or AC area.
- Participating with the AP control office to identify and clear trouble that has been sectionalized to an AP provided access service.
- Advising the AP control office when there is an AC circuit or equipment failure affecting the Access Service.

1.4.2.11 AC Responsibilities

Analyzing end users' reports and

- Consulting with the AP control office if they detect a circuit-specific trouble or pattern developing or consulting with a Network Service Center (NSC) for non-circuit-specific troubles.
- Determining if there is agreement on the formation of a particular pattern.
- Keeping the end user advised of the status of the trouble clearance.

Obtaining end user releases (upon AP request) for other than trouble or installation reasons.

Providing AP personnel access to the POT, as required.

1.4.2.12 AP Responsibilities

APs are responsible for the following activities:

- Maintaining complete and accurate installation and repair records.
- Ensuring that the SPA and SAS furnished to an AC is installed and functioning properly.
- Working cooperatively with the AC in the acceptance testing of the SPA and SAS.

- Designating a control office to perform the control function for the installation of SPA and SAS provided to the ACs.
- Furnishing the ACs with a trouble reporting telephone number for their SPA, and for each SAS. The number should be readily accessible 24 hours, 7 days a week.

1.4.2.13 Control Office

The control office coordinates the installation and maintenance of SPA and SAS furnished to an AC.

1.4.2.14 AP Control Office Responsibilities for SAS

The control office has the following SAS responsibilities:

- Accepting circuit-specific trouble reports from the AC.
- Coordinating the sectionalization of AP-detected SAS troubles to determine the trouble location (AP facilities/service or AC facilities/equipment).
- Coordinating testing with other AP offices and/or the AC to ensure that trouble is isolated and cleared.
- Coordinating clearing AC-reported troubles that have been sectionalized into the AP-provided facility and/or central office equipment.
- Reporting both the trouble noted and the action taken to the AC.
- Dispatching AP maintenance forces.
- Initiating corrective action on service trouble conditions.
- Advising the AC of failures affecting its facilities.
- Determining when to make temporary patches due to AP carrier channels or system failures. Consulting with the AC before making any changes that would affect service, except with the prior agreement of the AC, or under emergency conditions.
- Consulting with the AC before making any changes that would affect service, except with the prior agreement of the AC, or under emergency conditions.
- Performing routine maintenance (billable per the tariff) when requested.
- Preparing a Billing Detail Form for billing overtime, additional installation acceptance testing, standby time, nonscheduled testing, other labor, maintenance-of-service charge, and then forwarding the form to the ICSC for billing.
- Maintaining complete and accurate records on all aspects of the access service.

1.4.2.15 Control Office Responsibilities for SPA

The control office has the following SPA responsibilities:

- Ensuring that SPA installation and maintenance conforms to current practices and procedures.
- Coordinating clearing troubles that are located in AP-provided facilities and/or central office equipment.

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- Cooperating with other AP offices and the ACs when asked for testing assistance, and/or to sectionalize and clear circuit troubles
- Advising the AC offices of failures affecting access service.
- Accepting circuit-specific trouble reports from the ACs, initiating corrective action on service-affecting conditions, and reporting troubles and the corrective actions taken to the ACs' office.
- Consulting with the AC control office before making any change that would affect service, except under emergency conditions.
- Coordinating work plans with the AC control office and the various AP work groups to:
  - Ens[illegible] that access services are installed, per the service orders.
  - M[illegible]cceptance requirements to the point-of- termination.
- Coope[illegible]vith the AC, as requested, to perform maintenance.
- Prepari[illegible]ing forms.
- Providing status reports regarding installation and repair activity, as requested.
- Notifying the ICSC when a customer credit allowance is required.
- Coordinating the activation of line translations or equivalent that ensures proper hunting arrangement operation to prevent premature service selection by the customer.
- Maintaining complete and accurate records on all aspects of the access service.

1.4.2.16 Access Service Records

Installation and repair records must be complete and accurate. Detailed Access Service records ensure the implementation of timely repairs, and substantiation of customer credits or billing.

1.4.2.17 Control Office Records

Detailed and current control office [illegible]rds, including updates, are maintained to satisfy maintenance and installation responsibilities when [illegible] activity occurs.

1.4.2.18 Credit Allowance

1.4.2.19 Determining a Period-of-Service Interruption

For credit allowance calculation, a period-of-service interruption starts when an inoperative service is reported to the AP (or Access Service Coordinator [ASC] in the case of jointly provided service), and ends when the service is operative.

1.4.2.20 Jointly Provided Services

On jointly provided service, an AP credit allowance also applies when the trouble is [illegible]ated in a connecting AP's equipment.

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1.4.2.21 Allowances for Interrupted Service

An allowance is required for an interruption that is 24 hours or longer, to any AP-provided Switched Access Service, except when the interruption/trouble was the result of:

- Circuit turndown for rearrangement or other maintenance activity, when a circuit release was arranged through the AC.
- Negligence or a willful act on the part of the AC.
- The AC (or other) rearranging, moving, disconnecting, or attempting to repair any AP-provided equipment or facility.
- Electrical power failure, where the AC was responsible for supplying the power.
- Equipment or communications systems provided by other than the AP (or connecting AP for jointly provided SAS).
- The AC's refusal to authorize overtime repair charges. This is considered as a denial of access or a failure to release the service.

Note: An interruption allowance does not apply for any period during which the AC either fails to afford access to the facilities provided by the AP, or to release the service for testing and/or repair.

1.4.2.22 Outage Log

The control office should maintain an outage log.

1.4.2.23 Initiating a Billing Inquiry

The AC contacts the ICSC to initiate a billing inquiry related to a challenge of the minimum use charge and service interruptions.

1.4.2.24 ICSC Action

The ICSC contacts the appropriate control office, and if required, initiates a billing adjustment that applies a credit allowance.

1.4.2.25 Network Centers

1.4.2.26 Network Service Center (NSC)

The Network Service Center (NSC), or other designated center, is the contact point for non-circuit-specific trouble reports from the ACs.

1.4.2.27 ACs Initiate Non-Circuit-Specific Trouble Report

The AC contacts the ACAC to initiate a non-circuit specific trouble report.

1.4.2.28 Network Management Center (NMC)

The Network Management Center (NMC) ensures that the network consistently completes as many messages as possible.

1.4.2.29 NMC Control to Inhibit Network Congestion

The NMC can apply either expansive or protective controls to inhibit network congestion. Guidelines for applying controls are covered in specific agreements that the APs negotiate with each AC. If AP-applied protective controls result in complete loss of service to an AC, a credit allowance for service interruptions will be granted.

1.4.2.30 Network-Management Meetings

The APs invite and encourage frequent AP/AC network management meetings to discuss and plan traffic-management options.

1.4.2.31 AP Network-Management Center

When ACs want to investigate the availability and use of network rerouting options, they should contact the Access Provider Exchange Carrier Network-Management Center (APNMC).

1.4.2.32 Terminating Reroutes Involving an Access Customer

1.4.2.33 What is a Terminating Reroute

Terminating reroute is the ability to use network management controls to reroute AC traffic signals through a qualified Via office to the called end office.

1.4.2.34 Why Use a Terminating Reroute?

Where available, terminating reroutes may be used temporarily to relieve network congestion due to facility failures or recognized abnormal calling periods (such as Mother's Day, disasters, and so forth).

Reroutes can also improve call completions and service to the customer.

1.4.2.35 Reroutes and Normal Truck Servicing

Reroutes are not used to circumvent normal trunk servicing.

1.4.2.36 Types of Calls That Can be Rerouted

The only AC calls that can be rerouted are terminating calls from ACs through an Access Tandem (AT). These are rerouted at the access tandem using a qualified end office as the Via office to the destination end office.

1.4.2.37 Reroute Structure

When rerouting a call, only one additional link should be added to the overall connection.

1.4.2.38 Reroutes: Design Requirement and Test Results

APs should verify that a reroute meets the following conditions:

- All the involved links should meet AP design requirements. (APs receive test results and furnish them to the ACs upon request).
- AP trunk servicing, forecasting, and design engineers should receive notification of reroutes so that rerouted traffic is not reflected as capacity requirement for future capital expenditures.
- The AP should monitor the Via office performance and associated Via routes prior to and during the reroute to maintain network quality.

1.4.2.39 The Control Office's Relationship with Other Work Groups

For the control office to fulfill its responsibilities, other groups that work with AC services must keep the control office informed as to their work status.

1.4.3 Installation

1.4.3.1 Circuit Order Activities

1.4.3.2 How to Order Access Services

ACs complete an Access Service Request (ASR) form and submit the ASR to the appropriate ICSC to initiate the order for service.

1.4.3.3 Referencing the Circuit Order

During the installation period, all AC inquiries are referenced by the AP order number and circuit identification. AP inquiries should include the Purchase Order Number (PON).

1.4.3.4 Establishing Due Date Intervals

Each AP negotiates its access service due date intervals, either on a standard or individual case basis.

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1.4.3.5 Establishing Interface

The AC arranges for any required equipment space and electrical power at the point-of-termination.

1.4.3.6 Point-of-Termination Special Requirements

The suitable space must be in a safe working area that is accessible during normal working hours to AP personnel for installation and maintenance purposes, or AC personnel must be available to work with AP personnel.

1.4.3.7 Glare Convention

All two-way FGB, FGC, and FGD trunk groups must be provisioned to give preference to incoming AC/AP calls (AC = Glaremaster). To minimize glare problems, the AP and AC trunk hunting should begin at opposite ends of the trunk group.

Where digital equipment is used, synchronization/loop timing equipment and options should be verified.

1.4.3.8 Overtime Installations

1.4.3.9 What Is Overtime Installation?

Overtime Installation is the time spent by AP personnel to perform installation functions outside scheduled working hours.

1.4.3.10 How Is Overtime Installation Determined?

When ACs request that work be done outside regularly scheduled hours, but that request was not included in the initial order, it is referred to as overtime.

1.4.3.11 How Is Overtime Installation Scheduled?

Step	Action
1	An AC submits a request for overtime installation to the control office.
2	Control office personnel evaluate the nature of the work and the date and time the AC requests to begin installation functions outside scheduled working hours.
3	Control office personnel determine the various craft groups necessary to complete the work, and notify local management (to permit rescheduling considerations).

- continued -

- continued -

Step	Action	
4	Control office personnel coordinate the work.	
	IF	**THEN**
	the requested start date and time is more than 72 hours hence,	The control office should notify the AC that: • The AP will attempt to reschedule (every attempt is made to use scheduled personnel and to reschedule only when sufficient notice has been received). • Any required non-scheduled hours are billable, if unable to reschedule.
	AP technicians are required to work on a nonscheduled basis,	Billable overtime hours: • Begin when the AC requests the start of the work. • End when: - The job is completed. - The technician is released by the AC. • Include travel time to and from the reporting location.
	Overtime is worked consecutively with regularly scheduled hours,	• Overtime hours that precede regularly scheduled hours stop when the regular hours begin. • Overtime hours that follow regularly scheduled hours begin when the regular hours end.

1.4.3.12 Overtime Installation is Billable

Hours considered as overtime installation are billable to the AC. Overtime charges that are billable include:

- Normal travel time from the reporting location.
- Work time.
- Normal travel time back to the reporting location.
- A minimum "call-out" charge applies for a technician's non-scheduled time.

Note: Billable overtime charges are based on a one-half hour rate or fraction thereof.

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1.4.4 Cooperative Acceptance Test Procedures

1.4.4.1 Acceptance Test Procedures

1.4.4.2 Request for Cooperative Acceptance Testing

After completing the required preservice tests, but prior to the due date, the control office should contact the AC to advise that the access service is ready to be turned on. If the AC requests cooperative acceptance tests, the control office should schedule a mutually agreeable date and time and coordinate all normal acceptance testing, as specified on the order.

1.4.4.3 Performing the Cooperative Acceptance Testing

At the time of acceptance testing, AP personnel perform cooperative operational tests under the direction of the control office. AP personnel do not test directly with the AC, unless the control office so directs.

1.4.4.4 Cooperative Acceptance Testing Termination Points

If the Access Service is . . .	THEN the Testing Termination Point is . . .
FGA	The (POT), which is demarcation point within a customer-designated premises at which the Local Exchange company's (LAP) responsibility for the provision of Access Service ends.
FGB, FGC and FGD	Made either AP switch to the POT, or AP switch to AC switch.

1.4.4.5 Testing Results

The service is complete when results are within the set parameters. If tests are made switch-to-switch, results are for information only, as acceptance test requirements apply only to the AP switch, and facility test requirements apply to the point-of-termination.

1.4.4.6 AC's Option Regarding Cooperative Acceptance Testing

On or before the due date, the ACs may accept service with or without cooperative acceptance testing. If an AC declines cooperative acceptance tests, the date, name, and telephone number of the AC person authorizing circuit acceptance must be recorded and retained by the control office.

Any AC request for cooperative acceptance testing after the due date should be handled as billable non-scheduled testing.

1.4.4.7 Required Circuit Testing

To prevent machine failures, the AP must perform an operational test on each SAS before releasing the circuits for service.

1.4.4.8 Make-Busy Removal

The AC and AP control office coordinate (both ends of their overall service) the make-busy removal.

1.4.4.9 Documenting Test Results

AP personnel should document acceptance test results.

1.4.4.10 Due Date Completion When the AC is Not Ready

In the event that the AC is not ready on the due date, but the AP has satisfactorily performed preservice tests, the AP control office should complete the service as scheduled.

1.4.4.11 New Service Accessibility

Acceptance tests must be completed before the ACs can use new or additional services.

1.4.4.12 Additional Charges for Post Due Date Testing

The AP control office will not schedule another test after the due date without an additional charge.

If the work order (WO) is a rearrangement, the AP must contact the ICSC and advise them that the work order cannot be completed because the order is not ready, and the order requires further negotiation with the AC.

1.4.4.13 Performing Operational-Signaling Tests

While performing cooperative acceptance tests, the AC may request that operational signaling tests be performed to ensure that the service is functioning properly.

1.4.4.14 What is an Operational-Signaling Test?

The operational signaling test consists of the AP employee using a dial test set or another test telephone to verify that the AC receives the pulses. This test does not require the use of any particular test set.

1.4.4.15 What Are the Operational-Signaling Test Results?

An operational-signaling test verifies that the AP-provided signaling (loop, duplex, single frequency, multifrequency, or E&M) is functioning properly.

1.4.4.16 No-Cost Operational-Signaling Tests

Operational-signaling tests are performed at no additional cost.

1.4.4.17 Who Coordinates the Operational Signaling Test?

The AP control office coordinates the AC requested operational-signaling te: Central office and field forces perform the tests only under control office direction.

1.4.4.18 Types of Cooperative Acceptance Testing

1.4.4.19 Normal Acceptance Tests for SAS: Analog Facility Configurations

IF the Facility Configuration is . . .	THEN the Normal Acceptance Tests Are . . .
• Digital facilities - AP analog switch • Analog facilities - AP digital switch. • Analog facilities - AP analog switch.	• 3-one slope. • Loss. • DC-continuity. • Operational signaling. • Balance(ERL-SRL) for 2W/4W • C-Message noise. • C-notched noise.
Digital facilities - AP digital switch.	• One loss test per trunk group per di-group • One operational test per trunk.

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1.4.4.20 Test Parameters for FGA, SPA and WATS on Analog Facilities

IF the Facility configuration is . . .	THEN the Normal Acceptance Tests Are . . .
Analog facilities for FGA	• Loss. • 3-tone slope. • DC continuity. • Operational signaling. • C-notched noise. • C-message noise. • Balance for 2- and 4-wire.
Analog facilities for voice grade, such s wire cable. (These parameters will be tested, when applicable, and specified in the service order).	• Loss. • 3-tone slope. • DC continuity. • Operational signaling. • C-notched noise. • C-message noise. • Balance test if the customer has ordered the improved-loss optional feature.
Analog facilities WALs	• Loss. • 3-tone slope. • DC continuity. • Operational signaling and predesignated interexchange carrier (PIC) verification if the AC has furnished a PAC verificaion number. • C-message noise. • Balance for 2W/4W. operational signaling (PAC verification if the AC has furnished a PAC verifiction number.

- continued -

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- continued -

IF the Facility configuration is . . .	THEN the Normal Acceptance Tests Are . . .
Non-designed	Operational signaling (PAC verification if the AC has furnished a PAC verification number.)
Other analog (such as telegraph) and digital SPA	Test parameters that apply to the service (as specified by the customer in the service order).

1.4.4.21 [illegible]al Facilities - Digital Interface

Exhibits are prov[illegible]r the following SPA-cooperative acceptance testing:

- Non-swi[illegible]ed special access service DS-0 added to existing DS-1 facilities with a digital interface provided at the AC POT.
- WALs and FGA added to existing DS-1 facilities with a digital interface provided at the AC POT.
- Installation of a DS-1 service on an existing DS-3 service with a digital interface provided at the AC POT.

1.4.4.22 Non-Switched SPA DS-0 added to Existing DS-1 Facilities with a Digital Interface Provided at the AC Point-of-Termination

IF the ACs . . .	THEN . . .
Extract the DS-0 voice-grade service from the DS-1 facility at the POT.	Cooperative acceptance te[illegible]hould be performed from the AC POT to the end u[illegible]POT.
Do not extract the DS-0/ voice-grade service from the DS-1 facility at the POT.	In lieu of cooperative acceptance tests, the AP will perform acceptance tests from the end-user POT through the AP channel unit, or from the DSX-1 bay (or equivalent) using a drop-and-insert-type test set. (Test results are available to the AC upon request.)

1.4.4.23 Exhibit: Non- Switched SPA DS-0 Added to Existing DS-1

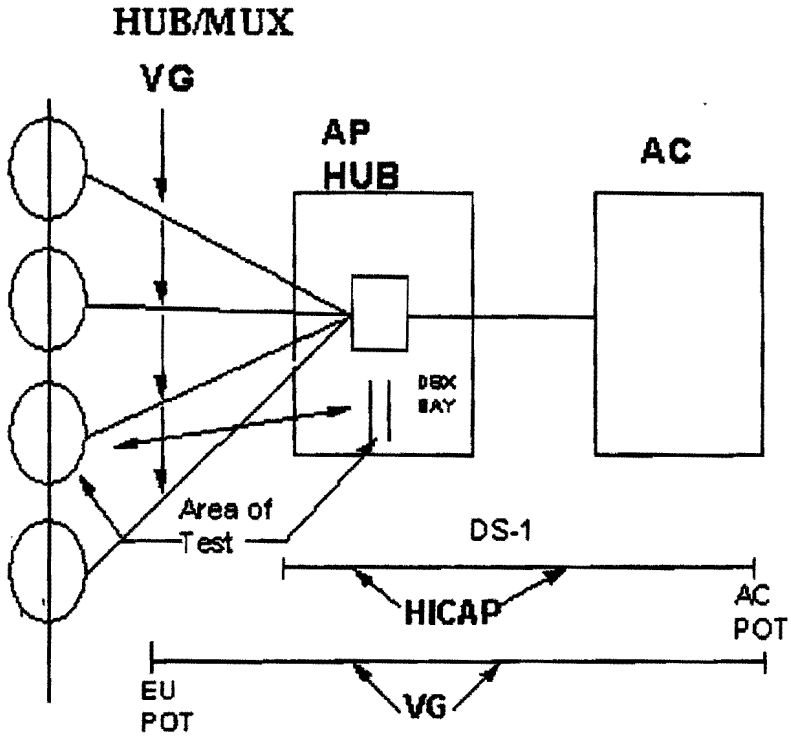

Figure 1 HUB / MUX

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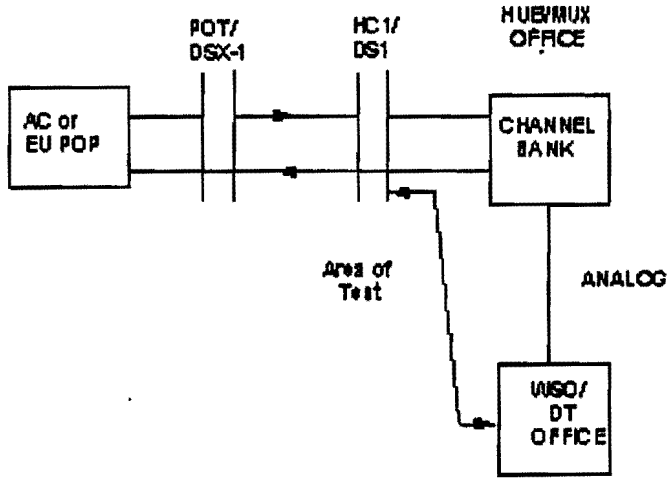
1.4.4.24 WALS and FGA Added to Existing DS-1 Facilities — Digital Interface Provided at the AC

If the ACs . . .	THEN . . .
Extract the DS-0 / voice grade service from the DS-1 facility at the POT.	Cooperative acceptance tests should be performed from the AC POT to the WATS-serving office/dial-tone office.
Do not extract the WALs or FGA at the AC POT.	In lieu of cooperative acceptance tests, the AP will perform applicable operational and transmission tests from the WATS serving office/dial-tone office through the AP's channel unit, or from the DSX-1 bay (or equivalent) using a drop-and-insert-type test set. (Test results are available to the AC upon request.)

1.4.4.25 FGA/WATS Added to Existing DS-1 Facilities



1.4.4.26 DS-1 Installation on an existing DS-3 with digital interface provided at the AC Point-of Termination

IF the ACs . . .	THEN . . .
Demux the DS-3 to DS-1 service at their POT.	Cooperative acceptance tests (when requested) should be performed from the end-user POT at the DS-1 rate to the AC POT.
Demux to DS-1 beyond the POT, or request a loop back.	In lieu of cooperative acceptance tests, the AP will provide a loop back at the DSX-1, or equivalent, toward the MUX and notify the AC. (When used, this method should be determined prior to scheduling cooperative acceptance tests.) • The AP: - -Performs appropriate tests on the DS-1 from the AP's DSX-1 or equivalent to the end-user POT. - Notifies the AC of the results. (Test results are available to the AC upon request.) - Coordinates the removal of all loop backs. • The AC verifies the end-to-end DS-1 service.

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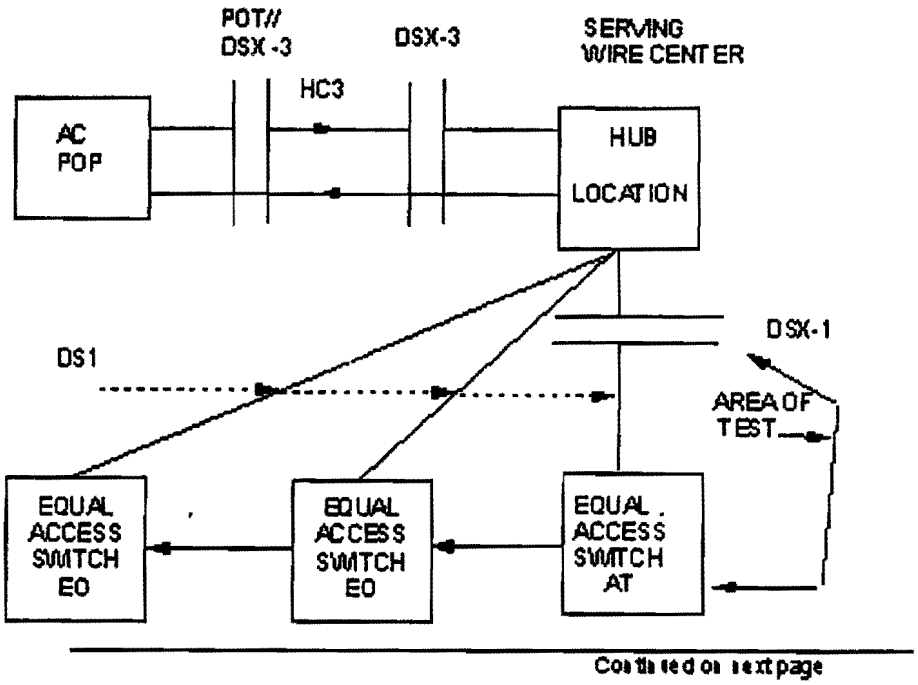
1.4.4.27 Adding DS-1(s) to Existing DS-3D



1.4.4.28 Digital Transmission Facilities in connection with SAS, FGB, FGC, or FGD

Cooperative acceptance testing of digital transmission facilities with a digital interface in connection with an order for SAS FGB, FGC or FGD consists of the following:

- Test the bit error in each direction of transmission using a compatible Quasi/Pseudo Random Signal Source. (Described in Telcordia publication * **Tech Pub 62411**.)
  - Test should be made from the AP DSX closest to the AP switch, to the first AC DSX or equivalent.
  - OR
- If the DS-1 facility is connected to a DS-3/HC-3 service, instead of cooperative acceptance tests, the AP can provide a loop-back toward the MUX at the DSX-1 closest to the AP switch and notify the AC that the loop-back is in place.
  - The AC can then verify the integrity of the DS-1 through the DS-3/HC-3.
  - Bit-error ratio parameters apply.

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1.4.4.29 If the AC Does Not Accept the Access Service

If the AC does not accept the Access Service after performing the cooperative acceptance tests because one or more of the acceptance parameters are not met, the AP will verify that the Access Service meets requirements.

1.4.4.30 Additional Cooperative Acceptance Testing (ACAT)

1.4.4.31 What Is Additional Testing

Any transmission measurements or signaling tests that the ACs request at the time of acceptance, over and above those specified as normal, are considered additional and are billed to the AC.

1.4.4.32 Billable Time

Any time required to perform additional installation transmission or signaling tests, over and above those required in cooperative acceptance testing, is billable to the AC.

1.4.4.33 Who Coordinates the Additional Testing?

On the initial order to the AP (or by verbal request to the control office), ACs can specify any additional tests they want performed along with the cooperative acceptance tests. The control office coordinates these tests and advises the AC that additional charges will be billed for them.

1.4.4.34 Compatible Test Equipment

In all cases, the ACs are responsible for using equipment compatible with AP test equipment. Where the capability exists, the APs will cooperate with the ACs to perform any additional tests. However, additional billing will apply.

1.4.4.35 Additional Acceptance Tests

The additional acceptance tests are:

- Dial-pulse percent break.
- Others, as specified in the tariff.
- Data parameters:
  - Signal to C-notched noise ratio
  - Envelop delay distortion
  - Impulse noise
  - Frequency shift
  - Phase jitter

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- Intermodulation distortion

Note: The tariffed data parameters, including the six data parameters, must be maintained within immediate action limits when reported as trouble. However, during circuit acceptance testing, only the normal acceptance tests are performed without additional billing.

1.4.4.36 ACAT and Order Completion

Order completion is not contingent on these additional tests. Test results are furnished to the AC as information only.

1.4.4.37 What is Scheduled Testing?

The set of scheduled tests is an option that may be ordered by the AC. It is intended to detect abnormal performance so that corrective action can be taken before service is affected. The tests are billable to the AC.

1.4.4.38 Scheduled Test Modes

When the ACs order a particular service, they can order the scheduled testing and select the test mode (one of the following: Automatic Scheduled Testing (AST), Cooperative Scheduled Testing (CST), and Manual Scheduled Testing (MST). This mode will appear on the AP control office's work document.

1.4.4.39 Schedule of Standard Tests for FGB, FGC and FGD

TEST	MODE			
	AST	CST	MST	NST*
Loss	Monthly	Quarterly	Quarterly	Non-scheduled
C-Msg. Noise	Monthly	Quarterly	Quarterly	Non-scheduled
Balance	Annually	Annually	Annually	Non-scheduled

1.4.4.40 Types of Test Modes

Mode	Timeframe	Description
AST	Monthly test schedule	• The least costly method of providing scheduled transmission and operational trunk tests: • APs provide automatic testing on both outgoing and incoming trunks. • At the first point-of-switching, ACs must be equipped with remote office test lines (ROTLs), 105 test lines and responders (or equivalent). • ACs provide the APs with the information required to build and maintain the ATS database. • call completion on transmission tests provides an adequate operational test of the service.
CST	Quarterly test schedule	At AC sites that are neither equipped for automatic testing, nor staffed with technicians at the first point-of-switching, two AP technicians will be dispatched to the POT to test the AP switch.
MST	Quarterly test schedule	At AC sites that are neither equipped for automatic testing, nor staffed with technicians at the first point-of-switching, two AP technicians will be dispatched to the POT to test the AP switch.

1.4.4.41 Test Results

IF the . . .	THEN the . . .
AST mode is used to test SAS,	APs provide the ACs with the monthly CAROT (Centralized Automatic Reporting on Trunks) test results, which list the test results for each trunk tested.
CST or MST modes are used,	ACs provide the APs with a quarterly report listing the results of each trunk tested.
Scheduled test process detects trunk failure,	Trunk-test failures requiring AC participation are provided to the AC as they occur.

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1.4.4.42 Non-Scheduled Testing (NST)

1.4.4.43 What is Non-Scheduled Testing?

Non-scheduled testing is any test that the ACs request after the due date, for example, loss, noise, slope, envelop delay, or assistance in sectionalization.

1.4.4.44 Billing Status for NST

If the test results for access services tariffed parameters are outside the immediate action limits and the trouble is located in the AP facility, time for the tests will not be billed.

1.4.4.45 Computing the Billing Charges for NST

NST charges are computed per half-hour or fraction thereof, per technician, and depend on whether the work is done.

- During scheduled hours
- During non-scheduled hours, but on a scheduled day.
- On a non-scheduled day.

1.4.4.46 Request for NST

Only the AP control office will accept an NST request.

1.4.4.47 What to Include in the NST Request

An NST request should include the following information:

- Type of tests to be performed.
- The location where the tests should take place (for example, the POT).
- The desired date and time for the tests to take place.

1.4.4.48 Coordinating the NST

The AP control office will coordinate the following NST activities:

- Contacting the other AP organizations involved in the testing.
- Explaining the AC request.
- Determining the ability to schedule the availability of technicians for the desired time.
- Scheduling the NST request and informing the AC, or negotiating a different day and time.

1.4.4.49 Test Lines

1.4.4.50 Access to Test Lines

Upon request, the BellSouth Test Line Coordinator should provide the AC with access codes for the test lines. The ACs will provide the AP with a list of test lines (where available) to assist in testing, per the Network Operations Form (NOF) Access Services reference document. (This document is currently maintained by the Network Interconnection Interoperability Forum - NIIF).

1.4.4.51 Available Test Lines

The following test lines (where available) are offered by the APs:

- 100-type test line.
- 102-type test line.
- Non-synchronous test line.
- Synchronous test line.
- 105-type test line - restricted to trunk-side access.
- 107-type test line.
- Short circuits and open circuit test lines.
- Loop-around test line.

Note: Where equipment is available, FGA and intrastate WALs may provide seven-digit access to balance (100-type) and milliwatt (102-type) AP test lines.

Note: Where available, 100-type and 102-type test lines are accessible by interstate outWATS lines that have an equal access WATS Serving Office (WSO). Dialing 711 accesses the 100-type test line; dialing 811 accesses the 102-type test line.

1.4.4.52 How to Obtain Test Line Access

ACs can obtain test line access by contacting the AP Test Line Coordinator who maintains a current list of available test lines and the telephone numbers used to access them.

Note: ACs should provide a list of their test lines to the AP.

1.4.4.53 When There is Difficulty Accessing the Test Line

If ACs experience difficulty accessing or using a test line, they should try another access service. This procedure can help determine if the trouble is in the test line or access service.

1.4.4.54 Locating the Trouble

IF the trouble is in the . . .	THEN the AC should report the trouble to . . .
Access Service	The appropriate AP control office.
Test line	The AP control office serving the Access Service being tested.

1.4.4.55 Priority for Test Line Troubles

AC-reported test-line troubles receive the same AP control office priority as customer trouble reports.

1.4.5 Clo ŋ the Record

1.4.5.1 Completions

1.4.5.2 Completing Control Office Records

When ACs accept an access service, the AP control office should record:

- The acceptance date.
- The AC representative accepting the service.
- Whether or not acceptance tests were performed.

1.4.5.3 Point-of-Contact for Service

When ACs request access service order completions through the toll network (outside the nine-state BellSouth region), they must:

- Provide a toll-free telephone number (800 service).
- Agree to accept reverse charges from AP centers.
- Provide a local (7-digit) telephone number.

1.4.5.4 Additional Billable Charges

The control office should contact any other AP installation forces to identify and confirm any additional billing charges.

1.4.5.5 Completing the Order

The control office should report to the ICSC that the order is complete, and provide them with any additional billing charges.

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1.4.5.6 Other Labor

Additional billing charges are categorized as other labor. They include, but are not limited to the following:

- Overtime installation.
- Additional acceptance testing.
- Non-scheduled testing.
- Standby time.

1.4.6 Maintenance

1.4.6.1 General Information

1.4.6.2 Determining the Trouble

ACs perform all necessary tests to determine the nature of the trouble. When an Access Provider-provided service is the trouble source, the AC tester should report the trouble to the appropriate control office.

1.4.6.3 Troubleshooting

1.4.6.4 Investigating a Trouble Report

Investigating chronic trunk/facility failures involves exchanging information relative to the trouble, plus a detailed investigation to determine the cause of the trouble condition.

Note: This activity may involve cooperative testing and should be handled as an impaired circuit trouble report.

1.4.6.5 Information Necessary to a Trouble Report

When reporting a trouble condition, APs and ACs should exchange the following type of information:

- AP circuit identification number and CLLI.
- Date and time of reported trouble.
- Nature of the trouble.
- How the AC determined that trouble exists in either the AP facility or terminating equipment.
- Any other information that may be of assistance to the AP/AC, for example, what tests have been made.
- The name or initials of the AC tester referring and receiving the trouble report.
- Trouble report ticket number.

1.4.6.6 FGB, FGC, and FGD Trouble Reports

FGB, FGC, and FGD network trouble reports include two basic categories:

- Circuit-specific troubles (such as no wink on trunk number 4) are reported to the appropriate ACAC.
- Non-circuit-specific troubles (such as noisy calling area code XXX) are reported to the appropriate ACAC.

1.4.6.7 Detecting Trouble

There are three basic methods of trouble detection:

- Alarms and machine trouble reports.
- Reports from users and other work groups.
- Routine test results.

1.4.6.8 Trouble Reports Differ

Troubles detected by alarms and reports are treated differently than those detected by routine test results. In addition, inoperative circuits are treated differently than impaired circuits, even though the impairment may be beyond immediate action limits.

Since the SAS originating-end office is better equipped to detect failures, both APs and ACs are responsible for detecting failures on their respective outgoing SAS and for detecting failures on the outgoing portion of two-way SASs.

1.4.6.9 What Are Standard/Normal Tests?

Standard tests, which are specified on the AP control-office work document, are the normal maintenance tests used for clearing specific reported trouble.

APs and ACs should work together to verify that any other affected transmission parameters are within immediate action limits.

1.4.6.10 Repair Verification Tests

1.4.6.11 When to Perform Repair-Verification Tests

Cooperative repair-verification tests are performed upon AC request.

While not the normal procedure, APs might find it necessary to dispatch personnel to make verification tests when a trouble has been cleared.

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1.4.6.12 When Does the AP Stand By for Testing?

If ACs are not ready for scheduled testing, the control office asks them if AP personnel should "stand by" until the AC is ready. Stand by time in excess of 30 minutes (with or without a dispatch) is billable to the AC.

1.4.6.13 Masked Troubles

When repair verification tests identify a trouble that was masked by the original trouble, clearance activity continues until the service is restored.

1.4.6.14 Sectionalization and Repair

1.4.6.15 Who Is Responsible for Sectionalization and Repair?

ACs initiate sectionalization and repair activity. Sectionalization involves a significant amount of cooperative testing, and in the interest of maintaining continuity of service, both APs and ACs should participate in this activity.

1.4.6.16 Using a Troubleshooting Agent

If the AC has an agent who handles access services trouble reporting, that agent should receive all trouble reports and channel them to the AP.

1.4.6.17 Trouble on the Originating Side of the Point-of-Termination

If the trouble sectionalizes to the originating side of the POT, the originating entity should:

- Repair the trouble.
- Perform tests (cooperatively with the terminating entity, if necessary) to determine if the trouble has cleared. (If the trouble report involves transmission problems, both entities will cooperatively test to verify that transmission parameters are within acceptance limits.)
- Make necessary adjustments to correct transmission levels.
- Return the SAS to service and notify the other entity.

1.4.6.18 Trouble on the Terminating Side of the Point-of-Termination

If the trouble sectionalizes to the terminating side of the POT, it is referred to the terminating entity, which performs the same activities listed above.

1.4.6.19 Sectionalization within the AP-Provided Facility

The control office should sectionalize any trouble within the AP-provided facilities and/or equipment, and should minimize the dispatch of craft persons to the POT.

Note: A maintenance-of-service charge may apply when the APs dispatch a technician.

1.4.6.20 What Is a Maintenance-of-Service Charge?

When ACs refer a trouble to the AP and that trouble is either found to be on the AC side of the POT, or no trouble is found in the AP facilities, the AP recovers the incurred costs by billing the AC a maintenance-of-service charge.

1.4.6.21 Repair Activity Limitations

AP employees should limit their repair activities to AP-provided facilities and/or equipment. They should not adjust or repair any AC terminal equipment. Similarly, non-AP employees should not rearrange, move, disconnect, remove, or attempt to repair any AP-provided equipment or facilities.

1.4.6.22 AC Requests Needed to Perform Repair Tests

Repair tests on central office terminated facilities may require that ACs request the control office make-busy the circuit to prevent switching-machine selection.

1.4.6.23 Make-Busy for Central Office-Terminated Services

1.4.6.24 Circuit Make-Busy for Trouble Testing

Proper AC repair tests on line-terminated services may require that a make-busy be placed on the troubled circuit.

1.4.6.25 AP Action Upon Receipt of Make-Busy Request

When the AP control office receives a make-busy request, it initiates a trouble ticket. This is an information report with a ticket-tracking number that can be used for future reference (such as tracking).

1.4.6.26 Categories for Make-Busy Circuits

Make-busy requests are categorized as follows:

Make-Busy Categories	Actions Involved in Handling Requests
Single Circuit (routine)	The ACs should: • Contact the AP control office responsible for failed access service circuit group. • Provide the control office with the necessary information. • Indicate if the signaling leads should be open (disabled). • Indicate if the circuit should be busy or idle. • Inform the control office when the tests are completed. • Coordinate the removal of the make-busy. The control office should: • Determine the circuit's condition (idle or seized). - If idle (and AC requested) the control office leaves the signaling leads closed to allow AC testing into the switching machine. - If seized, the control office advises the AC that the signaling ends will remain open untilthe seizure is removed. • Call the appropriate work center and requests a make-busy of the circuit. • Notify the AC if the circuit experiences trouble while it is made busy and signaling leads are closed. • Disable the troubled circuit.

Note: During a normal business day, the time required to assist the AC in a single-circuit make-busy may be non-billable. If the service exceeds a reasonable amount of time, it is billable as "Other Labor."

Make-Busy Categories	Actions Involved in Handling Requests
Circuit Group (facility failure)	The ACs should: • Advise the control office of the involved circuits and the need to have them made busy. • Contact the control office when the facilities are restored to request removal of the make-busy. • Ensure that circuits are idle before the control office closes the signaling leads and removes the make-busy. • Inform the control office when the tests are completed. The control office should: • Make-busy the circuits and open (disable) the signaling lead when it detects a failure of AP or AC facilities. • Advise the AC of the action taken to protect other switching machine users. • Maintain a record of outage times.

Note: During a normal business day, the time required to make-busy a group of AC line-terminated circuits due to an AC facility failure, and to assist the AC to turn up its services may be non-billable. However, when the service exceeds a reasonable amount of time, it is billable as "Other Labor."

Make-Busy Categories	Actions Involved in Handling Requests
Circuit Group Make-Busy (routine maintenance)	ACs/APs request a release for maintenance testing (at a mutually agreed-upon time) when either needs a release of one or more access services. • ACs should make release requests in advance (especially if AP workers need to assist). • APs should: - Make release requests to the ACs. - Assist the ACs and make-busy the circuit group (at a mutually agreed-upon time). - Perform whatever activity is required. - Notify the AC when a circuit group can be restored to service. - Coordinate the removal of any make-busy and turn up the service.

1.4.6.27 Trouble - shooting Information That the AC Provides to the Control Office

When the source of trouble is determined, the ACs should provide the control office with the following information:

- AP-circuit identification number (ACs must report troubles by AP-circuit identification. Trouble reports such as "all locations on a multipoint," "all circuits in a group," and so forth, are not accepted unless that is the actual condition. If an entire circuit group must be tested [with AC authorization] to identify a defective circuit, any tested circuits without trouble are billed as non-scheduled testing.)
- Date and time of reported trouble.
- Nature of trouble.
- Any other pertinent information, such as AC test results.
- Name of the AC employee/agent reporting the trouble
- Call back telephone number.

1.4.6.28 Expedited Make-Busy Procedure

1.4.6.29 What Is an Expedited Make-Busy?

An expedited make-busy is an adjustment that prevents the switching machine from selecting a circuit by making that circuit appear busy.

The request is expedited because it is a no-test situation requiring only that the control office contact the appropriate switching control center or other work group that can take the circuit out of service (make-busy).

1.4.6.30 When Does an AC Need an Expedited Make-Busy?

ACs can request an expedited make-busy to enable them to perform maintenance on their end-to-end services.

1.4.6.31 Billing Status of Expedited Make-Busy Procedure

The control office should advise ACs that this type of request is billable as Other Labor.

Step	Action
1	The AP control office prepares a trouble ticket when it receives the make-busy request from the AC.
2	The AP control office contacts the appropriate switching control centers and/or maintenance work group to inform them of a request.
3	The control center or work group takes the circuit out of service. If they cannot handle the request immediately, the control office should notify the AC, provide the ticket number, and handle the request as soon as possible.
4	If the initial AC request does not identify the make-busy interval, the AC should contact the AP control office to request disengagement of the make busy.

1.4.6.32 When Trouble Is Detected

If ACs discover trouble in the AP provided access service, they should report the suspected trouble to the control office and reference the expedited make-busy report. The trouble report is then handled in the normal manner and in the sequence in which the report was received.

1.4.6.33 Inoperative or Impaired Circuits

1.4.6.34 Who Is Responsible for Detecting Trouble?

Since the circuit's originating end office is best equipped to detect failures, both APs and ACs are responsible for detecting failures.

1.4.6.35 Treating Access Service Troubles

Treatment for troubles detected by alarms and reports differs from that detected by routine test results. Inoperative circuits are treated differently than impaired circuits, even when the impairment is beyond immediate action.

1.4.6.36 Definition: Inoperative Service

A service is inoperative when it is unusable to the customer because a facility component used to furnish service fails.

1.4.6.37 Procedure When an Inoperative Trouble is Detected

IF the inoperative troubles are detected by . . .	THEN the corrective measures are to . . .
AP personnel	Notify the control office, which will: • Ensure that the circuit is removed from service, if possible. • Sectionalize and repair the circuit, if possible. • Refer the trouble to other internal work groups for repair, if necessary.
AC personnel	Notify the AP control office to have the circuit removed from service The AP control office will: • Sectionalize and repair the circuit (with AP assistance), if possible. • Refer the trouble to other internal work groups for repair, if necessary.

1.4.6.38 Definition: Impaired Circuit

A service is **impaired** when a facility component does not meet specified circuit parameters, but does not render the service unusable.

1.4.6.39 Procedure When an Impaired-Circuit Trouble is Detected:

IF AC or AP personnel detect . . .	THEN regardless of direction the corrective measures are to . . .
An impaired circuit	Report the trouble to the appropriate entity (for example, the AP control office discovers the impairment, analyzes it, and notifies the AC, who is responsible for authorizing release of the circuit).

1.4.6.40 Exception to the Procedure

During periods of high usage, the AC may choose to leave the impaired circuit in service. In that event, the AC and control office should decide on a mutually agreeable time to begin the repair activity

1.4.6.41 Switch-to-Switch Tests

1.4.6.42 Why Use Switch-to-Switch Testing?

Access services switch-to-switch testing may be necessary to sectionalize or verify the trouble clearance. Access to test numbers should minimize tests, the need for far-end support. However, when required, ACs and APs should cooperate to perform these.

1.4.6.43 Disconnects and Rearrangements

1.4.6.44 Coordinating Circuit Disconnects

Before beginning any action, the control office should coordinate any disconnect activity with the ACs.

1.4.6.45 Updating the Control Office Order-Tracking Documents

The ACs should provide updates to the control office order tracking documents when:

- The circuits are removed from service.
- Translation messages are entered.

1.4.6.46 Circuit Rearrangements

Circuit rearrangements may include AC/AP changes in switching and/or facilities.

1.4.6.47 Restoration Guidelines

1.4.6.48 Restoral Priority

All trouble reports are given equal priority by AP maintenance forces.

1.4.6.49 Examples of Priority Exceptions

Example 1: If one or more SASs in a group are out of service and causing overflow on the group, that trouble report might be given a high restoral priority.

Example 2: Should several groups experience simultaneous overflow, the trouble reports would be prioritized so that the SAS experiencing the most severe overflow is restored first and the remaining reports similarly handled.

Note: The restoration priority procedures apply to troubles encountered on a daily basis, as well as emergency conditions.

1.4.6.50 Maintenance of Service Charge

1.4.6.51 Incurring a Maintenance of Service Charge

When ACs report trouble to the AP for clearance, they may be responsible for a maintenance of service charge. This charge includes billing for the total time of all technicians dispatched from their normal work location during scheduled hours, or any dispatch after scheduled hours.

1.4.6.52 When Would a Maintenance of Service Charge Apply?

A maintenance of service charge applies when the following occurs

AP Involvement	Existing Trouble Conditions
Service is provided by an individual AP	Trouble is located in communications system equipment provided by: • Other than the AP. • Other than the detariffed CPE provided by the AP. No trouble is found in the AP facilities.
Service is jointly provided	AP technicians are dispatched from their normal work location, then hand off the trouble to a connecting AP that finds: • No Trouble • That the trouble is not in the connecting AP's equipment

1.4.6.53 Types of Charges

Maintenance of service charges are divided into three separate categories.

Category	Description
Basic Time	Charges for work done during scheduled hours.
Overtime	Charges for work done outside scheduled hours on a scheduled work day.
Premium	Charges for work done on other than a scheduled work day.

1.4.6.54 Rates for Charges

Maintenance-of-service charges are billed at a half hour rate.

1.4.6.55 Failure to Isolate Trouble on Initial Dispatch

If the AP personnel fail to find trouble in the AP facility on the initial dispatch, but do find AP facility trouble on a later dispatch, there will be no charge to the AC for the initial dispatch.

1.4.6.56 Submitting a Bill for Overtime

The AP control office prepares a billing form, then forwards it to the ICSC to bill overtime charges to the AC.

1.4.6.57 Resolving Problems

1.4.6.58 When to Escalate a Problem

The APs and/or ACs may experience provisioning and maintenance problems that remain unresolved after having been reported. Those cases should be escalated and brought to the attention of individuals responsible for, or having appropriate authority to initiate corrective action.

1.4.6.59 How to Escalate a Problem

To escalate an unresolved problem, APs/ACs should contact the responsible control office and request status from the responsible technician or first level supervisor. If the control office's effort to resolve a provisioning or maintenance problem is not satisfactory, APs/ACs should escalate according to locally negotiated procedures.

1.4.6.60 Purpose of the Network-Contact Escalation List

The network contact escalation list provides additional levels of contacts according to their control center.

1.4.6.61 Telephone Access / Interfaces

ACAC Contact	Telephone No.	Work Group	Dial Code
AT&T	800-517-2525	Call Back	
	770-493-2525	Extension number or:	
		P/P Provisioning	1
		P/P Maintenance	2
		Switched Access	3
	800-517-2519	Supervisors	
	700-493-2519		
	1-800-515-1513	Outbound DALs Troubles	1
		Inbound DALS Troubles	2
		Inbound POTS Troubles	3
		Outbound POTS Troubles	4

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ACAC Contact	Telephone No.	Work Group	Dial Code
	1-800-795-0155	PIC Verification and Trouble Repair	1
		Long Distance Trouble Repair and Number Portability Repair	2
	1-800-517-2517	RRIC Troubles	
General Carrier	800-307-2512	P/P Provisioning	
	205-988-6421		
	800-307-2513	P/P Maintenance	
	205-988-6420		
	800-307-2514	Switched and Number Portability	1
	205-988-6425	Maintenance - Switched Provisioning	2
		Maintenance - PIC Verification	3
	800-307-2515	Call Back -	
	205-988-6400	Extension number for:	
		P/P Maintenance	1
		P/P Provisioning	2
		Switched Access	3
		Supervisors	4
		Performance Monitoring	7
		Voice Mail	8
MCI	800-515-5038	Voice and Data Maintenance	1
	770-493-3418	Data and Voice Installation	2
		FAA Maintenance	3
		FAA Installation	4

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ACAC Contact	Telephone No.	Work Group	Dial Code
		Switched Maintenance, PIC Verf. and Number Portability Repair	5
		Switched Provisioning	6
		Supervisor	8
	800-505-5046	Call Back -	
	404-493-3426	Extension number or:	
		Data and Voice Specials Maintenance	1
		Data and Voice Specials Installation	2
		FAA Maintenance	3
		FAA Installation	4
		Switched Maintenance, PIC Verif. or Number Portability	5
Sprint	800-988-1402	P/P Maintenance	1
	205-988-6450	P/P Provisioning	2
		Switched Access and Number Portability Repair	3
		DS3	4
		Direct Connect	5
		Supervisor	6
		Performance Monitoring	7
	800-988-5494	Call Back	
	205-988-6460	Extenstion Number for:	
		P/P Maintenance	1
		P/P Provisioning	2
		Switched Access	3
		Direct Connect	4

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ACAC Contact	Telephone No.	Work Group	Dial Code
		DS3	5
		Supervisors	6
		Performance Monitoring	7
		Voice Mail	8

1.5 Billing

1.5.1 Introduction

This chapter provides the ACs with information on how services are billed. This information includes the types of service, billing procedures, revenue accounting business locations, contact personnel, and so forth.

1.5.2 BellSouth Access Service

1.5.2.1 Access Service Billing Procedures

1.5.2.2 Access Service Account Numbers

For access services provided by BellSouth, the APs assign an account number that is in the following format

NPA=	The primary NPA for the LATA in which the service is provided.
T=	Type of Service:
	S=Switched Access
	N=Special Access
	D=Dedicated Access Lines
	A=Directory Assistance
	C=Miscellaneous
NN =	Monthly bill date.

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XXXX=	Unique four-digit number that identifies the specific services covered by the account.
SSS =	Suffix (commonly referred to as the customer code).

For example, Account Number 205-S07-0021-001 would indicate a Switched Access account in Alabama that is billed on the seventh of each month.

1.5.2.3 Invoice Numbers for Bills

Each bill includes an invoice number to provide the customer with a unique identifier for audit purposes.

1.5.2.4 Invoice Number Format

The voice number consists of the first ten characters of the account number, plus a five-character date in the format YYDDDD:

- Where YY = the last two digits of the billing year, and
- DDD = the consecutive numerical identifier of the day (1 - 365).

1.5.2.5 Example: Invoice Number Format

For example, The invoice number for the account 205-S07-0021-000, and billed on February 7, 1984, would be 205S07002184038. (YY = 84, and DDD = 038, February 7, the 38th consecutive day of the year [using the Julian calendar].)

1.5.2.6 Bill Schedule

Each access service account is billed once a month, and on one of the following dates: 1, 4, 7, 10, 13, 16, 19, 22, 25, or 28. Monthly recurring charges are billed in advance. Usage and non-recurring charges are billed in arrears.

1.5.2.7 Billing Offices

BellSouth's Revenue Accounting Offices (RAO) process and distribute access service bills for their serving areas.

1.5.2.8 Toll Fraud

1.5.2.9 Toll Billing Evasion Activities

Billing analysis and fraud services are provided to detect, investigate, and deter toll billing evasion activities. These activities fall into two major categories: Network Abuse and Message Toll Abuse.

1.5.2.10 Network Abuse

Network abuse involves deceiving the toll network in order to avoid billing.

1.5.2.11 Message Toll Abuse

Message toll abuse is the fraudulent use of an authorization code or credit card.

1.5.2.12 Detection Equipment

Detection is the use of equipment by BellSouth to identify and collect information on network abuse. The equipment can be located on the AP's premises or attached to an access line(s).

1.5.2.13 Investigative Services

Investigative services (also called investigation) include:

- Identifying a suspect telephone number.
- Collecting sufficient evidence to document the billing evasion activities.
- Preparing an affidavit and prospective summary.
- Assisting law enforcement officials.
- Providing expert witness analysis and testimony.
- Reviewing an AC's security program for effectiveness.

1.5.2.14 Deterring Toll Fraud

Deterrence consists of the following activities:

- Contacting and interviewing parties identified in billing evasion activities, when appropriate.
- Recovering materials used in billing evasion activities (where legally permitted).
- Assisting in publicizing billing evasion deference.

1.5.2.15 Who to Contact for More Information

For more information regarding this service, please contact your Account Manager.

1.5.2.16 BellSouth Interconnection Carrier Service Center (ICSC)

1.5.2.17 ICSC

The Interexchange Carrier Service Center (ICSC) processes Interexchange Carrier Access Service Requests which have been submitted via mechanized delivery, fax, or received as paper through the US Mail. Toll free telephone numbers have been provided for the Provisioning and Billing Groups. Additionally, dedicated fax numbers have been assigned for faxing ASR's to the Specials and Provisioning groups and the Billing group. Follow the instructions listed below to reach the appropriate group.

1.5.2.18 ICSC Single Point of Contact Telephone Numbers

To get a particular representative, dial the telephone numbers listed below. When the announcement begins, dial the desired representative's access number. If you wish to speak to the first available Service Representative, just stay on the line and follow the instructions to reach Specials, Switched, or Billing.

1–800–823–2455

1–205–967–2699

Table N ICSC Contacts

Special Access	Telephone No.	Switched Access	Telephone No.	Billing	Telephone No.
Maxine Alagar	205-969-6910	Laurie Brock	205-969-6911	Lynn Fraas	205-969-6914
(Manager)	5-5190#	(Manager)	5-5191	(Manager)	5-5064
Specials Service Repts.		**Switched Assignments by State**		**Billing Service Reps**	
Mattie Bailey	5 5164	Shirley Avery-GA	5-5023	Pat Davidson	5-5051
Margaret Bruno	5-5154	Anita Barnes-TN	5-5027	Carolyn Gilliam	5-5014
Bev Carter	5-5150	Juanita Barton-KY	5-5031	Brenda Grubbs	5-5016
Sharon Ham	5-5157	Kathy Boomhower-GA	5-5026	Sharron Hann	5-5046
Althia Harrison	5-5148	Cathy Dease-MS	5-5025	Linda Haynes	5-5017
Barbara Jones	5-5161	Caroline Foster-SC	5-5045	Lisa Hubbard	5-5018

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Table N ICSC Contacts (continued)

Special Access	Telephone No.	Switched Access	Telephone No.	Billing	Telephone No.
Joyce LaTaste	5-5151	Kathy Goolsby-SF	5-5022	Debbie Humphryes	5-5048
Ray Lawley	5-5147	Karon Hardy-NC	5-5024	Sharon Jones	5-5070
Vanessa Miller	5-5146	Mary Jones-GA	5-5030	Rosa Lateef	5-5053
Diane Myers	5-5155	Lorraine LaGrange-NF	5-5035	Jennifer Scott	5-5012
Linda Nelson	5-5159	Karole Miles-AL	5-5033	Alfreeda Tolbert	5-5052
Linda Peak	5-5163	Ruby Neely-LA	5-5042	Marcia Turner	5-5011
Brenda Mosteller	5-5187	Celofane Williams-SC	5-5032	Alfreda Wilis	5-5043
Gloria Roberts	5-5152	Pat Blankenship-NF	5-5050	Glenn Wilson	5-5013
Judy Tucker	5-5160				
Gay Yarbrough	5-5162				
	FAX: 205-972-4177		FAX: 205-972-4149		FAX: 205-972-2124

Project Coordinators:	Phone No.	Pager	Pin #
Sharon Gallivan	205-988-1488	800-946-4646	1171427
Rick LaGrange	205-988-1824	800-946-4646	1168905
	FAX: 205-988-7003		

1.5.3 Other Local Exchange Companies

1.5.3.1 Jointly Provided Access Service

1.5.3.2 BellSouth and Other Local Exchange Companies

BellSouth interconnects with other Local Exchange Companies within the nine-state region.

1.5.3.3 The AP as the Access Service Coordinator

BellSouth's joint-provisioning arrangements with most of these Other Local Exchange Companies places their APs in the Access Service Coordinator's (ASC-EC) role.

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1.5.3.4 Definition: Access Service Coordinator

The **Access Service Coordinator** (ASC-EC) is a single point-of-contact interface between the AC and the APs, and a coordinator for the negotiation design, installation, and maintenance activities of the involved APs. Each activity may have a different AP act as the ASC-EC.

1.5.3.5 How to Determine ASC-EC Assignment

ASC-EC assignments and functions are detailed in the **Multiple Exchange Carrier Ordering and Design (MECOD) Guidelines** developed by the Ordering and Billing Forum (OBF) industry group. Information on ordering this document may be obtained from the AP Account Executive.

ASC-EC functions may be performed by an AP other than the ASC-EC normally assigned, as determined locally.

1.5.3.6 BellSouth Provided Billing Service

BellSouth uses its Carrier Access Billing System (CABS) to provide access billing for some of its ICOs. BellSouth prepares and renders a single bill on behalf of the ICO. This bill represents the Meet Point Billing (MPB) concept. For more information see Multiple Exchange Carrier Access Billing Guidelines (MECAB) or SECAB (Small Exchange Carrier Access Billing Guidelines).

1.5.3.7 How the Bill Is Figured

The bill includes the ICO's portion of the joint access at their rate, as well as BellSouth's portion of the joint access at the telephone company's rate.

1.5.3.8 Additional Access Billing Services

BellSouth also provides the following billing services:

- Inquiry
- Adjustments
- Collection

The majority of ICOs providing joint access service with BellSouth prefer to do their own access billing. This billing follows the MPB concept; however, BellSouth may render a bill that represents only the AP's portion of the access service. The ICO jointly providing the access service renders a bill for its portion of service and for many, BellSouth's portion is billed by the ICO.

1.5.3.9 Other Local Exchange Companies

1.5.3.10 Alabama

Independent Company	Code	LATA
Alltel/AL	ALTL/0302	478,476
Ardmore	ARDM/0280	477
Blountsville	BUVL/0282	476
Brindlee Mountain	BRMT/0283	476
Butler (TDS)	BTLR/0284	476
Castleberry	CSTL/0285	480
Continental	CLSO/4424	476,477,478,480
Farmers	FMCP/0290	476
General Tel. South	GTSE/4331	477, 478
Goshen (TDS)	GSHN/0296	478
Graceba	GCBA/0295	478
Grove Hill (TDS)	GVHL/0297	480
Gulf	GULFf/0298	480
Haynesville	HYVL/0299	478
Hopper	HPPR/0300	476

*Or Bill Period Requested by the Customer is Used.

1.5.3.11 Alabama — Continued

Independent Company	CODE	LATA
Millry	MLRY/0304	480
Mon Cre	MCRE/0305	478
Monroeville (Frontier)	MOVL/0306	480
MoundVille	MNVL/0307	476
National (TEC)	NLAL/0286	477

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Independent Company	CODE	LATA
New Hope	NHPE/0308	477
Oakman (TDS)	OKMN/0311	476
Oneonta	ONNT/0312	476
Peoples (TDS)	PPLX/0314	476, 477
Pine Belt	PBLT/0315	478
Ragland	RGLD/0316	476
Roanoke (TEC)	RONK/0317	478
Southland (Frontier)	STHD/0318	478, 480
Union Springs	UNSP/0322	478

1.5.3.12 Florida

Independent Country	Code	LATA
Alitel/FL	ALTL/0336	452, 454
Central Tel/FL	CEFL/0340	448, 450, 452
Florala - FL	FLRL/0291	448
Florala - AL	FLRL/0294	
Indiantown	INTW/0331	460
Northeast FLA	NEFL/0335	452
Quincy (TDS)	QNCY/4454	450
St. Joseph	STJS/0339	450
Southland (Frontier)	STHD/4465	448
Sprint United	UGFL/0341	454, 458
Vista-United	BSUD/0330	458

1.5.3.13 Georgia

Independent Company	Code	LATA
Alitel/GA	ALTL/0357 ALTC/4425 ALGT4332	438, 444, 446 438, 440, 444, 446 438, 440, 444, 446
Alma	ALMA/0344	440
Blud Ridge (TDS)	BLRG/0346	438
Brantley	BTLY/0347	440
Bulloch City Rural	BCRL/0348	440
Camden (TDS)	CAMN/0351	440
Citizens	CTZZ/0355	444
Coastal Utilities	CUTS/0356	440
Darien	DARN/0358	440
Ellijay	ELJY/0360	438
Fairmount (Frontier)	FAMT/0362	438
Georgia Tel. Coop.	GERG/0364	444
Glenwood	GLWD/0365	440
Hart County Tel.	HART/0368	438
Hawkinsville	HWVL/0369	446
Interstate	ITSE/0371	438
Nelson-Ball Ground	NBGD/0375	438
Pembrooke Tel.	PMBR/0376	440
Pineland	PNLD/0377	440, 442, 446
Plant Tel. & Power	PRWR/0379	440, 444
Planters Rural	PLNT/0378	440
Progressive Rural	PGSS/0380	446
Public Service Tel.	PSVC/0381	438, 446
Quincy (TDS)	QNCY/4455	444
Standard Tel.	STDD/0386	438

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Independent Company	Code	LATA
Statesboro (Frontier)	STBO/0387	440
Valley Tel. Co.	VALE/0324	438
Waverly Hall Tel.	WVRL/0392	438
Wilkes Tel. & Elec.	WELC/0394	438
Wilkinson County	WKSN/0395	446

1.5.3.14 Kentucky

Independent Company	Code	LATA
Alltel	ADKY/0402	462
Ballard Rural	BLLR/0396	464
Brandenburg	BRBG/0398	462
Continental	CLMS/0410	462,464,466
Duo County	DUCO/0401	462
Foothills Rural	FRUL/0406	466
General	GTKY/0407	462, 466
Harold	HRLD/0408	466
Highland (GTE/IND)*	HLAN/0565	466
Leslie County (TDS)	LESL/0411	466
Lewisport (TDS)	LWPT/0412	464
Logan	LOGN/0413	464
Mountain Rural (GTE/IND)*	MRUL/0414	466
North Central Rural (GTE/IND)*	NCRL/0573	462
Peoples Rural	PRUL/0415	466
Salem (TDS)	SALM/0417	464
South Central Rural	SCTR/0418	462, 464
Thacker & Grigsby	TGBY/0419	466

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West Kentucky Rural	WEKY/0421	464
*IND-Indirect Behind GTE		

1.5.3.15 Louisiana

Independent Company	Code	LATA
Centuryofo N.W. LA	CDDN/0431	486
Cameron	CMRN/0425	488
Campti-Pleasant Hill	CIPH/0426	486
Century of Central LA	CELA/0423	486
Century of E. LA.	CNTY/0440	492
Century of Chatham	CHAT/0427	486
Century of S.E. LA	CSTE/0424	488
Delcambre	DLCM/0428	488
East Ascension	EASN/0429	492
Elizabeth	ELZB/0430	486, 488
Century of Evangeline	EVLN/0434	488
Kaplan	KPLN/0432	488
Century of S.W. LA	LAWN/0442	488
Lafourche	LFCH/0433	490
Northeast Louisiana	NELA/0435	486
Century of North Louisiana	NWLA/0436	486
Reserve	RSRV/0438	490
Ringgold (CTE)	RNGD/0439	486
Star	STAR/0441	492, 486

1.5.3.16 Mississippi

Independent Company	Code	LATA
Alltel	ADKY/0402	482
Bay Springs (TEC)	BYSP/0446	482

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Independent Company	Code	LATA
Bruce	BUCE/0447	482
Calhoun City (TDS)	CLHC/0448	482
Decatur	DCTR/0451	482
Delta	DLTA/0452	482
Florence	FLRN/0453	482
Franklin	FRNK/0454	482
Fulton	FLTN/0455	482
Georgetown	GRTW/0456	482
Lakeside	GLAL/0457	482
Lamar County (Frontier)	LRCT/0301	482
Mid-South (Frontier)	MSTH/0460	482
Mound Bayou	MSTC/0462	482
Myrtle	MYTL/0449	482
Noxapater Tel.	NXPR/0461	482
Sledge	SLDG/0466	482
Smithville	SMTV/0467	482
Southeast Ms (TDS)	MSPI/3301	482

1.5.3.17 North Carolina

Independent Company	Code	LATA
Alltel/NC	ALTL/0476	422, 424, 426, 430
Atlantic Tel	AMBR/0468	428
Barnardsvile (TDS)	CRNL/0469	420
Carolina	CRNL/0470	424, 426
Central	CNTR/0471	422, 424, 426
Citizens	CZEN/0473	420
Concord	CNCR/0474	422

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Independent Company	Code	LATA
Continental Tel	CLSO/0509	420
Ellerbe	ELRB/0478	428
General Tel. South	GTSE/4334	422, 426
Lexington	LXTN/0483	422
Meb Tel	MBNE/0485	424
North State	NSTE/0491	424
Piedmont	PMBH/0497	422
Pineville	PIVL/0494	422
Randolph	RNHL/0495	424
Randolph Tel Membr	RMBP/0496	424
Saluda (TDS)	SMTN/0498	420
Service (TDS)	SRVC/0500	428
Skyline	SKLN/0501	422, 424
Star Tel Memrshp - (No joint access with BellShouth)	STRM/0502	
Surry Tel Membrshp	SRRY/0503	424
Tri-County (No joint access with BellSouth)	/0505	
Wilkes Tel	WMBP/0510	424
Yadkin Valley	YUMS/0511	422, 424

1.5.3.18 South Carolina

Independent Company	Code	LATA
Alltel/NC	ALTL/0517	422,430,434
Bluffton	BAPE/0512	440
Chesnee	CHSN/0515	430
Chester	CHST/0516	434
Continental	CLSC/0526	430,434,442

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Independent Company	Code	LATA
Farmers	FRCR/0520	432,434
Fort Mill	FTML/0521	422
General Tel. South	GTSE/4335	430,432,434
Hargray	HRGY/0523	440
Heath Springs	HESG/0524	422
Home	HOME/0527	434,436
Horry	HORY/0528	432
Lancaster	LNCS/0531	422
Lockhart	LKRT/0532	430
McClellanville (TDS)	MLVL/0533	436
Norway (TDS)	NRWY/0535	434
Palmetto Rural	PLMT/0536	436
Piedmont Rural	PRRL/0538	430
Pond Branch	PDBH/0539	434
Ridgeway	RGWY/0541	434
Rock Hill	RCHL/0542	422
St. Stephen (TDS)	STST/0544	436
Sand Hill	SNHL/0546	432
United	UCLS/0506	430, 434, 436
W Carolina Rural	WECR/0550	430
Williston (TDS)	WLST/0551	434

1.5.3.19 Tennessee

Independent Company	Code	LATA
Adamsville (CTE)	ADVL/0552	468
Alltel	ATCT/4425	472
Ardmore	ARDM/0280	470

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Independent Company	Code	LATA
Ben Lomand	BNLM/0553	470
Bledsoe	BLDS/0554	472
Chickamauga	CHCM/0354	472
Citizens Tele	GTSE/4436	468, 470
Citizens Tele	POWL/0577	474
Clairborne (CTE)	CLBN/0557	474
Concord (CTE)	CNDN/0559	474
Crockett (TEC)	CRCT/0561	468
DeKalb	DKAL/0562	470
Highland	HLND/0565	474
Humphreys County (TDS)	HMPH/0566	470
Century of N. MS.	HOMX/0458	468
Loretto	LRTT/0570	470
Millington	MGTN/0571	468
North Central	NCTL/0573	470
Ooltewah-Collegedale(CTE)	OOCD/0574	472
Peoples (TEC)	PPLS/0576	468, 470
Ringgold	RNGL/0382	472
Tellico (TDS)	TLCO/0578	474
Tennessee Telephone (TDS)	TNNS/0575	468, 470, 474
Trenton	TREN/0389	472
Twin Lakes	TWLK/0579	470
United	UNID/0581	470
United Inter-Mtn.	UIMN/0567	Non-associated LATA
West Kentucky Rural	WEKY/0421	464
West Tennessee (TEC)	WETN/0583	468
Yorkville	YRVL/0584	468

1.5.3.20 ASR Contact List and ICSC Codes for ASR Transmission

Table O ASR Contact List and ICSC Codes for ASR Transmission

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
AL	ALLTEL	ATL	0302	ALTL	-	MM	MM	Curtis Boe	704.845.7208	704-841-3231	AT01
AL	ALLTEL -Switched Access	ATL	0302	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
AL	ARDMORE	-	4000	ARDM	10	MM	MM	Terry Wales	256-423-2131	256-423-2208	IS01
AL	BLOUNTSVILLE	-	0282	BUVL	-	MM	MM	Wanda McCartney	205-429-4000	205-429-4600	IS03
AL	BRINDLEE MTN	-	0283	BRMT	-	MM	MM	Kenneth W. Gross	256-586-4191	256-586-1698	IS04
AL	BUTLER	TDS	0284	BTLR	13	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IS02
AL	CASTLEBERRY	-	0285	CMTL	-	MM	MM	Homer Holland	334-966-2115	334-966-2114	IS05
AL	CONTEL	GTE	4424	CLSO	-	MM	MM	-	-	-	-
AL	FARMERS	-	0290	FMCP	-	MM	MM	Rodney Ridgeway	256-638-2144	256-638-4830	IS06
AL	FLORALA (SEE FLORIDA GTCOM)										
AL	GENERAL	GTE	4331	GTSE	28	SI	MM	-	-	-	-
AL	GOSHEN	TDS	0296'	CSHN	13	SI	MM	Patsy Weatherford	423-671-4543	423-675-2281	IS08
AL	GRA CEBA	-	0295	GCBA	19	SI	MM	James Etheredge	334-899-3333	334-899-1143	IS09
AL	GROVE HILL	TDS	0297	GVHL	13	SI	MM	Patsy Weatherford	423-675-3881	423-675-3881	IS10
AL	GULF	-	0298	GULF	-	MM	MM	Mile Windham	334-952-5465	334-952-5414	GF01
AL	HAYNEVILLE	-	0299	HYVL	-	MM	MM	Ronnie Dean	334-548-2101	334-548-2051	IS11

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
AL	HOPPER	-	0300	HPPR	-	MM	MM	Jese Ray	205-589-6388	205-589-2109	IS12
AL	MILLRY	-	0304	MLRY	-	MM	MM	Bobby Williams	205-846-2231	205-846-2105	IS15
AL	MON CRE	-	0305	MCRE	-	MM	MM	Betty Menefee	334-562-3242	334-562-9494	IS16
AL	MONROEVILLE	-	0306	MOVL	-	MM	MM	Roger L. Austin	612-435-1118	612-435-1247	MR01
AL	MOUNDVILLE	-	0307	MNVL	10	SI	MM	Mike Runyon	217-355-8400	217-351-6994	IS17
AL	NATIONAL	TEC	0286	NLAL	13	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IS18
AL	NEW HOPE	-	0308	NHPE	19	MM	MM	Bob Gruis	256-723-4211	256-723-2800	IS19
AL	OAKMAN	TDS	0311	OKMN	13	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IT71
AL	ONEONTA	-	0312	ONNT	16	SI	MM	Tommy Smith	205-625-3591	205-625-6679	IS20
AL	PEOPLES	TDS	0314	PLLX	13	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	PE01
AL	PINE BELT	-	0315	PBLT	16	SI	MM	Sherry McGilberry	334-385-2106	334-385-2103	IS21
AL	RAGLAND	-	0316	RGLD	-	MM	MM	Stanley Bean	205-472-2141	205-472-2145	IS22
AL	ROANOKE	TEC	0317	RONK	13	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IT64
AL	SOUTHLAND	-	4464	STHD	-	MM	MM	Roger L. Austin	612-435-1118	612-435-1247	SL01
AL	UNION SPRINGS	-	0322	UNSP	16	MM	MM	Linda Rotten	334-738-4400	334-738-5555	IS23

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
FL	ALLTEL	ALT	0336	ALTL	-	MM	MM	Dianne Elliott	704-845-7571	704-841-3231	AT01
FL	ALLTEL -Switched Access	ATL	0336	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
FL	Sprint (CENTEL/ United)	SPU	0340 / 0341	CEFL	-	MM	MM	Melissa Campbell	904-326-1217	904-326-1573	FL02 / NC01 / CT02
FL	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0340 / 0341	UGFL	-	MM	MM	Theresa Proctor	-	252-641-9496	FL02 / NC01 / CT02
FL	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0340 / 0341	UGFL	-	MM	MM	Ginger Forehand	252-823-9259	252-641-9496	FL02 / NC01 / CT02
FL	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0340 / 0341	UGFL	-	MM	MM	MYRTLE TEEL	252-823-9484	252-641-9496	FL02 / NC01 / CT02
FL	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0340 / 0341	UGFL	-	MM	MM	CASSANDRA	252-823-9483	252-641-9496	FL02 / NC01 / CT02
FL	Sprint/ ITC- UTC, ALC, EDS, Excel, Frontier, IXC Comm, LDS, NXT, TIM, VRT	SPU	0340 / 0341	UGFL	-	MM	MM	ROTATES	800-961-6272	913-791-2218	ATTN: TEAM LEADER All states NC, SC, FL

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
FL	Sprint - ATX, BSLD, EMI, EXF, Intermedia, & FL end users	SPU	0340 / 0341	UGFL		MM	MM	ROTATES	800-871-3388	352-326-1573	ATTN: TEAM LEADER All states NC, SC, FL
FL	GTCOM/FLORALA		0291	FLRA		MM	MM	Linda Wood	350-229-7222	350-227-7366	IS07
FL	INDIANTOWN		0331	INTW	7	SI	MM	Donna J. Marrell	561-597-3161	561-597-2110	IS55
FL	NORTHEAST FL		0335	NEFL		MM	MM	Carla Randle	904-259-2261	904-259-7722	IS26
FL	QUINCY	TDS	4454	QNCY		MM	MM	Patsy Weatherford	423-671-4543	423-675-3881	QT01
FL	SOUTHLAND		4465	STHD		MM	MM	Roger L. Austin	612-435-1118	612-435-1247	SL01
FL	GTCOM/ST JOSEPH		0339	STJS		MM	MM	Linda Wood	350-229-7222	350-227-7366	SJ01
FL	VISTA-UNITED		0330	BSUD		MM	MM	SARAH SLIFER	407-827-2899	407-827-2312	VT01
GA	ALLTEL	ALT	0357	ATTL		MM	MM	Brandi Thomas	704-845-7535	704-841-3231	AT01
GA	ALLTEL	ALT	4425	ALTL		MM	MM	Rusty Chasteen	704-845-5305	704-841-3231	AT01
GA	ALLTEL	ALT	4332	ALTL		MM	MM	Sonja Couick	704-845-7882	704-841-3231	AT01
GA	ALLTEL (GEORGIA TEL)	ALT	0364	GERG		MM	MM	SEE ABOVE FOR SPECIALS			IS37
GA	ALLTEL (STANDARD)	ALT	0386					SEE ABOVE FOR SPECIALS			ST02
GA	ALLTEL -Switched Access	ALT	all	ALTL		MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	all for ALLTEL

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
GA	ALMA	-	0344	ALMA	-	MM	MM	Darrell Douglas	912-632-8603	912-632-4519	IS27
GA	BLUE RIDGE	TDS	0346	BLRG	I	SI	SI	Patsy Weatherford	423-671-4543	423-675-3881	IS28
GA	BRANTLEY	-	0347	BTLY	-	MM	MM	Richard Thornton	912-462-5111	9120462-6135	IS29
GA	BULLOCH CTY	-	0348	BCRL	-	MM	MM	Brenda Hendrix	912-764-7511	912-764-7944	IS30
GA	CAMDEN	TDS	0351	CAMN	-	MM	MM	Patsy Weatherford	423-671-4543	423-675-3881	ID33
GA	CITIZENS	-	0355	CTZZ	-	MM	MM	Ronny Chapman	912-874-4145	912-874-2211	IS33
GA	COASTAL	-	0356	CUTS	-	MM	MM	John Sikes	912-368-0232	912-369-1329	CU01
GA	DARIEN	-	0358	DARN	-	MM	MM	Ken Johnson	912-437-6615	912-437-3499	IS34
GA	ELLIJAY	-	0360	ELJY	I	SI	SI	Roger Futch	706-276-2271	706-276-9888	IS35
GA	FAIRMOUNT	FNTR	0362	FAMT	-	MM	MM	Roger L. Austin	612-435-1118	612-435-1247	IS36
GA	GLENWOOD	-	0365	GLWD	-	MM	MM	Jon Jones	706-276-7721	706-276-7722	IS38
GA	HART CNTY	-	0368	HART	-	MM	MM	Vicky Hilly	706-376-4701	706-376-1445	IS39
GA	HAWKINSVILLE	-	0369	HWVL	-	MM	MM	Jim Rhodes	912-783-4001	912-892-9009	HV01
GA	INTERSTATE $$	-	0371	ITSE	-	MM	MM	Denise Tharp	706-645-8666	706-645-8989	IT01
GA	NELSON BL GRD	TDS	0375	NBGD	I	SI	SI	Patsy Weatherford	423-671-4543	423-675-3881	IS40

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
GA	PEMBROKE	-	0376	PMBR	-	MM	MM	Mary Anna Hite	912-653-4389	912-653-2929	IS41
GA	PINELAND	-	0377	PNLD	-	MM	MM	Linda Snell	912-685-2121	912-685-3539	IS42
GA	PLANT TEL & PWR	-	0379	PLNT	-	MM	MM	Don Bragg	912-382-4227	912-382-1055	IS43
GA	PLANTERS RUR	-	0378	PRWR	-	MM	MM	Mickey Austin	912-857-4411	912-857-3704	IS44
GA	PROGRESSIVE RUR	-	0380	PGSS	-	MM	MM	Mike Cox	912-984-4201	912-984-4205	IS45
GA	PUBLIC	-	0381	PSVC	-	MM	MM	Ed Guinn	912-847-4111	912-847-4106	IS46
GA	QUINCY	TDS	4455	QNCY	-	MM	MM	Patsy Weatherford	423-671-4543	423-675-3881	QT01
GA	STATESBORO	FNTR	0387	STBO	-	MM	MM	Roger L. Austin	612-435-1118	612-435-1247	ST03
GA	VALLEY $$	-	0324	VALE	-	MM	MM	Denise Tharp	706-645-8666	706-645-8769	IS24
GA	WAVERLY HALL	-	0392	WVRL	-	SI	MM	Dana Downey	706-582-3333	706-582-3111	IS50
GA	WILKES TEL	-	0394	WELC	-	MM	MM	Cheryl Edwards	706-678-2121	706-678-1000	WK01
GA	WILKINSON CTY	-	0395	WKSN	-	MM	MM	Ron Chambers	912-946-7411	912-946-3222	IS51
KY	ALLTEL	ALT	0402	ALTL	-	MM	MM	Sonja Couick	704-845-7882	704-841-3231	AT01
KY	ALLTEL -Switched Access	ATL	0402	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
KY	BALLARD RUR	-	0396	BLLR	10	MM	MM	Durwood Whipple	502-665-5186	502-665-9186	IS52

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
KY	BRANDENBURG	-	0398	BRBG	-	MM	MM	Wade McComish	502-422-2121	502-422-4448	IS53
KY	CONTEL	GTE	0410	CLMS	-	MM	MM	-	-	-	-
KY	CONTEL $$	GTE	0779	-	-	MM	MM	-	-	-	-
KY	DUO COUNTY	-	0401	DUOC	28	MM	MM	Teresa Emerson	270-343-3131	270-343-3800	IS54
KY	FOOTHILLS	-	0406	FRUL	16	SI	MM	Lonnie M. Kelly	606-297-3501	606-297-2000	IS55
KY	GENERAL	GTE	0407	GTKY	28	SI	MM	-	-	-	-
KY	HAROLD	-	0408	HRLD	16	MM	MM	Charles Adkins	606-478-9401	606-478-3650	IS56
KY	HIGHLAND	-	4002	HLAN	28	SI	MM	Diann Stephens	615-628-2121	615-628-2409	IS57
KY	INDIANA BELL &&	-	5080	-	-	MM	MM	-	-	-	-
KY	LESLIE CTY	TDS	0411	LESL	16	SI	MM	Sally Lacy	423-671-4541	423-675-3881	IS58
KY	LEWISPORT	TDS	0412	LWPT	10	SI	MM	Sally Lacy	423-671-4541	423-675-3881	IS59
KY	LOGAN	-	0413	LOGN	22	MM	MM	Bill Johnson	270-542-4121	270-582-4800	IS60
KY	MOUNTAIN RUR	-	0414	MRUL	10	SI	MM	Richard Fraley	606-743-1234	606-743-1234	IS61
KY	N CENTRAL RUR	-	4001	NCRL	28	MM	MM	Patty Petty	615-666-2151	615-666-2085	IS62
KY	PEOPLES RUR	-	0415	PRUL	-	MM	MM	Keith Gabbard	606-287-7010	606-287-8332	IS63
KY	S CENTRAL RUR	-	0418	SCTR	22	MM	MM	Doug Jones	270-678-2111	270-678-3038	IS65

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
KY	SALEM	TDS	0417	SALM	16	SI	MM	Sally Lacy	423-671-4541	423-675-3881	IS64
KY	THACKER GRIGSBY	-	0419	TGBY	13	MM	MM	Kim Jones	606-785-9500	606-785-9521	IS66
KY	WASH CNTY RUR - IN &	-	0834	-	-	MM	MM	Joanne Setz	812-967-5511	812-967-4971	ID64
KY	WEST KY RURAL	-	0421	WEKY	-	MM	MM	Gary McClain	270-674-1000	270-856-3313	IT41
LA	CAMERON	CMRN	4476	CMRN	-	MM	MM	Katy Large	318-583-2111	318-583-2015	-
LA	CAMPTI-PLSNT HL	-	0426	CIPN	-	MM	MM	Richard Gill	318-796-3355	318-796-3383	IS69
LA	CTY OF CENTRAL LA	CTE	0423	CELA	28	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT58
LA	CTY OF CHATHAM	CTE	0427	CHAT	16	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IS70
LA	CTY OF E. LA	CTE	0440	CNTY	16	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT59
LA	CTY OF EVANGELINE	CTE	0434	EVLN	28	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	ET01
LA	CTY OF N. LA	CTE	0436	NWLA	16	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT60
LA	CTY OF N. W. LA	CTE	0431	CDDN	28	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT61
LA	CTY OF RINGGOLD	CTE	0439	RNGD	22	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IS77

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
LA	CTY OF S. E. LA	CTE	0424	CSTE	16	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT57
LA	CTY OF S. W. LA	CTE	0442	LAWN	28	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	LW01
LA	DELCAMBRE	-	0428	DLCM	-	MM	MM	Matt LeBlanc	318-685-2342	318-685-4200	IS71
LA	EAST ASCENSION	-	0429	EASN	-	MM	MM	Laura York	225-621-4231	225-647-5252	IS72
LA	ELIZABETH	CMRN	0430	ELZB	-	MM	MM	Katy Large	337-583-2111	337-583-2015	IS73
LA	KAPLAN	-	0432	KPLN	-	MM	MM	Katy Comier	337-643-7171	337-643-6000	IS74
LA	LAFOURCHE	-	0433	LFCH	-	MM	MM	Gerry Doucet	504-693-4567	504-693-0230	LF01
LA	NORTHEAST LA	-	0435	NELA	-	MM	MM	Paul Wilhite - SW	318-322-0015	318-323-2164	IS75
LA	RESERVE	-	0438	RSRV	16	MM	MM	Sherry Brown	504-536-1111	504-536-4815	IS76
LA	STAR	-	0441	STAR	-	MM	MM	Mike Brouilette	225-625-2322	225-625-3422	IS78
MS	ALLTEL	ALT	0453	ALTL	-	MM	MM	Curtis Boe	704.845.7208	704-841-3231	AT01
MS	ALLTEL -Switched Access	ATL	0453	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
MS	BAY SPRINGS	TEC	0446	BYSP	13	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IT62
MS	BRUCE	-	0447	BUCE	10	SI	MM	Mackie Brasher	601-983-1220	601-983-7300	IS80
MS	CALHOUN CITY	TDS	0448	CLHC	10	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	CC10

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
MS	CTE-Home (HOMX) see Tennessee										
MS	DECATUR	-	0451	DCTR	10	SI	MM	Jenia Shealy	601-635-2251	601-635-2400	IS81
MS	DELTA	POT	0452	DLTA	10	MM	MM	Louie Tran	601-949-5260	601-353-0950	IS82
MS	FRANKLIN	POT	0454	FRNK	10	MM	MM	Louie Tran	601-949-5260	601-353-0950	IS83
MS	FULTON	FAIL	0455	FLTN	10	SI	MM	Randy James	601-764-3463	601-764-2564	IS84
MS	GEORGETOWN	-	0456	GRTW	13	SI	MM	Joie Miller	601-858-2211	601-858-2233	IS85
MS	GLEN ALLEN (LKSIDE)	-	0457	GLAL	10	SI	MM	Robert Sledge, Jr.	662-569-3311	662-569-3200	IS86
MS	LAMAR CTY &&	-	0301	LRCT	-	MM	MM	Roger L. Austin	612-435-1118	612-435-1247	IS14
MS	MID-SOUTH	TDS	0460	MSTH	-	MM	MM	Patsy Weatherford	423-671-4543	423-675-3881	IS88
MS	MOUND BAYOU	FAIL	0462	MMBC	10	SI	MM	Randy James	601-764-3463	601-764-2564	IT63
MS	MYRTLE	TDS	0449	MYTL	10	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IT56
MS	NOXAPATER	-	0461	NXPR	13	MM	MM	Doug Stringer	601-764-3171	601-764-4142	IS89
MS	S. E. MISS	TDS	3301	MSPI	13	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IS90
MS	SLEDGE	-	0466	SLDG	13	SI	MM	Robert Sledge, Jr.	662-569-3311	662-569-3200	IS92
MS	SMITHVILE	-	0467	SMTV	10	SI	MM	Darnell Collums	662-651-4131	662-651-4711	IS93
NC	ALLTEL	ALT	0476	ALTL	-	MM	MM	Camisha Phillips	704-845-7469	704-841-3231	AT01

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
NC	ALLTEL	ALT	0476	ALTL	-	MM	MM	Curtis Boe	704.845.7208	704-841-3231	AT01
NC	ALLTEL - Switched	ALT	0476	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
NC	ATLANTIC TEL MBR	-	0468	AMBR	28	SI	MM	Doug Huddle	910-754-4311	910-754-5499	IS94
NC	BARNARDSVILLE	TDS	0469	BDLY	28	SI	MM	Sally Lacy	865-671-4541	423-675-3881	BT65
NC	Sprint (CENTEL/ United)	SPU	0470 / 0471	CEFL	-	MM	MM	Melissa Campbell	904-326-1217	904-326-1573	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0470 / 0471	UGFL	-	MM	MM	Theresa Proctor		252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0470 / 0471	UGFL	-	MM	MM	Ginger Forehand	252-823-9259	252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0470 / 0471	UGFL	-	MM	MM	MYRTLE TEEL	252-823-9484	252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0470 / 0471	UGFL	-	MM	MM	CASSANDRA	252-823-9483	252-641-9496	FL02 / NC01 / CT02

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
NC	Sprint/ ITC- UTC, ALC, EDS, Excel, Frontier, IXC Comm, LDS, NXT, TIM, VRT	SPU	0470 / 0471	UGFL	-	MM	MM	ROTATES	800-961-6272	913-791-2218	ATTN: TEAM LEADER All states NC, SC, FL
NC	Sprint - ATX, BSLD, EMI, EXF, Intermedia, & FL end users	SPU	0470 / 0471	UGFL	-	MM	MM	ROTATES	800-871-3388	352-326-1573	ATTN: TEAM LEADER All states NC, SC, FL
NC	CITIZENS	-	0473	CZEN	28	MM	MM	David Flynn	828-884-4700	828-862-5959	IS95
NC	CONCORD	-	0474	CNCR	28	SI	MM	JEN RIGGS	704-722-3221	704-788-6322	CC01
NC	CONTEL	GTE	0509	CLSO	-	MM	MM	-	-	-	-
NC	ELLERBE	-	0478	ELRB	-	MM	MM	Herb Long	910-652-2214	910-652-7700	IS96
NC	GENERAL	GTE	4434	GTSE	28	SI	MM	-	-	-	-
NC	LEXINGTON	-	0483	LXTN	-	MM	MM	Jeff Sechrest	336-249-5777	336-249-0958	LX01
NC	MEBTEL	-	4085	MBNE	28	SI	MM	Sandra Torain	919-563-9111	919-563-6700	IS97
NC	NORTH STATE	-	0491	NSTE	28	SI	MM	Jane Pendry	336-886-3664	336-885-4600	NT01
NC	NORTH STATE	-	491	NSTE	-	SI	MM	JOANN BAUGHN	336-8863994	336-885-4600	NT01
NC	PIEDMONT	-	0497	PMBP	28	SI	MM	Randall Parks	910-787-5433	704-787-5246	IS98
NC	PINEVILLE	-	0494	PIVL	28	SI	MM	Fred Cantrell	704-889-5700	704-276-7722	IS99

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002703

Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
NC	RANDOLPH	-	0495	RNHL	28	SI	MM	Frances Carter	336-622-9011	336-622-9000	IT02
NC	RANDOLPH TEL MBR	-	0496	RMBP	28	SI	MM	Tony Chriscoe	910-879-7922	910-879-2100	IS00
NC	SALUDA	TDS	0498	SMTN	28	SI	MM	Sally Lacy	865-671-4541	423-675-3881	IT03
NC	SERVICE	TDS	0500	SRVC	28	SI	MM	Sally Lacy	865-671-4541	423-675-3881	IT44
NC	SKYLINE	-	0501	SKLN	28	SI	MM	Melody Johnson	800-382-3800	910-877-2020	IT04
NC	SURRY	-	0503	SRRY	28	SI	MM	Curtis Taylor	910-374-5021	910-374-5031	IT06
NC	WILKES	-	0510	WMBP	28	SI	MM	Sandra Smith	910-973-3189	910-973-3290	IT08
NC	YADKIN VALLEY	-	0511	YUMS	28	SI	MM	Tom Mcbride	910-463-5052	910-463-5005	IT09
SC	ALLTEL	ALT	0517	ALTL	-	MM	MM	Sonja Couick	704-845-7882	704-841-3231	AT01
SC	ALLTEL - Switched	ALT	0517	ALTL	-	MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
SC	BLUFFTON &&	-	0512	BAPE	28	SI	MM	Laura Seley	843-686-1118	843-686-1251	IT10
SC	CHESNEE	-	0515	CHSN	28	SI	MM	Hana Lancaster	803-461-2111	803-461-3611	IT11
SC	CHESTER	-	0516	CHST	28	SI	MM	Jim Hicklin	803-581-9195	803-581-2225	CH01
SC	CONTEL	GTE	0526	CLSC	-	MM	MM	-	-	-	-
SC	FARMERS	-	0520	FMCR	28	SI	MM	Brad Erwin	803-382-1225	803-382-3909	FT01
SC	FORT MILL &&	-	0521	FTML	-	MM	MM	Lisa Wilson	803-324-6185	803-328-0312	LT01

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002704

Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
SC	GENERAL	GTE	4335	GTSE	28	SI	MM	-	-	-	-
SC	HARGRAY &&		0523	HRGY	28	SI	MM	Lorena Taylor	843-686-1299	843-686-1139	IT13
SC	HEATH SPRINGS		0524	HESG		MM	MM	Lisa Wilson	803-324-6185	803-328-0312	IT12
SC	HOME		0527	HOME	28	SI	MM	Colleen Finch	803-761-9101	803-761-9120	IT15
SC	HORRY		0528	HORY	28	SI	MM	Bill Rabon	803-365-2151	803-365-1111	IT16
SC	LANCASTER &&		0531	LNCS		MM	MM	Lisa Wilson	803-324-6185	803-328-0312	LT01
SC	LOCKHART		0532	LKRT	28	SI	MM	Jim Hicklin	803-581-9195	803-581-2225	CH01
SC	MCCLELLANVILLE	TDS	0533	MLVL	28	SI	MM	Sally Lacy	423-671-4541	423-675-3881	IT45
SC	NORWAY	TDS	0535	NRWY	28	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IT48
SC	PALMETTO RUR		0536	PLNT	28	SI	MM	Anelle Boensch	803-538-2020	803-538-7313	IT20
SC	PIEDMONT RUR		0538	PRRL	28	MM	MM	Diane Cantrell	864-682-3131	864-682-8888	IT21
SC	POND BRANCH		0539	PNBH	28	SI	MM	Luther Kneece	803-894-3121	803-892-2123	IT22
SC	RIDGEWAY		0541	RGWY	28	SI	MM	Jim Hicklin	803-581-9195	803-581-2225	IT24
SC	ROCK HILL &&		0542	RCHL	28	SI	MM	Lisa Wilson	803-324-6185	803-328-0312	RH01
SC	SAND HILL		0546	SNHL		MM	MM	Evelyn Graham	803-658-3434	803-658-7700	IT25
SC	ST STEPHEN	TDS	0544	STST	28	SI	MM	Sally Lacy	865-671-4541	423-675-3881	IT46

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002705

Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
NC	Sprint (CENTEL/ United)	SPU	0506	CEFL		MM	MM	Melissa Campbell	904-326-1217	904-326-1573	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0506	UGFL		MM	MM	Theresa Proctor		252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0506	UGFL		MM	MM	Ginger Forehand	252-823-9259	252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0506	UGFL		MM	MM	MYRTLE TEEL	252-823-9484	252-641-9496	FL02 / NC01 / CT02
NC	Sprint/-MCI, BTI, TDX, DLC, TUT, LCI, NRN, TVN, CGW & NC/SC end users	SPU	0506	UGFL		MM	MM	CASSANDRA	252-823-9483	252-641-9496	FL02 / NC01 / CT02
NC	Sprint/ ITC- UTC, ALC, EDS, Excel, Frontier, IXC Comm, LDS, NXT, TIM, VRT	SPU	0506	UGFL		MM	MM	ROTATES	800-961-6272	913-791-2218	ATTN: TEAM LEADER All states NC, SC, FL
NC	Sprint - ATX, BSLD, EMI, EXF, Intermedia, & FL end users	SPU	0506	UGFL		MM	MM	ROTATES	800-871-3388	352-326-1573	ATTN: TEAM LEADER All states NC, SC, FL
SC	W CAROLINA RUR	-	0550	WECR	28	SI	MM	Tracy Gray	864-446-2111	864-446-2144	IT27

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Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
SC	WILLISTON	TDS	0551	WLST	28	SI	MM	Patsy Weatherford	423-671-4543	423-675-3881	IT48
TN	ALLTEL	ALT	4425	ATTL		MM	MM	Brandi Thomas	704-845-7535	704-841-3231	AT01
TN	ALLTEL	ALT	4425	ALTL		MM	MM	Rusty Chasteen	704-845-5305	704-841-3231	AT01
TN	ALLTEL	ALT	4425	ALTL		MM	MM	Andrea Paige	704-845-7219	704-841-3231	AT01
TN	ALLTEL	ALT	4425	ALTL		MM	MM	Sonja Couick	704-845-7882	704-841-3231	AT01
TN	ALLTEL - Switched	ALT	4425	ALTL		MM	MM	Cheryl Gaskins	704-845-7883	704-841-3231	AT01
TN	ARDMORE	-	0280	ARDM	10	MM	MM	Terry Wales	205-423-2131	205-423-2208	IS01
TN	BEN LOMAND	-	0553	BNLM	-	MM	MM	Gail Woodlee	615-668-4131	615-668-6646	IT29
TN	BLEDSOE	-	0554	BLDS	16	SI	MM	Nancie Austin	423-447-2121	423-447-2498	IT30
TN	CHICKAMAUGA	-	0354	CHCM	16	SI	MM	Randy James	601-764-3463	601-764-2564	IS32
TN	CITIZENS	CTZNS	0577	CTZA		MM	MM	Linda Meadows	888-444-2267	214-363-5172	CZ05
TN	CITIZENS	CTZNS	4336	CTZG	28	SI	MM	Linda Meadows	888-444-2267	214-363-5172	CZ05
TN	CLAIBORNE	CTE	0557	CLBN	13	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-683-3170	318-683-3170	IT55
TN	CONCORD	TDS	0559	CNCD	10	SI	MM	Ann Raby	423-671-4542	423-675-3881	IT47
TN	CROCKETT	TEC	0561	CRCT	10	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IT49

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002707

Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
TN	CTY OF ADAMSVILLE	CTE	0552	ADVL	16	MM	MM	318-683-3170, Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT54
TN	CTY OF N. MS && (Home)	CTE	0458	HOMX	13	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT53
TN	CTY OF OOLTEWAH - College	CTE	0574	OOCD	16	MM	MM	318-683-3170 Mgr Fred Feazell 318-683-3169	318-449-6425 opt 2	318-683-3370	IT38
TN	DEKALB	-	0562	DKAL	-	MM	MM	Ricky Gibbs	615-529-2151	615-529-2194	IT31
TN	HIGHLAND	-	0565	HLND	13	SI	MM	Diann Stephens	615-628-2121	615-628-2409	IS57
TN	HUMPHREYS	TDS	0566	HMPH	13	SI	MM	Ann Raby	423-671-4542	423-675-3881	IT34
TN	LORETTO	-	0570	LRTT	-	MM	MM	Glen Newton	615-853-5000	615-853-4329	IT35
TN	MILLINGTON	-	0571	MGTN	-	MM	MM	Doris Cannon	901-872-3311	901-872-2722	IT36
TN	NORTH CENTRAL	-	0573	NCTL	-	MM	MM	Patty Petty	615-666-2151	615-666-2085	IS62
TN	PEOPLES	TEC	0576	PPLS	13	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IT51
TN	RINGGOLD	-	0382	RNGL		MM	MM	Lydia Hullender	706-965-2345	706-965-6972	IS47
TN	TELLICO	TDS	0578	ELCO	16	SI	MM	Ann Raby	423-671-4542	423-675-3881	IT37
TN	TENNESSEE TEL	TDS	0575	TNNS	10	SI	MM	Ann Raby	423-671-4542	423-675-3881	IT33
TN	TRENTON	-	0389	TREN	-	MM	MM	Ronnie Denton	706-657-4367	706-398-1911	IS48

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002708

Table O ASR Contact List and ICSC Codes for ASR Transmission (continued)

ST	COMPANY	OWNER	CO #	ALPHA	BP *	SW BLG OP	SP BLG OP	Contact Name	Telephone No.	FAX tel no	ICSC Code
TN	TWIN LAKES	-	0579	TWLK	-	MM	MM	Lisa Bowman	931-268-2151	931-268-2027	IT39
TN	UNITED	-	0581	UNID	-	MM	MM	Herb Bivins	615-364-2289	615-364-7202	IT40
TN	W. TENNESSEE	TEC	0583	WETN	13	SI	MM	Jeff Sikes	318-322-0015	318-323-2164	IT50
TN	YORKVILLE	-	0584	YRVL	10	MM	MM	Mary Alice Higdon	901-643-6121	901-643-6600	IT42

002209

4332 ALLTEL NORTH GA FIBER RING IS ZSI FOR "SWITCHED ACCESS"; END OFFICES INVOLVED

#1 CLANTON, CHATSWORTH, COHUTTA, DALTON, JASPER, LYERLY, MENLO, TUNNEL HILL

#2 BILL PERIOD FOR THESE END OFFICES NEED TO BE THE 10TH

% BILL PERIODS - ANY CUST REQUESTED BILL CYCLE CAN BE USED EXCEPT WHEN ZSI

%1 ZSI (BAID=SI) ACCOUNTS NEED TO BE SET UP IN THE Bill PERIOD SHOWN

%2 FOR BAID "SM' UNLESS IXC SPECIFIED, USE BP SHOWN (FOR ITC)

%3 FOR SPECIAL ACCESS, SEPARATE ACCOUNTS NO LONGER NEED TO BE ESTABLISHED.

%4 FOR THE SBE CODE ON MAIN REFERENCE LINE (SW & SP)

&& - KNOWN CROSS BOUNDARIES, BST STATE CODE AND NUMERIC EC OF ITC IS USED

&&1 i.e. SBE TN, 0389; BIP is replaced with /EC TN %%

* GTE in Kentucky - Intermediary situations Winchester LATA only

*1 All others ASR would be complimentary. No orders required (Winchester LATA only)

*2 All switched access still goes through BellSouth

*3 Only special access points that go through BellSouth are as follows:.

*4 Cumberland, Evarts, Irvine, Jenkins

1.5.4 Profiles for Independent Company Sorted by Lata / Company Name

002710

Table P Alabama

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	CONTEL-AL	4424	ASHLAND	ASLDALXADS0	205	276	ANTNALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	ASHLAND	ASLDALXADS0	256	354	ANTNALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	CHULAFINNEE	CHLFALXARS0	256	253	ANTNALMT0GT	BRHMALMT0GT	HFLNALXADS0	476	MM
AL	CONTEL-AL	4424	DELTA	DELTALXARS0	256	488	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	CONTEL-AL	4424	HEFLIN	HFLNALXADS0	256	201	ANTNALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	HEFLIN	HFLNALXADS0	256	463	ANTNALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	LECTA	LECTALXARS0	256	748	ANTNALMT0GT	BRHMALMT0GT	HFLNALXADS0	476	MM
AL	CONTEL-AL	4424	LINEVILLE	LNVLALXARS0	256	396	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	CONTEL-AL	4424	MORRISON CRSRDS	MRCRALXARS0	256	363	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	CONTEL-AL	4424	WADLEY	WDLYALXARS0	256	395	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	CONTEL-AL	4424	WEDOWEE	WEDWALXARS0	256	357	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	CONTEL-AL	4424	WOODLAND	WDLDALXARS0	256	449	ANTNALMT0GT	BRHMALMT0GT	ASLDALXADS0	476	MM
AL	BRINDLEE MTN	0283	ARAB	ARABALXADS1	256	317	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	ARAB	ARABALXADS1	256	586	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	ARAB	ARABALXADS1	256	931	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	MORGAN CITY	MRCYALXADS0	256	471	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	MORGAN CITY	MRCYALXADS0	256	498	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	UNION GROVE	UNGVALXADS0	256	296	ARABALXA02T	BRHMALMT0GT		476	MM
AL	BRINDLEE MTN	0283	UNION GROVE	UNGVALXADS0	256	753	ARABALXA02T	BRHMALMT0GT		476	MM
AL	ALLTEL-AL	0302	ASHVILLE	AHVLALXARS0	205	594	BRHMALMT0GT	BRHMALMT0GT	LEDSALXBDS0	476	MM
AL	ALLTEL-AL	0302	CAMP HILL	CMPHALXADS0	256	896	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	ALLTEL-AL	0302	LEEDS	LEDSALXARS0	205	699	BRHMALMT0GT	BRHMALMT0GT	LEDSALXBDS0	476	MM
AL	ALLTEL-AL	0302	LEEDS	LEDSALXARS0	205	702	BRHMALMT0GT	BRHMALMT0GT	LEDSALXBDS0	476	MM
AL	ALLTEL-AL	0302	LEEDS-MOODY	LEDSALXBDS0	205	640	BRHMALMT0GT	BRHMALMT0GT		476	MM

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	ALLTEL-AL	0302	ODENVILLE	ODVLALXARS0	205	629	BRHMALMT0GT	BRHMALMT0GT	LEDSALXBDS0	476	MM
AL	ALLTEL-AL	0302	SPRINGVILLE	SPVLALXARS0	205	467	BRHMALMT0GT	BRHMALMT0GT	LEDSALXBDS0	476	MM
AL	BLOUNTSVILLE	0282	BLOUNTSVILLE	BUVLALXADS0	205	429	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	BLOUNTSV[illegible]	0282	NECTAR	NCTRALXARS0	205	559	BRHMALMT0GT	BRHMALMT0GT	BUVLALXADS0	476	MM
AL	BUTLER	0284	BUTLER	BTLRALXADS0	205	457	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	BUTLER	0284	BUTLER	BTLRALXADS0	205	459	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	BUTLER	0284	LISMAN	LSMNALXADS0	205	398	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	BUTLER	0284	NEEDHAM	NDHMALXARS0	205	673	BRHMALMT0GT	BRHMALMT0GT	BTLRALXADS0	476	SI
AL	BUTLER	0284	PENNINGTON	PNTNALXARS0	205	654	BRHMALMT0GT	BRHMALMT0GT	BTLRALXADS0	476	SI
AL	CONTEL-AL	4424	ALICEVILLE	ACVLALXADS0	205	373	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	BERRY	BRRYALXARS0	205	689	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	BRILLIANT	BRILALXARS0	205	465	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	CARROLLTON	CRTNALXADS0	205	367	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	CARROLLTON	CRTNALXADS0	205	399	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	DETROIT	DTRTALXARS0	205	273	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	DOUBLE SPRINGS	DBSPALXARS0	205	272	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	DOUBLE SPRINGS	DBSPALXARS0	205	489	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	ETHELSVILLE	ETVLALXARS0	205	658	BRHMALMT0GT	BRHMALMT0GT	RFRMALXADS1	476	MM
AL	CONTEL-AL	4424	FAYETTE	FYTTALXARS0	205	270	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	FAYETTE	FYTTALXARS0	205	904	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	FAYETTE	FYTTALXARS0	205	932	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	GORDO	GORDALXADS0	205	364	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	GUIN	GUINALXARS0	205	412	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM

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002712

Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	CONTEL-AL	4424	GUIN	GUINALXARS0	205	468	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HACKLEBURG	HCBGALXARS0	205	935	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HALEYVILLE	HLVLALXARS0	205	269	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HALEYVILLE	HLVLALXARS0	205	485	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HALEYVILLE	HLVLALXARS0	205	486	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HAMILTON	HMTNALXARS0	205	921	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	HAMILTON	HMTNALXARS0	205	952	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	JEMISON	JMSNALXADS0	205	688	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	LINCOLN	LNCLALXARS0	205	763	BRHMALMT0GT	BRHMALMT0GT	PLCYALXADS0	476	MM
AL	CONTEL-AL	4424	PANOLA	PANLALXARS0	205	455	BRHMALMT0GT	BRHMALMT0GT	ACVLALXADS0	476	MM
AL	CONTEL-AL	4424	PELL CITY	PLCYALXADS0	205	338	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	PELL CITY	PLCYALXADS0	205	405	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	PELL CITY	PLCYALXADS0	205	812	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	PELL CITY	PLCYALXADS0	205	814	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	PELL CITY	PLCYALXADS0	205	884	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	PHIL CAMPBELL	PHBLALXARS0	205	993	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	REFORM	RFRMALXADS0	205	375	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	ROCKFORD	RCFRALXADS0	256	377	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	SULLIGENT	SLGNALXARS0	205	698	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	SURFSIDE	SRFSALXARS0	205	525	BRHMALMT0GT	BRHMALMT0GT	PLCYALXADS0	476	MM
AL	CONTEL-AL	4424	THORSBY	THRSALXARS0	205	646	BRHMALMT0GT	BRHMALMT0GT	JMSNALXADS0	476	MM
AL	CONTEL-AL	4424	THORSBY	THRSALXARS0	205	857	BRHMALMT0GT	BRHMALMT0GT	JMSNALXADS0	476	MM
AL	CONTEL-AL	4424	TRUSSVILLE	TSVLALXADS0	205	655	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	CONTEL-AL	4424	TRUSSVILLE	TSVLALXADS0	205	661	BRHMALMT0GT	BRHMALMT0GT		476	MM

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BU SW
AL	CONTEL-AL	4424	VERNON	VERNALXARS0	205	695	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	VERNON	VERNALXARS0	205	712	BRHMALMT0GT	BRHMALMT0GT	WNFDALXADS0	476	MM
AL	CONTEL-AL	4424	WINFIELD	WNFDALXADS0	205	487	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	MOUNDVILLE	0307	MOUNDVILLE	MNVLALXADS0	205	371	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	OAKMAN	0311	FLATWOOD	FLWDALXARS0	205	998	BRHMALMT0GT	BRHMALMT0GT	OKMNALXADS0	476	SI
AL	OAKMAN	0311	LYNN	LYNNALXARS0	205	893	BRHMALMT0GT	BRHMALMT0GT	NAUVALXADS0	476	SI
AL	OAKMAN	0311	NAUVOO	NAUVALXADS0	205	697	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	OAKMAN	0311	OAKMAN	OKMNALXADS0	205	622	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	ONEONTA	0312	ONEONTA	ONNTALXADS1	205	274	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	ONEONTA	0312	ONEONTA	ONNTALXADS1	205	625	BRHMALMT0GT	BRHMALMT0GT		476	SI
AL	RAGLAND	0316	RAGLAND	RGLDALXADS0	205	472	BRHMALMT0GT	BRHMALMT0GT		476	MM
AL	PEOPLES-AL	0314	ARONEY	ARNYALXARS0	256	561	CNTRALXE02T	BRHMALMT0GT	CSVLALXADS0	476	SI
AL	PEOPLES-AL	0314	CEDAR BLUFF	CDRBALXADS0	256	779	CNTRALXE02T	BRHMALMT0GT		476	SI
AL	PEOPLES-AL	0314	CENTRE	CNTRALXE02T	256	004	CNTRALXE02T	BRHMALMT0GT		476	SI
AL	PEOPLES-AL	0314	CENTRE	CNTRALXEDS0	256	927	CNTRALXE02T	BRHMALMT0GT		476	SI
AL	PEOPLES-AL	0314	CENTRE	CNTRALXEDS1	256	484	CNTRALXE02T	BRHMALMT0GT		476	SI
AL	PEOPLES-AL	0314	COLLINSVILLE	COVLALXARS0	256	524	CNTRALXE02T	BRHMALMT0GT	CSVLALXADS0	476	SI
AL	PEOPLES-AL	0314	CROSSVILLE	CSVLALXADS0	256	528	CNTRALXE02T	BRHMALMT0GT		476	SI
AL	PEOPLES-AL	0314	GAYLESVILLE	GLVLALXARS0	256	422	CNTRALXE02T	BRHMALMT0GT	CDRBALXADS0	476	SI
AL	PEOPLES-AL	0314	LEESBURG	LSBGALXARS0	256	526	CNTRALXE02T	BRHMALMT0GT	CNTRALXEDS1	476	SI
AL	PEOPLES-AL	0314	RINEHART	RNHRALXARS0	256	643	CNTRALXE02T	BRHMALMT0GT	CDRBALXADS0	476	SI
AL	PEOPLES-AL	0314	SANDROCK	SNRCALXARS0	256	523	CNTRALXE02T	BRHMALMT0GT	CNTRALXEDS1	476	SI
AL	PEOPLES-AL	0314	WHORTON	WHTNALXARS0	256	475	CNTRALXE02T	BRHMALMT0GT	CNTRALXEDS1	476	SI
AL	CONTEL-AL	4424	MENTONE	MENTALXARS0	256	634	GDSDALMT01T	BRHMALMT0GT	VYHDALXADS0	476	MM

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	CONTEL-AL	4424	VALLEY HEAD	VYHDALXADS0	256	635	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	FARMERS	0290	BRYANT	BRYNALXARS0	256	597	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	FLATROCK	FLRKALXARS0	256	632	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	FYFFE	FYFFALXARS0	256	623	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	GERALDINE	GLDNALXARS0	256	659	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	HENAGAR	HNGRALXARS0	256	657	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	PISGAH	PSGHALXARS0	256	451	GDSDALMT01T	BRHMALMT0GT	RNVLALXADS1	476	MM
AL	FARMERS	0290	RAINSVILLE	RNVLALXADS1	256	638	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	FARMERS	0290	RAINSVILLE	RNVLALXADS1	256	717	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	FARMERS	0290	RAINSVILLE	RNVLALAACM0	256	899	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	HOPPER	0300	SNEAD	SNEDALXADS0	205	466	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	HOPPER	0300	WALNUT GROVE	WLGVALXADS0	205	589	GDSDALMT01T	BRHMALMT0GT		476	MM
AL	ARDMORE	0280	ELKMONT	ELMTALXADS0	256	732	HNVIALUN0GT	HNVIALUN0GT		477	MM
AL	ARDMORE	0280	NEW MARKET	NWMRALXADS0	256	379	HNVIALUN0GT	HNVIALUN0GT		477	MM
AL	CONTEL-AL	4424	FALKVILLE	FLVLALXADS0	256	784	HNVIALUN0GT	HNVIALUN0GT		477	MM
AL	CONTEL-AL	4424	MASSEY	MSSYALXARS0	256	462	HNVIALUN0GT	HNVIALUN0GT	FLVLALXADS0	477	MM
AL	CONTEL-AL	4424	ODEN RIDGE	ODRGALXARS0	256	482	HNVIALUN0GT	HNVIALUN0GT	FLVLALXADS0	477	MM
AL	GENERAL-AL	4331	SCOTTSBORO	SCBOALXADS0	256	218	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SCOTTSBORO	SCBOALXADS0	256	244	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SCOTTSBORO	SCBOALXADS0	256	259	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SCOTTSBORO	SCBOALXADS0	256	574	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SCOTTSBORO	SCBOALXADS0	256	575	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SECTION	SECTALXADS0	256	228	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	GENERAL-AL	4331	SKYLINE	SKLNALXARS0	256	587	HNVIALUN0GT	HNVIALUN0GT	SECTALXADS0	477	SI

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	NATIONAL	0286	BARTON	BARTALXARS0	256	370	HNVIALUN0GT	HNVIALUN0GT	CHRKALXADS0	477	SI
AL	NATIONAL	0286	CHEROKEE	CHRKALXADS0	256	359	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	NATIONAL	0286	MARGERUM	MGRMALXARS0	256	360	HNVIALUN0GT	HNVIALUN0GT	CHRKALXADS0	477	SI
AL	NEW HOPE	0308	GRANT	GRNTALXARS0	256	728	HNVIALUN0GT	HNVIALUN0GT	NWHPALXADS0	477	MM
AL	NEW HOPE	0308	NEW HOPE	NWHPALXADS0	256	723	HNVIALUN0GT	HNVIALUN0GT		477	MM
AL	NEW HOPE	0308	OWENS CRS RDS	OCRDALXARS0	256	725	HNVIALUN0GT	HNVIALUN0GT	NWHPALXADS0	477	MM
AL	PEOPLES-AL	0314	GRAYSON	GYSNALXADS0	256	292	HNVIALUN0GT	HNVIALUN0GT		477	SI
AL	ARDMORE	0280	ARDMORE	ARMRALXADS0	256	420	NSVLTNMT84T	NSVLTNMT84T		477	MM
AL	ARDMORE	0280	ARDMORE	ARMRALXADS0	256	423	NSVLTNMT84T	NSVLTNMT84T		477	MM
AL	GENERAL-AL	4331	ABBEVILLE	ABVLALXADS0	334	585	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ANDALUSIA	ANDSALXADS0	334	222	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ANDALUSIA	ANDSALXADS0	334	427	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ANDALUSIA	ANDSALXADS0	334	428	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ARITON	ARITALXARS0	334	762	DTHNALXA03T	DTHNALXA03T	OZRKALXADS0	478	SI
AL	GENERAL-AL	4331	BANKS	BNKSALXARS0	334	243	DTHNALXA03T	DTHNALXA03T	BRNDALXADS0	478	SI
AL	GENERAL-AL	4331	BRANTLEY	BTLYALXARS0	334	527	DTHNALXA03T	DTHNALXA03T	LVRNALXADS0	478	SI
AL	GENERAL-AL	4331	BRUNDIDGE	BRNDALXADS0	334	735	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	CLIO	CLIOALXADS0	334	397	DTHNALXA03T	DTHNALXA03T	OZRKALXADS0	478	SI
AL	GENERAL-AL	4331	COLUMBIA	CLMAALXARS0	334	696	DTHNALXA03T	DTHNALXA03T	DTHNALXADS2	478	SI
AL	GENERAL-AL	4331	DALEVILLE	DLVLALXADS0	334	255	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DALEVILLE	DLVLALXADS0	334	503	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DALEVILLE	DLVLALXADS0	334	598	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DALEVILLE	DTHNALAW2MD	334	477	DTHNALXA03T	DTHNALXA03T		478	MM
AL	GENERAL-AL	4331	DOTHAN	DTHNAL04GMD	334	333	DTHNALXA03T	DTHNALXA03T		478	SI

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	GENERAL-AL	4331	DOTHAN	DTHNAL04GMD	334	392	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAFCM1	334	701	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAFCM1	334	797	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAFCM1	334	798	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAVCM1	334	618	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAVCM1	334	714	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAVCM1	334	790	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALBFCM1	334	713	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	406	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	671	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	673	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	677	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	678	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	702	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	712	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	792	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	793	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS0	334	794	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALXADS2	334	615	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	DOTHAN	DTHNALAW2MD	334	718	DTHNALXA03T	DTHNALXA03T		478	MM
AL	GENERAL-AL	4331	DOZIER	DOZRALXARS0	334	496	DTHNALXA03T	DTHNALXA03T	LVRNALXADS0	478	SI
AL	GENERAL-AL	4331	ECHO	ECHOALXARS0	334	795	DTHNALXA03T	DTHNALXA03T	OZRKALXADS0	478	SI
AL	GENERAL-AL	4331	ELBA	ELBAALXADS0	334	897	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ENTERPRISE	ENTRALAICM0	334	464	DTHNALXA03T	DTHNALXA03T		478	SI

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	GENERAL-AL	4331	ENTERPRISE	ENTRALXADS0	334	308	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ENTERPRISE	ENTRALXADS0	334	347	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ENTERPRISE	ENTRALXADS0	334	348	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	ENTERPRISE	ENTRALXADS0	334	393	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	FOREST HOME	FRHMALXARS0	334	346	DTHNALXA03T	DTHNALXA03T	GNVLALXADS0	478	SI
AL	GENERAL-AL	4331	GANTT	GNTTALXARS0	334	388	DTHNALXA03T	DTHNALXA03T	OPP ALXADS0	478	SI
AL	GENERAL-AL	4331	GENEVA	GENVALXADS0	334	684	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	GEORGIANA	GRGNALXADS0	334	376	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	GREENVILLE	GNVLALXADS0	334	382	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	GREENVILLE	GNVLALXADS0	334	383	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	HARTFORD	HRFRALXADS0	334	588	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	HEADLAND	HDLDALXARS0	334	693	DTHNALXA03T	DTHNALXA03T	DTHNALXADS0	478	SI
AL	GENERAL-AL	4331	KINGSTON	KSTNALXARS0	334	565	DTHNALXA03T	DTHNALXA03T	OPP ALXADS0	478	SI
AL	GENERAL-AL	4331	LOUISVILLE	LSVLALXARS0	334	266	DTHNALXA03T	DTHNALXA03T	OZRKALXADS0	478	SI
AL	GENERAL-AL	4331	LUVERNE	LVRNALXADS0	334	335	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	MCKENZIE	MCKNALXADS0	334	374	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	MIDLAND CITY	MLCYALXARS0	334	983	DTHNALXA03T	DTHNALXA03T	DTHNALXADS2	478	SI
AL	GENERAL-AL	4331	MIDLAND CITY	MLCYALXARS0	334	984	DTHNALXA03T	DTHNALXA03T	DTHNALXADS2	478	SI
AL	GENERAL-AL	4331	NEW BROCKTON	NWBCALXARS0	334	894	DTHNALXA03T	DTHNALXA03T	ENTRALXADS0	478	SI
AL	GENERAL-AL	4331	NEWTON	NWTNALXARS0	334	299	DTHNALXA03T	DTHNALXA03T	DLVLALXADS0	478	SI
AL	GENERAL-AL	4331	NEWVILLE	NWVIALXARS0	334	889	DTHNALXA03T	DTHNALXA03T	ABVLALXADS0	478	SI
AL	GENERAL-AL	4331	OPP	OPP ALXADS0	334	493	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	OZARK	OZRKALXADS0	334	445	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	OZARK	OZRKALXADS0	334	774	DTHNALXA03T	DTHNALXA03T		478	SI

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	GENERAL-AL	4331	RED LEVEL	RDLVALXARS0	334	469	DTHNALXA03T	DTHNALXA03T	OPP ALXADS0	478	SI
AL	GENERAL-AL	4331	SAMSON	SMSNALXADS0	334	898	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GENERAL-AL	4331	SLOCOMB	SLCMALXARS0	334	886	DTHNALXA03T	DTHNALXA03T	DTHNALXADS0	478	SI
AL	GENERAL-AL	4331	WICKSBURG	WCBGALXARS0	334	692	DTHNALXA03T	DTHNALXA03T	DTHNALXADS2	478	SI
AL	GRACEBA	0295	ASHFORD	ASFRALXADS0	334	814	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GRACEBA	0295	ASHFORD	ASFRALXADS0	334	899	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GRACEBA	0295	COTTONWOOD	CTWDALXADS0	334	691	DTHNALXA03T	DTHNALXA03T		478	SI
AL	GRACEBA	0295	GORDON	GRDNALXADS0	334	522	DTHNALXA03T	DTHNALXA03T		478	SI
AL	ALLTEL-AL	0302	ECLECTIC	ECLCALXADS1	334	541	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	ALLTEL-AL	0302	KOWALIGA	KWLGALXARS0	334	857	MTGMALMT0GT	MTGMALMT0GT	ECLCALXADS0	478	MM
AL	CONTEL-AL	4424	ALBERTA	ALBRALXARS0	334	573	MTGMALMT0GT	MTGMALMT0GT	ORVLALXADS0	478	MM
AL	CONTEL-AL	4424	NOTASULGA	NTSLALXARS0	334	257	MTGMALMT0GT	MTGMALMT0GT	TLLSALXADS0	478	MM
AL	CONTEL-AL	4424	ORVILLE	ORVLALXADS0	334	996	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	CONTEL-AL	4424	PINE HILL	PNHLALXADS0	334	963	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	CONTEL-AL	4424	TALLASSEE	TLLSALXADS0	334	252	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	CONTEL-AL	4424	TALLASSEE	TLLSALXADS0	334	283	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	GOSHEN	0296	GOSHEN	GSHNALXADS0	334	484	MTGMALMT0GT	MTGMALMT0GT		478	SI
AL	HAYNESVILLE	0299	GORDONSVILLE	GOVLALXARS0	334	563	MTGMALMT0GT	MTGMALMT0GT	HYVLALXADS0	478	MM
AL	HAYNESVILLE	0299	HAYNEVILLE	HYVLALXADS0	334	548	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	HAYNESVILLE	0299	LOWNDESBORO	LWBOALXARS0	334	278	MTGMALMT0GT	MTGMALMT0GT	HYVLALXADS0	478	MM
AL	MON-CRE	0305	LAPINE	LAPIALXADS0	334	537	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	MON-CRE	0305	PINE LEVEL	PNLVALXADS0	334	584	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	MON-CRE	0305	RAMER	RAMRALXADS0	334	562	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	PINE BELT	0315	ARLINGTON	ARTNALXARS0	334	385	MTGMALMT0GT	MTGMALMT0GT	DXMLALXADS0	478	SI

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	PINE BELT	0315	DIXON'S MILLS	DXMLALXADS0	334	813	MTGMAL,MT0GT	MTGMAI MT0GT		478	SI
AL	PINE BELT	0315	DIXON'S MILLS	DXMLALXADS0	334	992	MTGMALMT0GT	MTGMALMT0GT		478	SI
AL	PINE BELT	0315	NANAFALIA	NNFLALXARS0	334	736	MTGMALMT0GT	MTGMALMT0GT	DXMLALXADS(	478	SI
AL	PINE BELT	0315	SWEETWATER	SWWRALXARS0	334	994	MTGMALMT0GT	MTGMALMT0GT	DXMLALXADS(	478	SI
AL	ROANOKE	0317	ROANOKE	RONKALXADS0	334	863	MTGMALMT0GT	MTGMALMT0GT		478	SI
AL	ROANOKE	0317	ROANOKE	RONKALXADS0	334	868	MTGMALMT0GT	MTGMALMT0GT		478	SI
AL	ROANOKE	0317	ROCK MILLS	RCMLALXARS0	334	885	MTGMALMT0GT	MTGMALMT	RONKALXADS(	478	SI
AL	SOUTHLAND	4464	CAMDEN	CMDNALXADS0	334	682	MTGMALMT0GT	MTGMAL		478	MM
AL	SOUTHLAND	4464	CATHERINE	CTHRALXARS0	334	225	MTGMALMT0GT	MTGMALMT0GT	CMDNALXADS(	478	MM
AL	SOUTHLAND	4464	THOMASTON	THMTALXARS0	334	627	MTGMALMT0GT	MTGMALMT0GT	CMDNALXADS(	478	MM
AL	SOUTHLAND	4464	VREDENBURGH	VRBGALXARS0	334	337	MTGMALMT0GT	MTGMALMT0GT	CMDNALXADS(	478	MM
AL	UNION SPRINGS	0322	FORT DAVIS	FTDVALXARS0	334	485	MTGMALMT0GT	MTGMALMT0GT	UNSPALXADS0	478	MM
AL	UNION SPRINGS	0322	MIDWAY	MDWYALXARS0	334	529	MTGMALMT0GT	MTGMALMT0GT	UNSPALXADS0	478	MM
AL	UNION SPRINGS	0322	PEROTE	PROTALXARS0	334	474	MTGMALMT0GT	MTGMALMT0GT	UNSPALXADS0	478	MM
AL	UNION SPRINGS	0322	UNION SPRINGS	UNSPALXADS0	334	738	MTGMALMT0GT	MTGMALMT0GT		478	MM
AL	MONROEVILLE	0306	BEATRICE	BTRCALXARS0	334	789	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM
AL	MONROEVILLE	0306	EXCEL	EXCLALXARS0	334	765	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM
AL	MONROEVILLE	0306	FINCHBURG	FNBGALXARS0	334	282	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM
AL	MONROEVILLE	0306	FRISCO CITY	FRCYALXARS0	334	267	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM
AL	MONROEVILLE	0306	GOSPORT	GSPTALXARS0	334	258	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM
AL	MONROEVILLE	0306	MONROEVILLE	MOVLALXADS0	334	362	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	MONROEVILLE	0306	MONROEVILLE	MOVLALXADS0	334	575	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	MONROEVILLE	0306	MONROEVILLE	MOVLALXADS0	334	743	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	MONROEVILLE	0306	PETERMAN	PTMNALXARS0	334	564	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS(	480	MM

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Table P Alabama (continued)

ST	Comm	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	MONROEVILLE	0306	PINE APPLE	PNAPALXARS0	334	746	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS0	480	MM
AL	MONROEVILLE	0306	REPTON	RPTNALXARS0	334	248	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS0	480	MM
AL	MONROEVILLE	0306	URIAH	URIHALXARS0	334	862	ATMRALXA01T	MOBILEALAZ0GT	MOVLALXADS0	480	MM
AL	SOUTHLAND	4464	ATMORE	ATMRALXADS0	334	368	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	SOUTHLAND	4464	ATMORE	ATMRALXADS0	334	446	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	SOUTHLAND	4464	HUXFORD	HXFRALXARS0	334	294	ATMRALXA01T	MOBILEALAZ0GT	ATMRALXADS0	480	MM
AL	SOUTHLAND	4464	MC CULLOUGH	MCCLALXARS0	334	577	ATMRALXA01T	MOBILEALAZ0GT	ATMRALXADS0	480	MM
AL	SOUTHLAND	4464	WALNUT HILL	ATMRALXA36T	850	369	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	SOUTHLAND	4464	WALNUT HILL	WLHLFLXADS0	850	327	ATMRALXA01T	MOBILEALAZ0GT		480	MM
AL	GULF	0298	BON SECOUR	BNSCALXARS0	334	949	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ELBERTA	ELBTALXARS0	334	986	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ELBERTA	ELBTALXBRS0	334	987	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	FOLEY	FOLYALXACM1	334	424	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	943	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	952	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	970	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	971	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	972	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	978	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXADS0	334	979	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	FOLEY	FOLYALXBRS0	334	955	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	FORT MORGAN	FTMRALXARS0	334	540	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	FORT MORGAN	FTMRALXBRS0	334	543	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	GULF SHORES	GLSHALXADS0	334	967	FOLYALXA01T	FOLYALXA01T		480	MM

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	GULF	0298	GULF SHORES	GLSHALXADS0	334	968	FOLYALXA01T	FOLYALXA01T		480	MM
AL	GULF	0298	GULF SHORES	GLSHALXBRS0	334	948	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	GULF SHORES	GLSHALXBRSO	334	975	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	LILLIAN	LLLNALXARS0	334	962	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	LILLIAN	LLLNALXBRS0	334	961	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	LOXLEY	LXLYALXARS0	334	964	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	LOXLEY	LXLYALXBRS0	334	960	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	MAGNOLIA SPGS	MGSPALXARS0	334	965	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ORANGE BEACH	ORBH[illegible]	334	981	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ORANGE BEACH	ORBH[illegible]RS0	334	980	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ORANGE BEACH	ORBHALXDRS0	334	974	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ROBERTSDALE	RBDLALXARS0	334	945	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	ROBERTSDALE	RBDLALXARS0	334	947	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	SEMINOLE	SMNLALXARS0	334	946	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	SEMINOLE	SMNLALXBRS0	334	942	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	SUMMERDALE	MRLWALXARS0	334	988	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	GULF	0298	SUMMERDALE	SRDLALXARS0	334	989	FOLYALXA01T	FOLYALXA01T	FOLYALXADS0	480	MM
AL	MILLRY	0304	CHATOM	CHTMALXADS0	334	847	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	DEER PARK	CHTMALXADS0	334	777	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	FRANKVILLE	FKVLALXADS0	334	754	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	FRUITDALE	CHTMALXADS0	334	827	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	GILBERTOWN	GLTWALXADS0	334	843	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	MILLRY	MLRYALXA01T	334	010	MLRYALXA01T	MOBILEALAZ0GT		480	MM
AL	MILLRY	0304	MILLRY	MLRYALXADS0	334	846	MLRYALXA01T	MOBILEALAZ0GT		480	MM

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Table P Alabama (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
AL	CASTLEBERRY	0285	CASTLEBERRY	CSTLALXADS0	334	966	MOBILEALAZ0GT	MOBILEALAZ0GT		480	MM
AL	CONTEL-AL	4424	BAYOU LABATRE	BLBTALXADS0	334	824	MOBILEALAZ0GT	MOBILEALAZ0GT		480	MM
AL	CONTEL-AL	4424	COFFEEVILLE	CFVLALXADS0	334	276	MOBILEALAZ0GT	MOBILEALAZ0GT		480	MM
AL	CONTEL-AL	4424	DAUPHIN ISLND	DPISALXARS0	334	861	MOBILEALAZ0GT	MOBILEALAZ0GT	BLBTALXADS0	480	MM
AL	CONTEL-AL	4424	FOWL RIVER	FWRVALXARS0	334	873	MOBILEALAZ0GT	MOBILEALAZ0GT	BLBTALXADS0	480	MM
AL	CONTEL-AL	4424	GRAND BAY	GDBAALXARS0	334	865	MOBILEALAZ0GT	MOBILEALAZ0GT	BLBTALXADS0	480	MM
AL	CONTEL-AL	4424	IRVNGTN STELMO	IRSEALXARS0	334	957	MOBILEALAZ0GT	MOBILEALAZ0GT	BLBTALXADS0	480	MM
AL	GROVEHILL	0297	GROVE HILL	GVHLALXADS0	334	275	MOBILEALAZ0GT	MOBILEALAZ0GT		480	SI
AL	MILLRY	0304	SILAS	SILSALXADS0	334	542	MOBILEALAZ0GT	MOBILEALAZ0GT		480	MM

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Table Q Florida

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	GTC,INC. (FLORALA)	0294	FLORALA	FLRLALXADS0	334	858	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	GTC,INC. (FLORALA)	0291	LAUREL HILL	LRHLFLXADS0	850	652	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	GTC,INC. (FLORALA)	0291	PAXTON	PXTNFLXADS0	850	834	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	GTC,INC. (FLORALA)	0294	WING	FLRLALXADS0	334	572	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	BAKER	BAKRFLXADS0	850	537	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	CRESTVIEW	CRVWFLXADS0	850	682	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	CRESTVIEW	CRVWFLXADS0	850	683	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	CRESTVIEW	CRVWFLXADS0	850	689	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	CRESTVIEW	CRVWFLXACM0	850	902	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	DE FUNIAK SPRINGS	DFSPFLXADS0	850	892	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	DE FUNIAK SPRINGS	DFSPFLXADS0	850	951	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	DE FUNIAK SPRINGS	DFSPFLXADS0	850	213	CRVWFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FREEPORT	FRPTFLXARS0	850	835	CRVWFLXA02T	FTWBFLXA02T	DFSPFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	GLENDALE	GLDLFLXARS0	850	859	CRVWFLXA02T	FTWBFLXA02T	DFSPFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	PONCE DE LEON	PNLNFLXARS0	850	836	CRVWFLXA02T	FTWBFLXA02T	DFSPFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	DESTIN	DESTFLXADS0	850	650	FTWBFLXA02T	FTWBFLXA02T		448	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
F	SPRINT (CENTEL)-FL	0340	DESTIN	DESTFLXADS0	850	654	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	DESTIN	DESTFLXADS0	850	837	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	EGLIN AFB	ELFDFLXADS0	850	882	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	EGLIN AFB	ELFDFLXADS0	850	883	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	EGLIN AFB	ELFDFLXADS0	850	885	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	240	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	243	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLX[illegible]0	850	244	FTWBFLXA02T	FTWBFLX[illegible]		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	301	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	302	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXBDS0	850	314	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXBDS0	850	315	FTWBFLXA02T	FTWBFLXA02T		448	MM
I	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM4	850	376	FTWBFLXA02T	FTWBFLXA02T		448	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM5	850	530	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	568	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXCRS0	850	581	FTWBFLXA02T	FTWBFLXA02T	FTWBFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	582	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM2	850	585	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM2	850	598	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM0	850	621	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	664	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	796	FTWBFLXA02T	FTWBFLXA02T	cell-mobilcom	448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	803	FTWBFLXA02T	FTWBFLXA02T	cell-mobilcom	448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	830	FTWBFLXA02T	FTWBFLXA02T		448	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	833	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXBDS0	850	862	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXBDS0	850	863	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXBDS0	850	864	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM2	850	865	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM2	850	974	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXADS0	850	986	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM6	850	217	FTWBFLXA02T	FTBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	HURLBURT AFB	HRFDFLAJRS0	850	881	FTWBFLXA02T	FTWBFLXA02T	HRFDFLXADS0	448	MM
F	SPRINT (CENTEL)-FL	0340	HURLBURT AFB	HRFDFLXADS0	850	884	FTWBFLXA02T	FTWBFLXA02T		448	MM
F	SPRINT (CENTEL)-FL	0340	SANTA ROSA BEACH	SNRSFLXARS0	850	267	FTWBFLXA02T	FTWBFLXA02T	DESTFLXADS0	448	MM
F	SPRINT (CENTEL)-FL	0340	SANTA ROSA BEACH	SNRSFLXARS0	850	622	FTWBFLXA02T	FTWBFLXA02T	DESTFLXADS0	448	MM
F	SPRINT (CENTEL)-FL	0340	SEAGROVE BEACH	SGBHFLXARS0	850	231	FTWBFLXA02T	FTWBFLXA02T	DESTFLXADS0	448	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (CENTEL)-FL	0340	SEAGROVE BEACH	SGBHFLXARS0	850	534	FTWBFLXA02T	FTWBFLXA02T	DESTFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	SHALIMAR	SHLMFLXADS0	850	609	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	SHALIMAR	SHLMFLXADS0	850	651	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	VALPARAISO	VLPRFLXADS0	850	678	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	VALPARAISO	VLPRFLXADS0	850	729	FTWBFLXA02T	FTWBFLXA02T		448	MM
FL	SPRINT (CENTEL)-FL	0340	VALPARAISO	VLPRFLXBRS0	850	897	FTWBFLXA02T	FTWBFLXA02T	VLPRFLXADS0	448	MM
FL	SPRINT (CENTEL)-FL	0340	FORT WALTON BCH	FTWBFLXACM6	850	218	FTWBFLXE02T	FTWBFLXA02T		448	MM
FL	SOUTHLAND	4465	MOLINO	MOLNFLXADS0	850	587	PNSCFLWA01T	PNSCFLWA01T		448	MM
FL	SPRINT (CENTEL)-FL	0340	ALFORD	ALFRFLXARS0	850	579	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	BONIFAY	BNFYFLXARS0	850	547	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	COTTONDALE	CTDLFLXARS0	850	352	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	GRAND RIDGE	GDRGFLXADS0	850	592	MRNNFLXA03T	TLHSFLXA02T		450	MM
FL	SPRINT (CENTEL)-FL	0340	GREENWOOD	GNWDFLXARS0	850	594	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	MALONE	MALNFLXARS0	850	569	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	MARIANNA	MRNNFLXACM0	850	209	MRNNFLXA03T	TLHSFLXA02T		450	MM
FL	SPRINT (CENTEL)-FL	0340	MARIANNA	MRNNFLXADS0	850	482	MRNNFLXA03T	TLHSFLXA02T		450	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (CENTEL)-FL	0340	MARIANNA	MRNNFLXAADS0	850	526	MRNNFLXA03T	TLHSFLXA02T		450	MM
FL	SPRINT (CENTEL)-FL	0340	MARIANNA	MRNNFLXADS0	850	718	MRNNFLXA03T	TLHSFLXA02T		450	MM
FL	SPRINT (CENTEL)-FL	0340	MARIANNA	MRNNFLXADS0	850	600	MRNNFLXA03T	TLHSFLXA02T		450	MM
FL	SPRINT (CENTEL)-FL	0340	REYNOLDS HILL	RYHLFLXARS0	850	956	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	SNEADS	SNDSFLXARS0	850	593	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	SPRINT (CENTEL)-FL	0340	WESTVILLE	WSTVFLXARS0	850	548	MRNNFLXA03T	TLHSFLXA02T	MRNNFLXADS0	450	MM
FL	GTC,INC. (ST JOSEPH)	0291	ALLIGATOR POINT	ARPNFLXARS0	850	349	PTSJFLXA02T	FTWBFLXA02T	CRBLFLXADS0	450	MM
FL	GTC,INC. (ST JOSEPH)	0291	ALTHA	ALTHFLXADS0	850	762	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	APALACHICOL	AAPLCFLXADS0	850	653	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	BLOUNTSTOWN	BLTWFLXADS0	850	674	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	BRISTOL	BRSTFLXADS0	850	643	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	CARRABELLE	CRBLFLXADS0	850	697	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	CHATTAHOOC	CHTHFLXADS0	850	663	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	CHATTAHOOC	CHTHGAFLXADS0	912	662	PTSJFLXA02T	SVNHGABS03T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	EAST POINT	ESPNFLXADS0	850	670	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	EAST POINT	SGISFLXARS0	850	927	PTSJFLXA02T	FTWBFLXA02T	ESPNFLXADS0	450	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	GTC,INC. (ST JOSEPH)	0291	HOSFORD	HSFRFLXARS0	850	379	PTSJFLXA02T	PTSJFLXA02T	BRSTFLXADS0	450	MM
FL	GTC,INC. (ST JOSEPH)	0291	PORT ST JOE	PTSJFLXADS0	850	227	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	PORT ST JOE	PTSJFLXADS0	850	229	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	PORT ST JOE	PTSJFLXADS0	850	827	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	PORT ST JOE	PTSJFLXADS0	850	898	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	PORT ST JOE	PTSJFLXADS0	850	899	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	THE BEACHES	THBHFLXADS0	850	647	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	THE BEACHES	THBHFLXADS0	850	648	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	TYNDALL A F B	TAFBFLXADS0	850	283	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	TYNDALL A F B	TAFBFLXADS0	850	286	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	GTC,INC. (ST JOSEPH)	0291	WEWAHITCHK	AWWHTFLXADS0	850	639	PTSJFLXA02T	FTWBFLXA02T		450	MM
FL	QUINCY	4454	GREENSBORO	GNBOFLXARS0	850	442	TLHSFLXA02T	TLHSFLXA02T	QNCYFLXADS0	450	MM
FL	QUINCY	4454	GRETNA	GRETFLXARS0	850	856	TLHSFLXA02T	TLHSFLXA02T	QNCYFLXADS0	450	MM
FL	QUINCY	4454	QUINCY	QNCYFLXADS0	850	627	TLHSFLXA02T	TLHSFLXA02T		450	MM
FL	QUINCY	4454	QUINCY	QNCYFLXADS0	850	875	TLHSFLXA02T	TLHSFLXA02T		450	MM
FL	ALLTEL - FL	0336	CALLAHAN	CLHNFLXADS0	904	879	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	CRESCENT CITY	CRCYFLXADS0	904	698	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	FLORAHOME	FLRHFLXADSI	904	659	JCVLFLCL05T	JCVLFLCL05T		452	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	ALLTEL - FL	0336	FLORAHOME	FLRHFLXADS1	904	661	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	HASTINGS	HSNGFLXADS0	904	692	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	HILLARD	HLRDFLXADS0	904	845	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	INTERLACHEN	INTRFLXADS0	904	684	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	NORTHEAST FL	0335	MACCLENNY	MCLNFLXADS0	904	259	JCVLFLCL05T	JCVLFLCL05T		452	MM
FL	NORTHEAST FL	0335	SANDERSON	SNSNFLXARS0	904	275	JCVLFLCL05T	JCVLFLCL05T	MCLNFLXADS0	452	MM
FL	SPRINT (CENTEL)-FL	0340	KINGSLEY LAKE	KGLKFLXARS0	904	533	JCVLFLCL05T	TLHSFLXA02T	STRKFLXADS0	452	MM
FL	SPRINT (CENTEL)-FL	0340	LAWTEY	LWTYFLXARS0	904	782	JCVLFLCL05T	TLHSFLXA02T	STRKFLXADS0	452	MM
FL	SPRINT (CENTEL)-FL	0340	STARKE	STRKFLXADS0	904	368	JCVLFLCL05T	TLHSFLXA02T		452	MM
FL	SPRINT (CENTEL)-FL	0340	STARKE	STRKFLXADS0	904	799	JCVLFLCL05T	TLHSFLXA02T		452	MM
FL	SPRINT (CENTEL)-FL	0340	STARKE	STRKFLXADS0	904	964	JCVLFLCL05T	TLHSFLXA02T		452	MM
FL	SPRINT (CENTEL)-FL	0340	STARKE	STRKFLXADS0	904	966	JCVLFLCL05T	TLHSFLXA02T		452	MM
FL	SPRINT (CENTEL)-FL	0340	STARKE	STRKFLXADS0	904	263	JCVLFLCL05T	TLHSFLXA02T		452	MM
FL	ALLTEL - FL	0336	ALACHUA	ALCHFLXARS1	904	418	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	ALACHUA	ALCHFLXARS1	904	462	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	BRANFORD	BRFRFLXARS1	904	935	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	DOWLING PARK	DWPKFLXARS0	904	658	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	FL SHRFS BOYS RAN	BORAFLXARS1	904	842	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	FORT WHITE	FTWHFLXADS0	904	497	LVOKFLXA03T	LVOKFLXA03T		452	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	ALLTEL - FL	0336	HIGH SPRINGS	HGSPFLXADS0	904	454	LVOKFLXA03T	JCVLFLCL05T		452	MM
FL	ALLTEL - FL	0336	JASPER	JSPRFLXARS1	904	792	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	JENNINGS	JNGSFLXARS1	904	938	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	LAKE BUTLER	LKBTFLXADS0	904	496	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LIVE OAK	LVOKFLXADS0	904	208	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LIVE OAK	LVOKFLXADS0	904	330	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LIVE OAK	LVOKFLXADS0	904	362	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LIVE OAK	LVOKFLXADS0	904	364	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LIVE OAK	LVOKFLXA03T	904	004	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	LURAVILLE	LRVLFLXARS1	904	776	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	MAYO	MAYOFLXARS1	904	294	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	RAIFORD	RAFRFLXARS1	904	431	LVOKFLXA03T	LVOKFLXA03T	LKBTFLXADS0	452	MM
FL	ALLTEL - FL	0336	WELLBORN	WLBRFLXADS0	904	963	LVOKFLXA03T	LVOKFLXA03T		452	MM
FL	ALLTEL - FL	0336	WHITE SPRINGS	WHSPFLXARS1	904	303	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	WHITE SPRINGS	WHSPFLXARS1	904	397	LVOKFLXA03T	LVOKFLXA03T	LVOKFLXADS0	452	MM
FL	ALLTEL - FL	0336	BROOKER	BRKRFLXADS0	352	485	GSVLFLMA01T	GSVLFLMA01T		454	MM
FL	ALLTEL - FL	0336	CITRA	CITRFLXADS0	352	595	GSVLFLMA01T	GSVLFLMA01T		454	MM
FL	ALLTEL - FL	0336	MCINTOSH	MCINFLXADS0	352	591	GSVLFLMA01T	GSVLFLMA01T		454	MM
FL	ALLTEL - FL	0336	MELROSE	MLRSFLXADS0	352	475	GSVLFLMA01T	GSVLFLMA01T		454	MM
FL	ALLTEL - FL	0336	ORANGE SPRINGS	ORSPFLXADS0	352	546	GSVLFLMA01T	GSVLFLMA01T		454	MM
FL	ALLTEL - FL	0336	WALDO	WALDFLXADS0	352	468	GSVLFLMA01T	GSVLFLMA01T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	ASTOR	ASTRFLXARS0	352	759	OCALFLXA03T	WNPKFLXE03T	IVRSFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	BELLEVIEW	BLVWFLXADS0	352	245	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BELLEVIEW	BLVWFLXADS0	352	307	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BELLEVIEW	BLVWFLXADS0	352	347	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BEVERLY HILLS	BVHLFLXADS0	352	527	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BEVERLY HILLS	BVHLFLXADS0	352	746	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	BSHNFLXADS0	352	254	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	BSHNFLXADS0	352	569	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	OCALFLXACM4	352	302	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	BSHNFLXADS0	352	568	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	BSHNFLXADS0	352	569	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	OCALFLXACM0	352	603	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	BSHNFLXADS0	352	793	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	208	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	209	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXADS0	352	212	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	223	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	227	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	CLMTFLXADS0	352	241	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	CLMTFLXADS0	352	242	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	CLMTFLXADS0	352	243	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	CLMTFLXADS0	352	394	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	978	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	988	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CLERMONT	OCALFLXACM7	352	989	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	CRRVFLXADS0	352	220	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	OCALFLXACM4	352	303	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	CRRVFLXADS0	352	563	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	CRRVFLXADS0	352	564	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	CRRVFLXADS0	352	794	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	CRYSTAL RIVER	CRRVFLXADS0	352	795	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	515	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	518	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	521	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	523	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	524	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	DADE CITY	DDCYFLXADS1	352	567	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	EUSTIS	OCALFLXACM4	352	267	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	EUSTIS	ESTSFLXARS0	352	357	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	EUSTIS	ESTSFLXARS0	352	483	OCALFLXA03T	WNPK[illegible]	NGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	EUSTIS	ESTSFLXARS0	352	589	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	FOREST	OCNFFLXARS0	352	625	OCALFLXA03T	WNPKFLXE03T	OKLWFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	GROVELAND	GVLDFLXARS0	352	429	OCALFLXA03T	WNPKFLXE03T	CLMTFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	HOMOSASSA SPGS	CHSWFLXARS0	352	382	OCALFLXA03T	WNPKFLXE03T	CRRVFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	HOMOSASSA SPGS	HMSPFLXARS0	352	607	OCALFLXA03T	WNPKFLXE03T	BVHLFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	HOMOSASSA SPGS	HMSPFLXARS0	352	621	OCALFLXA03T	WNPKFLXE03T	BVHLFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	HOMOSASSA SPGS	HMSPFLXARS0	352	628	OCALFLXA03T	WNPKFLXE03T	BVHLFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	HOWEY IN THE HILLS	HOWYFLXARS0	352	324	OCALFLXA03T	WNPKFLXE03T	LSBGFLXADS1	454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	341	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	344	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	559	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	BVHLFLXADS0	352	560	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	634	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	637	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	726	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	INVERNESS	INVRFLXADS0	352	860	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	259	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	710	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	750	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	751	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	753	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LADY LAKE	LDLKFLXARS0	352	821	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	272	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	314	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	315	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	319	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	323	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	326	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	360	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	365	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXACM0	352	406	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXACM0	352	408	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	430	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	432	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	433	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	434	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	435	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	436	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	438	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	449	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	450	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	OCALFLXHDSA	352	455	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	728	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	LEESBURG	LSBGFLXADS1	352	787	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	MOUNT DORA	MTDRFLXARS0	352	383	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	MOUNT DORA	MTDRFLXARS0	352	735	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	MOUNT DORA	MTDRFLXARS0	352	385	OCALFLXA03T	WNPKFLXE03T	WNGRFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM7	352	205	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM3	352	216	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM3	352	217	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	SVSPFLXARS0	352	236	OCALFLXA03T	WNPKFLXE03T	OCALFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXBDS0	352	237	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM2	352	250	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM5	352	251	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM4	352	266	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	351	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM0	352	212	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM0	352	362	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	368	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	369	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	401	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	402	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	403	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM0	352	409	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM1	352	423	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	506	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	620	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	622	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXJRS0	352	624	OCALFLXA03T	WNPKFLXE03T	OCALFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	629	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	640	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	690	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXCRS0	352	694	OCALFLXA03T	WNPKFLXE03T	OCALFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	732	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM0	352	804	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	812	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	816	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	817	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	840	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	843	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXBDS0	352	854	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXBDS0	352	861	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	867	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXBDS0	352	873	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM0	352	895	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXADS0	352	898	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM1	352	424	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXAZMD	352	255	OCALFLXA03T	WNPKFLXE03T		454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXAZMD	352	207	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCALA	OCALFLXACM1	352	422	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	OCKLAWAHA	OKLWFLXADS0	352	288	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	SALT SPRINGS	SSPRFLXARS0	352	685	OCALFLXA03T	WNPKFLXE03T	OCALFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	SAN ANTONIO	SNANFLXARS0	352	588	OCALFLXA03T	WNPKFLXE03T	DDCYFLXADS1	454	MM
FL	SPRINT (UNITED)-FL	0341	SILVER SPGS SHRES	SVSSFLXARS0	352	680	OCALFLXA03T	WNPKFLXE03T	BLVWFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	SILVER SPGS SHRES	SVSSFLXARS0	352	687	OCALFLXA03T	WNPKFLXE03T	BLVWFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	TAVARES	TVRSFLXADS0	352	253	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	TAVARES	TVRSFLXADS0	352	343	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	TAVARES	TVRSFLXADS0	352	742	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	TAVARES	TVRSFLXADS0	352	743	OCALFLXA03T	WNPKFLXE03T		454	MM
FL	SPRINT (UNITED)-FL	0341	TRILLACOOCH	EELCHFLXARS0	352	583	OCALFLXA03T	WNPKFLXE03T	DDCYFLXADS1	454	MM
FL	SPRINT (UNITED)-FL	0341	UMATILLA	UMTLFLXARS0	352	669	OCALFLXA03T	WNPKFLXE03T	TVRSFLXADS0	454	MM
FL	SPRINT (UNITED)-FL	0341	WILDWOOD	WLWDFLXARS0	352	330	OCALFLXA03T	WNPKFLXE03T	LSBGFLXADS1	454	MM
FL	SPRINT (UNITED)-FL	0341	WILDWOOD	WLWDFLXARS0	352	748	OCALFLXA03T	WNPKFLXE03T	LSBGFLXADS1	454	MM
FL	SPRINT (UNITED)-FL	0341	WILLISTON	WLSTFLXARS0	352	528	OCALFLXA03T	WNPKFLXE03T	OCALFLXBDS0	454	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	BUSHNELL	OCALFLXACMA	352	815	OCLAFLXA03T			454	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	560	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	566	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	824	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	827	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	828	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	934	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	938	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	VISTA UNTD	0330	LAKE BUENA VISTA	LKBNFLXBDS0	407	939	LKBNFLXB03T	LKBNFLXB03T		458	MM
FL	SPRINT (CENTEL)-FL	0341	WINTER PARK	LKBRFLXADS0	407	389	WNPKFLXE03T			458	MM
FL	SPRINT (UNITED)-FL	0341	APOPKA	APPKFLXADS1	407	814	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	APOPKA	APPKFLXADS1	407	880	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	APOPKA	APPKFLXADS1	407	884	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	APOPKA	APPKFLXADS1	407	886	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	APOPKA	APPKFLXADS1	407	889	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KENANSVILLE	KNVLFLXARS0	407	436	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXDRS0	407	344	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXDRS0	407	348	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM0	407	361	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXBDS1	407	397	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM4	407	460	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM4	407	461	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	518	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	846	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	847	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	870	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM4	407	873	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM4	407	922	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	931	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	932	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	933	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	935	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	943	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	944	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	946	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXERS0	407	949	WNPKFLXE03T	WNPKFLXE03T	ORLDFLOEDS0	458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	KSSMFLXADS0	407	961	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	KISSIMMEE	WNPKFLXECM0	407	973	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	MONTVERDE	MTVRFLXARS0	407	469	WNPKFLXE03T	WNPKFLXE03T	WNGRFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	LKHLFLXARS0	904	228	WNPKFLXE03T	WNPKFLXE03T	ORCYFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXCRS0	904	532	WNPKFLXE03T	WNPKFLXE03T	ORCYFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXADS0	904	774	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXADS0	904	775	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXCRS0	904	789	WNPKFLXE03T	WNPKFLXE03T	ORCYFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	WNPKFLXECM0	407	801	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	WNPKFLXECM3	904	804	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXADS0	904	851	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORCYFLXADS0	904	917	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	ORANGE CITY	ORLEFLKTCM0	904	216	WNPKFLXE03T	WNPKFLXE03T	ORCYFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	REEDY CREEK	KSSMFLXBDS1	407	238	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	REEDY CREEK	KSSMFLXBDS1	407	239	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	SAINT CLOUD	STCDFLXARS0	407	891	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	SAINT CLOUD	STCDFLXARS0	407	892	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	SAINT CLOUD	STCDFLXARS0	407	957	WNPKFLXE03T	WNPKFLXE03T	KSSMFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	ST. CLOUD	WNPKFLXECM3	407	908	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	W. KISSIMMEE	KSSMFLXBDS1	407	390	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WEST KISSIMMEE	KSSMFLXBDS1	407	396	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WEST KISSIMMEE	KSSMFLXBDS1	407	465	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINDERMERE	WNDRFLXARS0	407	876	WNPKFLXE03T	WNPKFLXE03T	APPKFLXADS1	458	MM
FL	SPRINT (UNITED)-FL	0341	WINDERMERE	WNDRFLXARS0	407	909	WNPKFLXE03T	WNPKFLXE03T	APPKFLXADS1	458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	225	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	260	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	261	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	262	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	263	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	265	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM1	407	312	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	331	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	332	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	339	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM1	407	414	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM1	407	415	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM4	407	463	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM4	407	467	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	475	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	510	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	539	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	596	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	599	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM0	407	619	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	623	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	628	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	629	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	643	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	644	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	645	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	646	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	647	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	659	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	660	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	661	WNPKFLXE03T	WNPKFLXI		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLLPRS0	407	662	WNPKFLXE03T	WNPKFLXE03T	WNGRFLXADS0	458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	667	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	682	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	CSLBFLXADS1	407	214	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	CSLBFLXADS1	407	695	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	CSLBFLXADS1	407	696	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	CSLBFLXADS1	407	699	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	713	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	714	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM0	407	718	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	740	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	741	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	755	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	767	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	772	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	774	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM4	407	782	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	786	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	788	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	806	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	830	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	831	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	834	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	862	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	865	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	LKBRFLXADS1	407	869	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	MTLDFLXADS1	407	875	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM4	407	920	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM4	407	921	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM2	407	923	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM3	407	923	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM2	407	927	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	940	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	ALSPFLXADS0	407	941	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	975	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	980	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	981	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	983	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXECM1	407	319	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	WNPKFLXADS1	407	621	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTER PARK	GLRDFLXADS0	407	681	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTERGARDEN	WNGRFLXADS0	407	654	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTERGARDEN	WNGRFLXADS0	407	656	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTERGARDEN	WNGRFLXADS0	407	877	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WINTERGARDEN	WNGRFLXADS0	407	905	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	657	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	671	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	672	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	673	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	677	WNPKFLXE03T	WNPKFLXE03T		458	MM

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Table Q Florida (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	678	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	SPRINT (UNITED)-FL	0341	WNTR PK/ GLDENROD	GLRDFLXADS0	407	679	WNPKFLXE03T	WNPKFLXE03T		458	MM
FL	ITS TELEC. SYSTEM, INC.	0331	INDIANTOWN	INTWFLXADS0	561	597	WPBHFLGR02T	WPBHFLGR02T		460	SI
FL	SPRINT (UNITED)-FL	0341	ZOLFO SPRINGS	ZLSPFLXARS0	941	735	AVPKFLXA04T	WNPKFLXE03T		939	MM
FL	GTC,INC. (GULF)	0329	KEATON BEACH	PRRYFLXADS0	850	578	TLHSFLXA02T	TLHSFLXA021		953	""
FL	GTC,INC. (GULF)	0329	PERRY	PRRYFLXADS0	850	584	TLHSFLXA02T	TLHSFLXA02T		953	""
FL	GTC,INC. (GULF)	0329	PERRY	PRRYFLXADS0	850	843	TLHSFLXA02T	TLHSFLXA02T		953	""
FL	SPRINT (CENTEL)-FL	0340	MONTICELLO	MNTIFLXADS0	850	342	TLHSFLXA02T	TLHSFLXA02T		953	""
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXDDS0	850	245	TLHSFLXA02T	TLHSFLXA02T		953	MM
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXACM2	850	408	TLHSFLXA02T	TLHSFLXA02T		953	MM
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXADS0	850	577	TLHSFLXA02T	TLHSFLXA02T		953	MM
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXADS0	850	901	TLHSFLXA02T	TLHSFLXA02T		953	MM
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXADS1	850	489	TLHSFLXA02T	TLHSFLXA02T		953	MM
FL	SPRINT (CENTEL)-FL	0340	TALLAHASSEE	TLHSFLXEDS0	850	645	TLHSFLXA02T	TLHSFLXA02T		953	MM

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Table R Georgia

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA		AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	678		WNDRGAXA02T	ATLNGABU02T		432	MM
GA	ALLTEL-GA	4332	CANTON	CNTNGAXADS0	770	479	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	CANTON	CNTNGAXADS0	770	704	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	CANTON	CNTNGAXADS0	770	720	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	CANTON	CNTNGAXADS1	770	721	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	CANTON	CNTNGAXBRS0	770	345	ALTNGABU01T	ATLNGABU02T	CNTNGAXADS0	438	SI
GA	ALLTEL-GA	4332	CHATSWORTH	CHWOGAXADS0	706	517	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	CHATSWORTH	CHWOGAXADS0	706	695	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	COHUTTA	CHTTGAXARS1	706	694	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXBRS1	706	259	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	217	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	226	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	250	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	260	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	264	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	270	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	271	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	272	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	275	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	278	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	279	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	280	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXCDS1	706	281	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	4332	DALTON	DLTNGAXDRS1	706	277	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	4332	JASPER	JSPRGAXARS1	706	692	ALTNGABU01T	ATLNGABU02T	CNTNGAXADS1	438	SI
GA	ALLTEL-GA	4332	LYERLY	LYRLGAXARS1	706	895	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI
GA	ALLTEL-GA	4332	MENLO	MENLGAXARS1	706	862	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI
GA	ALLTEL-GA	4332	SUMMERVILLE	SUVLGAXADS1	706	619	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	SUMMERVILLE	SUVLGAXADS1	706	857	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	SUMMERVILLE	SUVLGAXADS1	706	859	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4425	THOMASTON	THTNGAXADS1	706	646	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4425	THOMASTON	THTNGAXADS1	706	647	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4425	THOMASTON	THTNGAXADS1	706	656	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4425	THOMASTON	THTNGAXBRS1	706	648	ALTNGABU01T	ATLNGABU02T	THTNGAXADS1	438	MM
GA	ALLTEL-GA	4332	TRION	TRINGAXADS0	706	734	ALTNGABU01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	TUNNEL HILL	TNHLGAXARS1	706	673	ALTNGABU01T	ATLNGABU02T	DLTNGAXCDS1	438	SI
GA	ALLTEL-GA	4425	YATESVILLE	YTVLGAXARS1	706	472	ALTNGABU01T	ATLNGABU02T	THTNGAXADS1	438	MM
GA	BLUE RIDGE	0346	BLUE RIDGE	BLRGGAXADS0	706	251	ALTNGABU01T	ATLNGABU02T		438	SI
GA	BLUE RIDGE	0346	BLUE RIDGE	BLRGGAXADS0	706	258	ALTNGABU01T	ATLNGABU02T		438	SI
GA	BLUE RIDGE	0346	BLUE RIDGE	BLRGGAXADS0	706	632	ALTNGABU01T	ATLNGABU02T		438	SI
GA	BLUE RIDGE	0346	BLUE RIDGE	BLRGGAXADS0	706	633	ALTNGABU01T	ATLNGABU02T		438	SI
GA	BLUE RIDGE	0346	BLUE RIDGE	BLRGGAXARS1	706	572	ALTNGABU01T	ATLNGABU02T	NLSNGAXADS1	438	SI
GA	BLUE RIDGE	0346	DIAL	DIALGAXARS0	706	838	ALTNGABU01T	ATLNGABU02T	BLRGGAXADS0	438	SI
GA	BLUE RIDGE	0346	LAKEWOOD	LKWDGAXARS0	706	374	ALTNGABU01T	ATLNGABU02T	BLRGGAXADS0	438	SI
GA	FAIRMOUNT	0362	FAIRMOUNT	FAMTGAXA33A	706	337	ALTNGABU01T	ATLNGABU02T		438	MM
GA	FAIRMOUNT	0362	FAIRMOUNT	FAMTGAXA33A	770	796	ALTNGABU01T	ATLNGABU02T		438	MM
GA	FAIRMOUNT	0362	RANGER	RNGRGAXADS0	706	334	ALTNGABU01T	ATLNGABU02T		438	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	NELSON-BALL GROUND	0375	BIG CANOE **	BGCPGAXARS1	706	268	ALTNGABU01T	ATLNGABU02T	NLSNGAXADS1	438	SI
GA	NELSON-BALL GROUND	0375	MARBLE HILL	MRHLGAXARS1	770	893	ALTNGABU01T	ATLNGABU02T	NLSNGAXADS1	438	SI
GA	NELSON-BALL GROUND	0375	MARBLE HILL	MRHLGAXARS1	770	894	ALTNGABU01T	ATLNGABU02T	NLSNGAXADS1	438	SI
GA	NELSON-BALL GROUND	375	NELSON	NLSNGAXADS1	770	572	ALTNGABU01T	ATLNGABU02T		438	SI
GA	NELSON-BALL GROUND	0375	NELSON	NLSNGAXADS1	770	735	ALTNGABU01T	ATLNGABU02T		438	SI
GA	NELSON-BALL GROUND	0375	NELSON	NLSNGAXADS1	770	737	ALTNGABU01T	ATLNGABU02T		438	SI
GA	ALLTEL-GA	0357	BRASELTON	BATNGAXARS1	706	654	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	CARLTON	CRTOGAXARS1	706	797	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	4425	CLAYTON	CYTNGAXARS1	706	212	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	4425	CLAYTON	CYTNGAXARS1	706	782	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	COLBERT	CLBRGAXARS1	706	788	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	COMER	COMRGAXARS1	706	783	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	COMMERCE	CMRCGAXADS1	706	335	ATHNGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	0357	COMMERCE	CMRCGAXADS1	706	336	ATHNGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	0357	DANIELSVILLE	DEVLGAXARS1	706	795	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	4425	DILLARD MTN CITY	DLRDGAXARS1	706	746	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	4332	EASTANOLLEE	ENLLGAXARS1	706	779	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	HOMER	HOMRGAXARS1	706	677	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	ILA	ILA GAXARS1	706	789	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	JEFFERSON	JFSNGAXARS1	706	367	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	JEFFERSON	JFSNGAXARS1	706	387	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	0357	LEXINGTON	LXTNGAXARS1	706	743	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	MAXEYS	MXYSGAXARS1	706	759	ATHNGAMA02T	ATLNGABU02T	LXTNGAXARS1	438	MM
GA	ALLTEL-GA	0357	MAYSVILLE	MYVLGAXARS1	706	652	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	NICHOLSON	NCSNGAXARS1	706	757	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	PENDERGRASS	PNDRGAXARS1	706	693	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	UNION POINT	UNPNGAXARS1	706	486	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	WHITE PLAINS	WHPLGAXARS1	706	467	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	ALLTEL-GA	0357	WINTERVILLE	WNVLGAXARS1	706	742	ATHNGAMA02T	ATLNGABU02T	CMRCGAXADS1	438	MM
GA	HART	0368	HARTWELL	HRWLGAXA37A	706	376	ATHNGAMA02T	ATLNGABU02T		438	MM
GA	HART	0368	HARTWELL	HRWLGAXA37A	706	377	ATHNGAMA02T	ATLNGABU02T		438	MM
GA	HART	0368	HARTWELL	HRWLGAXA37A	706	856	ATHNGAMA02T	ATLNGABU02T		438	MM
GA	STANDARD	0386	BATESVILLE	BTVLGAXA947	706	947	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	BIG CANOE	BGCNGAXA579	706	579	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	BLAIRSVILLE	BLVIGAXA74A	706	745	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	BLAIRSVILLE	BLVIGAXA74A	706	781	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CLARKESVILL	BCLVLGAXA75A	706	754	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CLARKESVILL	BCLVLGAXA75A	706	839	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CLEVELAND	CLEVGAXA86C	706	219	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CLEVELAND	CLEVGAXA86C	706	348	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CLEVELAND	CLEVGAXA86C	706	865	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CORNELIA	CRNLGAXA77A	706	776	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CORNELIA	CRNLGAXA77A	706	778	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	CORNELIA	CRNLGAXA77A	706	894	CLEVGAXA01T	CLEVGAXA01T		438	SI

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	STANDARD	0386	DAHLONEGA	DHLNGAXA86A	706	864	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	DAHLONEGA	DHLNGAXA86A	706	867	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	DAWSONVILLE	DWVLGAXA26A	706	265	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	DAWSONVILLE	DWVLGAXA26A	706	344	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	DAWSONVILLE	DWVLGAXBDS1	706	216	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	HELEN	HELNGAXA87A	706	878	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	HELEN	HELNGAXA87A	706	892	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	HIAWASSEE	HWSSGAXA896	706	896	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	SUCHES	SCHSGAXA747	706	747	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	STANDARD	0386	YOUNG HARRIS	YNHRGAXA379	706	379	CLEVGAXA01T	CLEVGAXA01T		438	SI
GA	ALLTEL-GA	4332	MANCHESTER	MNCHGAXADS0	706	846	CLMBGAMT01T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WARM SPRINGS	WRSPGAXADS0	706	655	CLMBGAMT01T	ATLNGABU02T		438	MM
GA	ALLTEL	4332	WOODLAND	WDLDGAXARS0	706	674	CLMBGAMT01T	ATLNGABU02T	MNCHGAXADS0	438	MM
GA	PUBLIC	0381	GENEVA	GENVGAXA26A	706	269	CLMBGAMT01T	ATLNGABU02T		438	MM
GA	PUBLIC	0381	TALBOTTON	TLTNGAXA66A	706	665	CLMBGAMT01T	ATLNGABU02T		438	MM
GA	WAVERLY HALL	0392	WAVERLY HALL	WVHLGAXADS0	706	582	CLMBGAMT01T	CLMBGAMT01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXA27A	706	276	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXA27A	706	635	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXA27A	706	636	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXADS1	706	273	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXADS1	706	515	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXADS1	706	697	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ELLIJAY	0360	ELLIJAY	ELJYGAXADS1	706	698	ELJYGAXA01T	ELJYGAXA01T		438	SI

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ELLIJAY	0360	ELLIJAY	JSPRGAADAMD	706	253	ELJYGAXA01T	ELJYGAXA01T		438	SI
GA	ALLTEL-GA	4332	CARNESVILLE	CRNVGAXADS0	706	384	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	LAVONIA	LAVNGAXADS0	706	356	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	TOCCOA	TOCCGAXADS0	706	244	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	TOCCOA	TOCCGAXADS0	706	282	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	TOCCOA	TOCCGAXADS0	706	297	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	TOCCOA	TOCCGAXADS0	706	886	GSVLGAMA02T	ATLNGABU02T		438	MM
GA	WILKES	0394	CRAWFORDVILLE	CRVLGAXA456	706	456	WASHGAXA02T	WASHGAXA02T	WASHGAXA678	438	MM
GA	WILKES	0394	LINCOLNTON	LNTNGAXA359	706	359	WASHGAXA02T	WASHGAXA02T		438	MM
GA	WILKES	0394	METASVILLE	MSVLGAXA293	706	293	WASHGAXA02T	WASHGAXA02T	WASHGAXA678	438	MM
GA	WILKES	0394	RAYLE	RAYLGAXA274	706	274	WASHGAXA02T	WASHGAXA02T	WASHGAXA678	438	MM
GA	WILKES	0394	TIGNALL	TGNLGAXA285	706	285	WASHGAXA02T	WASHGAXA02T	WASHGAXA678	438	MM
GA	WILKES	0394	WASHINGTON	WASHGAXA678	706	678	WASHGAXA02T	WASHGAXA02T		438	MM
GA	ALLTEL-GA	4332	MONROE	MONRGAXARS1	770	207	WNDRGAXA02T	ATLNGABU02T	WNDRGAXADS0	438	MM
GA	ALLTEL-GA	4332	MONROE	MONRGAXARS1	770	266	WNDRGAXA02T	ATLNGABU02T	WNDRGAXADS0	438	MM
GA	ALLTEL-GA	4332	MONROE	MONRGAXARS1	770	267	WNDRGAXA02T	ATLNGABU02T	WNDRGAXADS0	438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAA1MD	770	601	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	770	307	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	770	586	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	770	791	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	770	867	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	770	868	WNDRGAXA02T	ATLNGABU02T		438	MM
GA	ALLTEL-GA	4332	WINDER	WNDRGAXADS0	678	227	WNDRGAXA02T			438	MM
GA	INDIANA BELL	0371	WEST POINT	WSPNALXA64G	334	520	WSPNGAXA02T	TSPNGAXA02T		438	MM

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Table R Georgia (continued)

T	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	534	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	FREDONIA	FRDNALXA499	334	499	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	HUGULEY	HGLYALXA576	334	576	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	SHAWMUT	SHWMALXA768	334	768	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	642	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	644	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXA64G	706	585	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXA64G	706	586	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXA64G	706	634	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXA64G	706	643	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXA64G	706	645	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXACM1	706	442	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNGAXACM1	706	773	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	350	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	381	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	426	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	535	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	536	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	520	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	560	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	606	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	INTERSTATE	0371	WEST POINT	WSPNALXA64G	334	608	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	VALLEY	0324	LANGDALE	LNDLALXA756	334	756	WSPNGAXA02T	WSPNGAXA02T		438	MM
GA	VALLEY	0324	LANGDALE	LNDLALXA756	334	608	WSPNGAXA03T	WSPNGAXA02T		438	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	BULLOCH CO RURAL	0348	ANDERSON	ARSNGAXA852	912	852	BRLTGAXA02T	SVNHGABS03T	BRLTGAXA84A	440	MM
GA	BULLOCH CO RURAL	0348	BROOKLET	BRLTGAXADS1	912	842	BRLTGAXA02T	SVNHGABS03T		440	MM
GA	BULLOCH CO RURAL	0348	CLITO	CLTOGAXA58A	912	587	BRLTGAXA02T	SVNHGABS03T	BRLTGAXA84A	440	MM
GA	BULLOCH CO RURAL	0348	NEVILS	NVLSGAXA83A	912	839	BRLTGAXA02T	SVNHGABS03T	BRLTGAXA84A	440	MM
GA	BULLOCH CO RURAL	0348	PORTAL	PRTLGAXA86A	912	865	BRLTGAXA02T	SVNHGABS03T	BRLTGAXA84A	440	MM
GA	BULLOCH CO RURAL	0348	STILSON	STSNGAXA823	912	823	BRLTGAXA02T	SVNHGABS03T	BRLTGAXA84A	440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAMA87A	912	448	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	368	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	369	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	370	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	767	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	876	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	HINESVILLE	HNVLGAXA87A	912	877	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	KELLER	KLLRGAXA727	912	727	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	MIDWAY	MDWYGAXA884	912	880	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	MIDWAY	MDWYGAXA884	912	884	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	RICHMOND HILL	RMHLGAXA756	912	756	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	COASTAL	0356	RICHMOND HILL	RMHLGAZA756	912	459	HNVLGAXA02T	HNVLGAXA02T		440	MM
GA	PLANTERS RURAL	0378	DOVER	DOVRGAXARS1	912	863	NWNTGAXA02T	SVNHGABS03T	NWTNGAXA85A	440	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	PLANTERS RURAL	0378	GUTYON	GYTNGAXA772	912	772	NWNTGAXA02T	SVNHGABS03T	NWTNGAXA85A	440	MM
GA	PLANTERS RURAL	0378	HILLTONIA	HLTNGAXA829	912	829	NWNTGAXA02T	SVNHGABS03T	NWTNGAXA85A	440	MM
GA	PLANTERS RURAL	0378	NEWINGTON	NWNTGAXADS1	912	857	NWNTGAXA02T	SVNHGABS03T		440	MM
GA	PLANTERS RURAL	0378	SOUTH GUYTON	STGYGAXA728	912	728	NWNTGAXA02T	SVNHGABS03T	NWTNGAXA85A	440	MM
GA	PEMBROKE	0376	ELLABELL	ELBLGAXADS1	912	858	PMBRGAXA01T	SVNHGABS03T		440	MM
GA	PEMBROKE	0376	PEMBROKE	PMBRGAXADS1	912	653	PMBRGAXA01T	SVNHGABS03T		440	MM
GA	FRONTIER/ STATESBORO	0387	REGISTER	RGSTGAXARS1	912	488	STBOGAXA02T	STBOGAXA02T	STBOGAXADS1	440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	360	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	486	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	489	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	531	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	536	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	682	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	687	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXADS1	912	764	STBOGAXA02T	STBOGAXA02T		440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXBRS1	912	681	STBOGAXA02T	STBOGAXA02T	STB... ...S1	440	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXBRS1	912	688	STBOGAXA02T	STBOGAXA02T	STBOGAXADS1	440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXBRS1	912	690	STBOGAXA02T	STBOGAXA02T	STBOGAXADS1	440	MM
GA	FRONTIER/ STATESBORO	0387	STATESBORO	STBOGAXBRS1	912	871	STBOGAXA02T	STBOGAXA02T	STBOGAXADS1	440	MM
GA	CAMDEN	0351	KINGSLAND	STMYGAXADS1	912	729	STMYGAXA01T	SVNHGABS03T		440	MM
GA	CAMDEN	0351	ST MARYS	STMYGAXADS1	912	673	STMYGAXA01T	SVNHGABS03T		440	MM
GA	CAMDEN	0351	ST MARYS	STMYGAXADS1	912	674	STMYGAXA01T	SVNHGABS03T		440	MM
GA	CAMDEN	0351	ST MARYS	STMYGAXADS1	912	882	STMYGAXA01T	SVNHGABS03T		440	MM
GA	CAMDEN	0351	WOODBINE	STMYGAXADS1	912	576	STMYGAXA01T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	ALAMO	ALAMGAXARS0	912	568	SVNHGABS03T	SVNHGABS03T	RCHEGAXADS0	440	MM
GA	ALLTEL-GA	4425	COLLINS	CLNSGAXARS0	912	693	SVNHGABS03T	SVNHGABS03T	GLNVGAXADS0	440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	260	SVNHGABS03T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	GLENNVILLE	GLNVGAXADS0	912	654	SVNHGABS03T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	MOUNT VERNON	MTVRGAXADS1	912	583	SVNHGABS03T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	REIDSVILLE	RDVLGAXARS0	912	557	SVNHGABS03T	SVNHGABS03T	GLNVGAXADS0	440	MM
GA	ALLTEL-GA	4425	RINCON	RNCNGAXADS0	912	826	SVNHGABS03T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	SPRINGFIELD	SPFDGAXARS1	912	754	SVNHGABS03T	SVNHGABS03T	RNCNGAXADS0	440	MM
GA	ALLTEL-GA	4425	SYLVANIA	SYVNGAXARS0	912	564	SVNHGABS03T	SVNHGABS03T	RNCNGAXADS0	440	MM
GA	ALLTEL-GA	4425	UVALDA	UVLDGAXARS0	912	594	SVNHGABS03T	SVNHGABS03T	RCHEGAXADS0	440	MM
GA	DARIEN	0358	DARIEN	DARNGAXA43A	912	437	SVNHGABS03T	SVNHGABS03T		440	MM
GA	DARIEN	0358	EULONIA	EULNGAXA83A	912	832	SVNHGABS03T	SVNHGABS03T		440	MM
GA	DARIEN	0358	SAPELO ISLAND	SPISGAXA48A	912	485	SVNHGABS03T	SVNHGABS03T	DARNGAXA43A	440	MM
GA	GLENWOOD	0365	GLENWOOD	GLWDGAXA52A	912	523	SVNHGABS03T	SVNHGABS03T		440	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	PINELAND	0377	COBBTOWN	CBTWGAXARS1	912	684	SVNHGABS03T	SVNHGABS03T	MTTRGAXADS0	440	MM
GA	PINELAND	0377	LEXSY	LXSYGAXARS1	912	562	SVNHGABS03T	SVNHGABS03T	MTTRGAXADS0	440	MM
GA	PINELAND	0377	METTER	MTTRGAXADS0	912	685	SVNHGABS03T	SVNHGABS03T		440	MM
GA	PINELAND	0377	OAK PARK	OKPKGAXARS1	912	578	SVNHGABS03T	SVNHGABS03T	MTTRGAXADS0	440	MM
GA	PLANT	0379	SOPERTON	SOTNGAXA52A	912	529	SVNHGABS03T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	BROXTON	BRXTGAXARS0	912	359	WYCRGAMA02T	SVNHGABS03T	DGLSGAXADS0	440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	381	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	383	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	384	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	389	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4332	DOUGLAS	DGLSGAXADS0	912	393	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	FARGO	FARGGAXARS0	912	637	WYCRGAMA02T	SVNHGABS03T	HMVLGAXADS0	440	MM
GA	ALLTEL-GA	4425	FOLKSTON	FLTNGAXADS0	912	496	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	HOMERVILLE	HMVLGAXADS0	912	487	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	LUDOWICI	LDWCGAXADS0	912	545	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALLTEL-GA	4425	ODUM	ODUMGAXARS0	912	586	WYCRGAMA02T	SVNHGABS03T	LDWCGAXADS0	440	MM
GA	ALLTEL-GA	4425	SCREVEN	SCRVGAXARS0	912	579	WYCRGAMA02T	SVNHGABS03T	LDWCGAXADS0	440	MM
GA	ALLTEL-GA	4425	ST GEORGE	STGRGAXARS0	912	843	WYCRGAMA02T	SVNHGABS03T	FLTNGAXADS0	440	MM
GA	ALMA	0344	ALMA	ALMAGAXADS1	912	632	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	ALMA	0344	NICHOLLS	NCHLGAXARS1	912	345	WYCRGAMA02T	SVNHGABS03T	ALMAGAXADS1	440	MM
GA	ALMA	0344	PATTERSON	PASNGAXARS1	912	647	WYCRGAMA02T	SVNHGABS03T	ALMAGAXADS1	440	MM
GA	BRANTLEY	0347	HOBOKEN	HOBKGAXARS1	912	458	WYCRGAMA02T	SVNHGABS03T	NHNTGAXADS1	440	MM
GA	BRANTLEY	0347	HORTENSE	HRTSGAXARS1	912	473	WYCRGAMA02T	SVNHGABS03T	NHNTGAXADS1	440	MM
GA	BRANTLEY	0347	NAHUNTA	NHNTGAXADS1	912	462	WYCRGAMA02T	SVNHGABS03T		440	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	BRANTLEY	0347	WAYNESVILLE	WYVLGAXARS1	912	778	WYCRGAMA02T	SVNHGABS03T	NHNTGAXADS1	440	MM
GA	PLANT	0379	PEARSON	PRSNGAXA42A	912	422	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	PLANT	0379	WILLACOOCHEE	WLCHGAXA53A	912	534	WYCRGAMA02T	SVNHGABS03T		440	MM
GA	PINELAND	0377	BARTOW	BARTGAXADS0	912	364	AGSTGAMT03T	AGSTGAMT03T		442	MM
GA	PINELAND	0377	MIDVILLE	MIVLGAXA58A	912	589	AGSTGAMT03T	AGSTGAMT03T		442	MM
GA	PINELAND	0377	TWIN CITY	TWCYGAXA76A	912	763	AGSTGAMT03T	AGSTGAMT03T		442	MM
GA	ALLTEL-GA	4332	ABBEVILLE	ABVLGAXARS1	912	467	ALBYGAMA03T	ALBYGAMA03T	FTZGGAXADS1	444	MM
GA	ALLTEL-GA	4332	ALAPAHA	ALPHGAXARS0	912	532	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	ASHBURN	ASBNGAXARS0	912	566	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	ASHBURN	ASBNGAXARS0	912	567	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	ASHBURN	ASBNGAXARS0	912	613	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	BARWICK	BAWKGAXARS2	912	735	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS0	444	MM
GA	ALLTEL-GA	4332	BERLIN	BRLNGAXARS3	912	324	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS0	444	MM
GA	ALLTEL-GA	4332	BLUFFTON	BFTNGAXARS3	912	641	ALBYGAMA03T	ALBYGAMA03T	DWSNGAXADS0	444	MM
GA	ALLTEL-GA	4332	BOSTON	BSTNGAXARS1	912	498	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS0	444	MM
GA	ALLTEL-GA	4332	BUENA VISTA	BNVSGAXADS0	912	649	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	0357	CAIRO	CAIRGAXADS1	912	377	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	0357	CAIRO	CAIRGAXADS1	912	378	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	0357	CALVERY-RENO	CLREGAXARS1	912	872	ALBYGAMA03T	ALBYGAMA03T	CAIRGAXADS1	444	MM
GA	ALLTEL-GA	4332	COOLIDGE	CLDGGAXARS1	912	346	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS1	444	MM
GA	ALLTEL-GA	4332	CUTHBERT	CTHBGAXADS1	912	732	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	DAWSON	DWSNGAXADS0	912	995	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	DOERUN	DORNGAXARS1	912	782	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS1	444	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	4425	DONALSONVI	DNVLGAXADS0	912	524	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	EDISON	EDSNGAXARS1	912	835	ALBYGAMA03T	ALBYGAMA03T	CTHBGAXADS1	444	MM
GA	ALLTEL-GA	4332	ELLAVILLE	ELVLGAXARS1	912	937	ALBYGAMA03T	ALBYGAMA03T	CTHBGAXADS1	444	MM
GA	ALLTEL-GA	4332	ENIGMA	ENGMGAXARS3	912	533	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	FITZGERALD	FTZGGAXADS0	912	423	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	FITZGERALD	FTZGGAXADS0	912	424	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	FITZGERALD	FTZGGAXADS0	912	425	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	FITZGERALD	FTZGGAXADS0	912	426	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	FITZGERALD	FTZGGAXADS0	912	428	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	FORT GAINES	FTGNGAXARS1	912	768	ALBYGAMA03T	ALBYGAMA03T	CTHBGAXADS1	444	MM
GA	ALLTEL-GA	4332	FUNSTON	FNTNGAXARS1	912	941	ALBYGAMA03T	ALBYGAMA03T	MTLRGAXADS1	444	MM
GA	ALLTEL-GA	4425	IRON CITY	IRCYGAXARS0	912	774	ALBYGAMA03T	ALBYGAMA03T	DNVLGAXADS0	444	MM
GA	ALLTEL-GA	4332	IRWINVILLE	IRVLGAXARS2	912	831	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	JACKSONVILL	JCVLGAXARS0	912	833	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4425	JAKIN	JAKNGAXARS0	912	793	ALBYGAMA03T	ALBYGAMA03T	DNVLGAXADS0	444	MM
GA	ALLTEL-GA	4332	MCRAE	MCRAGAXARS1	912	868	ALBYGAMA03T	ALBYGAMA03T	FTZGGAXADS1	444	MM
GA	ALLTEL-GA	4332	MEIGS	MEGSGAXARS4	912	683	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS0	444	MM
GA	ALLTEL-GA	4425	MILAN	MILNGAXARS0	912	362	ALBYGAMA03T	ALBYGAMA03T	RCHEGAXADS0	444	MM
GA	ALLTEL-GA	4332	MORGAN	MRGNGAXARS1	912	849	ALBYGAMA03T	ALBYGAMA03T	DWSNGAXADS0	444	MM
GA	ALLTEL-GA	4332	MORVEN	MRVNGAXARS1	912	775	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS1	444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	217	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	873	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	890	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	891	ALBYGAMA03T	ALBYGAMA03T		444	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	985	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS1	912	899	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	MOULTRIE	MLTRGAXADS0	912	616	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	NORMAN PARK	NRPKGAXARS1	912	769	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS1	444	MM
GA	ALLTEL-GA	4332	OCILLA	OCLLGAXARS1	912	468	ALBYGAMA03T	ALBYGAMA03T	FTGZGAXADS0	444	MM
GA	ALLTEL-GA	4332	PARROTT	PRRTGAXARS2	912	623	ALBYGAMA03T	ALBYGAMA03T	DWSNGAXADS0	444	MM
GA	ALLTEL-GA	4332	PAVO	PAVOGAXARS0	912	859	ALBYGAMA03T	ALBYGAMA03T	MLTRGAXADS0	444	MM
GA	ALLTEL-GA	4425	PINEVIEW	PNVWGAXARS0	912	624	ALBYGAMA03T	ALBYGAMA03T	RCHEGAXADS0	444	MM
GA	ALLTEL-GA	4425	PITTS	PITSGAXARS0	912	648	ALBYGAMA03T	ALBYGAMA03T	RCHEG+M231	444	MM
GA	ALLTEL-GA	4332	PRESTON	PSTNGAXADS0	912	828	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4425	REBECCA	RBCCGAXARS0	912	643	ALBYGAMA03T	ALBYGAMA03T	RCHEGAXADS0	444	MM
GA	ALLTEL-GA	4425	REYNOLDSVL	ERYVLGAXARS0	912	861	ALBYGAMA03T	ALBYGAMA03T	DNVLGAXADS0	444	MM
GA	ALLTEL-GA	4425	RHINE	RHINGAXARS0	912	385	ALBYGAMA03T	ALBYGAMA03T	RCHEGAXADS0	444	MM
GA	ALLTEL-GA	4425	ROCHELLE	RCHEGAXADS0	912	365	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	SASSER	SSSRGAXARS0	912	698	ALBYGAMA03T	ALBYGAMA03T	DWSNGAXADS0	444	MM
GA	ALLTEL-GA	4332	SHELLMAN	SHMNGAXARS1	912	679	ALBYGAMA03T	ALBYGAMA03T	CTHBGAXADS1	444	MM
GA	CITIZENS - GA	0355	VIENNA	VINNGAXA26A	912	268	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	PLANT	0379	LENOX	LENXGAXA54A	912	546	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	PLANT	0379	OMEGA	OMEGGAXA52A	912	528	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	PLANT	0379	PINEHURST	PNHRGAXA64A	912	645	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	PLANT	0379	WARWICK	WRWKGAXA53A	912	535	ALBYGAMA03T	ALBYGAMA03T		444	MM
GA	QUINCY	4455	ATTAPULGUS	ATPLGAXADS0	912	465	ALBYGAMA03T	ALBYGAMA03T		444	SI
GA	GEORGIA (ALLTEL)	0364	BLAKELY	BLKLGAXADS0	912	723	BLKLGAXA01T	ALBYGAMA03T		444	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	GEORGIA (ALLTEL)	0364	BLAKELY	BLKLGAXADS0	912	734	BLKLGAXA01T	ALBYGAMA03T		444	MM
GA	GEORGIA (ALLTEL)	0364	CEDAR SPRINGS	CDSPGAXARS0	912	372	BLKLGAXA01T	ALBYGAMA03T	BLKLGAXADS0	444	MM
GA	GEORGIA (ALLTEL)	0364	OCHLOCKNEE	OCHLGAXARS0	912	574	BLKLGAXA01T	ALBYGAMA03T	BLKLGAXADS0	444	MM
GA	GEORGIA (ALLTEL)	0364	WHIGHAM	WHGHGAXARS0	912	762	BLKLGAXA01T	ALBYGAMA03T	BLKLGAXADS0	444	MM
GA	CITIZENS - GA	0355	LAKE BLCKSHER	LKBLGAXARS1	912	853	LESLGAXA01T	ALBYGAMA03T	LESLGAXADS1	444	MM
GA	CITIZENS - GA	0355	LESLIE	LESLGAXADS1	912	874	LESLGAXA01T	ALBYGAMA03T		444	MM
GA	CITIZENS - GA	0355	PLAINS	PLNSGAXARS1	912	824	LESLGAXA01T	ALBYGAMA03T	LESLGAXADS1	444	MM
GA	ALLTEL-GA	4332	ADEL	ADELGAXADS0	912	896	VLDSGAMA02T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	HAHIRA	HAHRGAXADS0	912	794	VLDSGAMA02T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	LAKELAND	LKLDGAXADS0	912	482	VLDSGAMA02T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	NASHVILLE	NSVLGAXADS0	912	686	VLDSGAMA02T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	QUITMAN	QTMNGAXADS0	912	263	VLDSGAMA02T	ALBYGAMA03T		444	MM
GA	ALLTEL-GA	4332	RAY CITY	RYCYGAXARS0	912	455	VLDSGAMA02T	ALBYGAMA03T	LKLDGAXADS0	444	MM
GA	HAWKINSVLE	0369	HAWKINSVILL	HWVLGAXA89A	912	783	HWVLGAXA02T	HWVLGAXA02T		446	MM
GA	HAWKINSVLE	0369	HAWKINSVILL	HWVLGAXA89A	912	892	HWVLGAXA02T	HWVLGAXA02T		446	MM
GA	HAWKINSVLE	0369	HAWKINSVILL	HWVLGAXA89A	912	893	HWVLGAXA02T	HWVLGAXA02T		446	MM
GA	ACCUCOMM/ WILKINSON	0395	GORDON	GRDNGAXADS1	912	628	IRTNGAXA01T	MACNGAMT04T		446	MM
GA	ACCUCOMM/ WILKINSON	0395	IRWINTON	IRTNGAXADS1	912	943	IRTNGAXA01T	MACNGAMT04T		446	MM
GA	ACCUCOMM/ WILKINSON	0395	IRWINTON	IRTNGAXADS1	912	946	IRTNGAXA01T	MACNGAMT04T		446	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ACCUCOMM/ WILKINSON	0395	TOOMSBORO	TMBOGAXARS1	912	933	IRTNGAXA01T	MACNGAMT04T	IRTNGAXADS1	446	MM
GA	ALLTEL-GA	4332	BYROMVILLE	BYVLGAXA43A	912	433	MACNGAMT04T	MACNGAMT04T	MTZMGAXA47C	446	MM
GA	ALLTEL-GA	0357	BYRON	BYRNGAXARS1	912	956	MACNGAMT04T	MACNGAMT04T	PRRYGAXADS0	446	MM
GA	ALLTEL-GA	0357	CENTERVILLE	CNVLGAXARS1	912	953	MACNGAMT04T	MACNGAMT04T	PRRYGAXADS0	446	MM
GA	ALLTEL-GA	0357	CENTERVILLE	CNVLGAXARS1	912	971	MACNGAMT04T	MACNGAMT04T	PRRYGAXADS0	446	MM
GA	ALLTEL-GA	4425	DANVILLE	DAVLGAXARS0	912	962	MACNGAMT04T	MACNGAMT04T	GRAYGAXADS0	446	MM
GA	ALLTEL-GA	4425	GRAY	GRAYGAXADS0	912	986	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4425	HADDOCK	HDDCGAXARS0	912	932	MACNGAMT04T	MACNGAMT04T	GRAYGAXADS0	446	MM
GA	ALLTEL-GA	4332	IDEAL	IDELGAXARS0	912	949	MACNGAMT04T	MACNGAMT04T	MTZMGAXA47C	446	MM
GA	ALLTEL-GA	4425	JEFFERSONVL	EJFVLGAXARS0	912	945	MACNGAMT04T	MACNGAMT04T	GRAYGAXADS0	446	MM
GA	ALLTEL-GA	4425	LAKE SINCLAIR	LKSNGAXARS0	912	968	MACNGAMT04T	MACNGAMT04T	GRAYGAXADS0	446	MM
GA	ALLTEL-GA	4332	MARSHALLVI	LMRVLGAXARS1	912	967	MACNGAMT04T	MACNGAMT04T	PRRYGAXADS0	446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	445	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	451	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	452	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	453	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	454	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	456	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MILLEDGEVIL	LMDVLGAXADS0	912	457	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	MONTEZUMA	MTZMGAXA47C	912	472	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4425	MONTROSE	MTRSGAXARS0	912	376	MACNGAMT04T	MACNGAMT04T	GRAYGAXADS0	446	MM
GA	ALLTEL-GA	4332	PERRY	PRRYGAXADS0	912	218	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	PERRY	PRRYGAXADS0	912	987	MACNGAMT04T	MACNGAMT04T		446	MM

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Table R Georgia (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
GA	ALLTEL-GA	4332	PERRY	PRRYGAXADS0	912	988	MACNGAMT04T	MACNGAMT04T		446	MM
GA	ALLTEL-GA	4332	UNADILLA	UNADGAXARS1	912	627	MACNGAMT04T	MACNGAMT04T	PRRYGAXADS0	446	MM
GA	PINELAND	0377	ADRIAN	ADRNGAXA66A	912	668	MACNGAMT04T	MACNGAMT04T		446	MM
GA	PINELAND	0377	DAVISBORO	DVBOGAXA34A	912	348	MACNGAMT04T	MACNGAMT04T		446	MM
GA	PINELAND	0377	KITE	KITEGAXADS0	912	469	MACNGAMT04T	MACNGAMT04T		446	MM
GA	PUBLIC	0381	BUTLER	BTLRGAXA86A	912	862	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PUBLIC	0381	CULLODEN	CUDNGAXA88A	912	885	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PUBLIC	0381	LIZELLA	LZLLGAXA93A	912	935	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PUBLIC	0381	REYNOLDS	RYNLGAXA84A	912	847	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PUBLIC	0381	ROBERTA	RBRTGAXA83A	912	836	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PUBLIC	0381	ROBERTA	RBRTGAXA83A	912	837	MACNGAMT04T	JCVLFLCL06T		446	MM
GA	PROGRESSIVE RURAL	0380	CADWELL	CDWLGAXA689	912	689	RNTZGAXA01T	MACNGAMT04T	RNTZGAXA98A	446	MM
GA	PROGRESSIVE RURAL	0380	CEDAR GROVE	CDGVGAXA463	912	463	RNTZGAXA01T	MACNGAMT04T	RNTZGAXA98A	446	MM
GA	PROGRESSIVE RURAL	0380	CHESTER	CHESGAXA35A	912	358	RNTZGAXA01T	MACNGAMT04T	DXTRGAXA87A	446	MM
GA	PROGRESSIVE RURAL	0380	DEXTER	DXTRGAXA875	912	875	RNTZGAXA01T	MACNGAMT04T		446	MM
GA	PROGRESSIVE RURAL	0380	DUDLEY	DDLYGAXA67A	912	676	RNTZGAXA01T	MACNGAMT04T		446	MM
GA	PROGRESSIVE RURAL	0380	RENTZ	RNTZGAXA984	912	983	RNTZGAXA01T	MACNGAMT04T		446	MM
GA	PROGRESSIVE RURAL	0380	RENTZ	RNTZGAXA984	912	984	RNTZGAXA01T	MACNGAMT04T		446	MM

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Table S Kentucky

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	CONTEL-KY	0410	CANEYVILLE	CYVLKYXADS0	502	879	EZTWKYXA05T	LXTNKYXA08T		462	MM
KY	CONTEL-KY	[illegible]	CLARKSON	CKSNKYXADS0	502	242	EZTWKYXA05T	LXTNKYXA08T		462	MM
KY	GENERAL-KY	0407	BRADFORDSVLE	BRVLKYXARS0	502	337	EZTWKYXA05T	LXTNKYXA08T	LBNNKYXADS0	462	SI
KY	GENERAL-KY	0407	BURKESVILLE	BSVLKYXARS0	502	864	EZTWKYXA05T	LXTNKYXA08T	GLSGKYXADS0	462	SI
KY	GENERAL-KY	0407	CAMPBELLSVLE	CMVLKYXADS0	502	465	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	CAMPBELLSVLE	CMVLKYXADS0	502	[illegible]	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	CAMPBELLSVLE	CMVLKYXADS0	502	789	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	CECILIA	CECLKYXARS0	502	862	EZTWKYXA05T	LXTNKYXA08T	EZTWKYXADS0	462	SI
KY	GENERAL-KY	0407	COLUMBIA	CLMAKYXADS0	502	384	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	COLUMBIA	CLMAKYXADS0	502	385	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTOWN	EZTWKYXADS0	502	202	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	323	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	360	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	[illegible]	ELIZABETHTWN	EZTWKYAGCM1	502	723	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	[illegible]	ELIZABETHTWN	EZTWKYXACMO	502	734	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXACMO	502	735	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	737	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	739	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	763	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	765	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	766	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	ELIZABETHTWN	EZTWKYXADS0	502	769	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	GLASGOW	GLSGKYXADS0	502	576	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	GLASGOW	GLSGKYXADS0	502	651	EZTWKYXA05T	LXTNKYXA08T		462	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	GLASGOW	GLSGKYXADS0	502	659	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	GLASGOW	EZTWKYACCM0	502	590	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	GREENSBURG	GNBGKYXBDS0	502	932	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	HODGENSVILLE	HGVLKYXADS0	502	358	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LEBANON	LBNNKYXADS0	502	692	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LEBANON	LBNNKYXADS0	502	699	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LEITCHFIELD	LTFDKYXADS0	502	230	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LEITCHFIELD	LTFDKYXADS0	502	259	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LEITCHFIELD	LTFDKYXADS0	502	287	EZTWKYXA05T	LXTNKYXA08T		462	SI
KY	GENERAL-KY	0407	LORETTO	LRTTKYXARS0	502	865	EZTWKYXA05T	LXTNKYXA08T	LBNNKYXADS0	462	SI
KY	GENERAL-KY	0407	SCOTTSVILLE	SCVLKYXARS0	502	237	EZTWKYXA05T	LXTNKYXA08T	GLSGKYXADS0	462	SI
KY	GENERAL-KY	0407	SOUTH HARDIN	SHDNKYXARS0	502	369	EZTWKYXA05T	LXTNKYXA08T	EZTWKYXADS0	462	SI
KY	GENERAL-KY	0407	TOMPKINSVILLE	TMVLKYXARS0	502	487	EZTWKYXA05T	LXTNKYXA08T	GLSGKYXADS0	462	SI
KY	N C RURAL	4001	SCOTTSVLE RUR	SCVLKYXRDS1	502	618	EZTWKYXA05T	LXTNKYXA08T		462	MM
KY	N C RURAL	4001	SCOTTSVLE RUR	SCVLKYXRDS1	502	622	EZTWKYXA05T	LXTNKYXA08T		462	MM
KY	SC RURAL	0418	EDMONTON	EDTNKYXARS0	502	432	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM
KY	SC RURAL	0418	FOUNTAIN RUN	FNRNKYXARS0	502	434	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM
KY	SC RURAL	0418	GAMALIEL	GMLLKYXARS0	502	457	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM
KY	SC RURAL	0418	GLASGOW	GLSGKYXRDS0	502	614	GLSGKYXR01T	LXTNKYXA08T		462	MM
KY	SC RURAL	0418	GLASGOW	GLSGKYXRDS0	502	670	GLSGKYXR01T	LXTNKYXA08T		462	MM
KY	SC RURAL	0418	GLASGOW	GLSGKYXRDS0	502	678	GLSGKYXR01T	LXTNKYXA08T		462	MM
KY	SC RURAL	0418	HISEVILLE	HSVLKYXARS0	502	453	GLSGKYXR01T	LXTNKYXA03T	GLSGKYXRDS0	462	MM
KY	SC RURAL	0418	LUCAS	LUCSKYXARS0	502	646	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM
KY	SC RURAL	0418	SUMMER SHADE	SMSHKYXARS0	502	428	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	SC RURAL	0418	TEMPLE HILL	TMHLKYXARS0	502	427	GLSGKYXR01T	LXTNKYXA08T	GLSGKYXRDS0	462	MM
KY	ALLTEL-KY	0402	MT WASHINGTON	MTWSKYXADS0	502	538	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	SHEPHERDSVLE	SHPVKYXADS0	502	543	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	SHEPHERDSVLE	SHPVKYXADS0	502	921	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	ZONETON	ZNTNKYXADS1	502	215	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	ZONETON	ZNTNKYXADS1	502	731	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	ZONETON	ZNTNKYXADS1	502	955	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	ALLTEL-KY	0402	ZONETON	ZNTNKYXADS1	502	957	LSVLKYAP2GT	LSVLKYAP2GT		462	MM
KY	CONTEL (IN)	0779	CENTRAL	CENTINXARS0	812	732	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	CORYDON	CYDNINXA1MD	812	736	NWALIN0111T	SYMRINXA02T		462	MM
KY	CONTEL (IN)	0779	CORYDON	CYDNINXADS0	812	738	NWALIN0111T	SYMRINXA02T		462	MM
KY	CONTEL (IN)	0779	CRANDALL	CRNDINXARS0	812	366	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	ELIZABETH	ELZBINXARS0	812	969	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	GEORGETOWN	GRTWINXARS0	812	951	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	HENRYVILLE	HEVLINXARS0	812	294	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	LACONIA	LACNINXARS0	812	737	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	LANESVILLE	LNVLINXARS0	812	952	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	LEAVENWORTH	LVOWINXARS0	812	739	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	MARENGO	MRNGINXARS0	812	365	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	MILLTOWN	MLTWINXARS0	812	633	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	NEW MIDDLETWN	NWMLINXARS0	812	968	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	PALMYRA	PLMYINXARS0	812	364	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM
KY	CONTEL (IN)	0779	RAMSEY	RMSYINXARS0	812	347	NWALIN0111T	SYMRINXA02T	CYDNINXADS0	462	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	INDIANA BELL	5080		SLBGIN01RSF	812	248	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080		CHTWIN01RSA	812	256	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080		NWTNIN01RSE	812	289	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080		NWTNIN01RSE	812	293	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080		GALNIN01RSC	812	923	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080		SLBGIN01RSF	812	246	NWALIN0111T	BLTNIN0110T	NWALIN01DS0	462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	218	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	280	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	282	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	283	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	284	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	285	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	JEFFERSONVILLE	JFVLIN01DS0	812	288	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	941	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	944	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	945	NWALIN0111T	BLTNIN0110T		462	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01CM0	812	946	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	948	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	949	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	981	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01DS0	812	984	NWALIN0111T	BLTNIN0110T		462	MM
KY	INDIANA BELL	5080	NEW ALBANY	NWALIN01CM1	812	989	NWALIN0111T	BLTNIN0110T		462	MM
KY	WASH CNTY (IN)	0834	PEKIN, IN	PEKNINXADS0	812	967	NWALIN0111T	BLTNIN0110T		462	MM
KY	BRANDENBURG	0398	BATTLETOWN	BTTWKYXARS0	502	497	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	BRANDENBURG	BRBGKYXARS0	502	422	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	CUSTER	CSTRKYXARS0	502	536	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	IRVINGTON	IVTNKYXARS0	502	547	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	IRVINGTON	IVTNKYXARS0	502	668	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	NORTH GARRETT	NGRTKYXARS0	502	828	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	PAYNEVILLE	PYVLKYXARS0	502	496	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM
KY	BRANDENBURG	0398	RADCLIFF	RDCLKYXADS0	502	219	RDCLKYXA1GT	LSVLKYAP2GT		462	MM
KY	BRANDENBURG	0398	RADCLIFF	RDCLKYXADS0	502	272	RDCLKYXA1GT	LSVLKYAP2GT		462	MM
KY	BRANDENBURG	0398	RADCLIFF	RDCLKYXADS0	502	351	RDCLKYXA1GT	LSVLKYAP2GT		462	MM
KY	BRANDENBURG	0398	RADCLIFF	RDCLKYXADS0	502	352	RDCLKYXA1GT	LSVLKYAP2GT		462	MM
KY	BRANDENBURG	0398	VINE GROVE	VNGVKYXARS0	502	877	RDCLKYXA1GT	LSVLKYAP2GT	RDCLKYXADS0	462	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	DUO CNTY	0401	BURKESVLE RUR	BSVLKYXRDS0	502	430	RSSPKYXA02T	LSVLKYAP2GT		462	MM
KY	DUO CNTY	0401	BURKESVLE RUR	BSVLKYXRDS0	502	433	RSSPKYXA02T	LSVLKYAP2GT		462	MM
KY	DUO CNTY	0401	FAIRPLAY	FRPLKYXARS0	502	378	RSSPKYXA02T	LSVLKYAP2GT	RSSPKYXADS0	462	MM
KY	DUO CNTY	0401	FAIRPLAY	FRPLKYXARS0	502	379	RSSPKYXA02T	LSVLKYAP2GT	RSSPKYXADS0	462	MM
KY	DUO CNTY	0401	JAMESTOWN	JMTWKYXADS0	502	343	RSSPKYXA02T	LSVLKYAP2GT		462	MM
KY	DUO CNTY	0401	RUSSELL SPNGS	RSSPKYXA02T	502	0	RSSPKYXA02T			462	MM
KY	DUO CNTY	0401	RUSSELL SPNGS	RSSPKYXADS1	502	858	RSSPKYXA02T	LSVLKYAP2GT		462	MM
KY	DUO CNTY	0401	RUSSELL SPNGS	RSSPKYXADS1	502	866	RSSPKYXA02T	LSVLKYAP2GT		462	MM
KY	LOGAN	0413	ADAIRVILLE	AIVLKYXEDS0	502	539	AUBNKYXA1GT	MDVIKYMA02T		464	MM
KY	LOGAN	0413	AUBURN	AUBNKYXADS0	502	542	AUBNKYXA1GT	MDVIKYMA02T		464	MM
KY	LOGAN	0413	DUNMOR	DNMRKYXARS0	502	657	AUBNKYXA1GT	MDVIKYMA02T	LWBGKYXLDS0	464	MM
KY	LOGAN	0413	LEWISBURG	LWBGKYXLDS0	502	755	AUBNKYXA1GT	MDVIKYMA02T		464	MM
KY	LOGAN	0413	LOGANSPORT	LGPTKYXARS0	502	728	AUBNKYXA1GT	MDVIKYMA02T	AUBNKYXADS0	464	MM
KY	LOGAN	0413	ROCHESTER	ROCHKYXARS0	502	934	AUBNKYXA1GT	MDVIKYMA02T	AUBNKYXADS0	464	MM
KY	CONTEL-KY	0410	BEE SPRINGS	BESPKYXARS0	502	286	BWLGKYMA01T	MDVIKYMA02T	SMGVKYXADS0	464	MM
KY	CONTEL-KY	0410	BROWNSVILLE	BWVLKYXARS0	502	597	BWLGKYMA01T	MDVIKYMA02T	SMGVKYXADS0	464	MM
KY	CONTEL-KY	0410	MAMMOTH CAVE	MMCVKYXARS0	502	758	BWLGKYMA01T	MDVIKYMA02T	SMGVKYXADS0	464	MM
KY	CONTEL-KY	0410	PARK CITY	PRCYKYXARS0	502	749	BWLGKYMA01T	MDVIKYMA02T	SMGVKYXADS0	464	MM
KY	CONTEL-KY	0410	SMITHS GROVE	SMGVKYXADS0	502	563	BWLGKYMA01T	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	COTTAGE GRV	CTGVTNXARS0	901	782	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	CUNNINGHAM	CNHMKYXARS0	502	642	FLDLKYXA1GT	MDVIKYMA02T	FLDLKYXADS0	464	MM
KY	W KY RUR	0421	CYPRESS	CYPRTNXARS0	901	232	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	FAIRDEALING	FRNGKYXARS0	502	354	FLDLKYXA1GT	MDVIKYMA02T	HRDNKYXADS0	464	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	W KY RUR	0421	FANCY FARM	FNFMKYXARS0	502	623	FLDLKYXA1GT	MDVIKYMA02T	FLDLKYXADS0	464	MM
KY	W KY RUR	0421	FARMINGTON	FRTNKYXARS0	502	345	FLDLKYXA1GT	MDVIKYMA02T	SDLIKYXADS0	464	MM
KY	W KY RUR	0421	FOLSOMDALE	FLDLKYXADS0	502	856	FLDLKYXA1GT	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	HARDIN	HRDNKYXADS0	502	437	FLDLKYXA1GT	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	HAZEL	HAZLKYXADS0	502	492	FLDLKYXA1GT	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	HAZEL	HAZLKYXADS0	901	498	FLDLKYXA1GT	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	KIRKSEY	KRKSKYXARS0	502	489	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	LOWES	LOWSKYXARS0	502	674	FLDLKYXA1GT	MDVIKYMA02T	FLDLKYXADS0	464	MM
KY	W KY RUR	0421	LYNN GROVE	LYGVKYXARS0	502	435	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	LYNNVILLE	LYVLKYXARS0	502	382	FLDLKYXA1GT	MDVIKYMA02T	SDLIKYXADS0	464	MM
KY	W KY RUR	0421	NEW CONCORD	NWCNKYXARS0	502	436	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	PURYEAR	PRYRTNXARS0	901	247	FLDLKYXA1GT	MDVIKYMA02T	HAZLKYXADS0	464	MM
KY	W KY RUR	0421	SEDALIA	SDLIKYXADS0	502	328	FLDLKYXA1GT	MDVIKYMA02T		464	MM
KY	W KY RUR	0421	WEST PLAINS	WPLNKYXARS0	502	658	FLDLKYXA1GT	MDVIKYMA02T	FLDLKYXADS0	464	MM
KY	W KY RUR	0421	WINGO	WINGKYXARS0	502	376	FLDLKYXA1GT	MDVIKYMA02T	SDLIKYXADS0	464	MM
KY	SC RURAL	0418	BONNIEVILLE	BOVLKYXARS0	502	531	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	BUFFALO	BFLOKYXARS0	502	325	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	CANMER	CNMRKYXARS0	502	528	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	CANMER	CNMRKYXARS0	502	537	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	CAVE CITY	CVCYKYXARS0	502	773	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	CENTER	CNTRKYXARS0	502	565	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	HORSE CAVE	HRCVKYXADS0	502	786	HRCVKYXA01T	MDVIKYMA02T		464	MM
KY	SC RURAL	0418	MAGNOLIA	MGNLKYXARS0	502	324	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM
KY	SC RURAL	0418	MUNFORDVILLE	MFVLKYXARS0	502	524	HRCVKYXA01T	MDVIKYMA02T	HRCVKYXADS0	464	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	BALLARD RURAL	0396	BANDANA	BNDNKYXARS0	502	224	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	BALLARD RURAL	0396	BARLOW	BRLWKYXARS0	502	334	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	BALLARD RURAL	0396	GAGE	GAGEKYXARS0	502	876	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	BALLARD RURAL	0396	HEATH	HETHKYXADS0	502	488	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	BALLARD RURAL	0396	KEVIL	KEVLKYXADS0	502	462	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	BALLARD RURAL	0396	LACENTER	LACTKYXADS0	502	665	LACTKYXA01T	MDVIKYMA02T		464	SI
KY	BALLARD RURAL	0396	WICKLIFFE	WCKLKYXADS0	502	335	LACTKYXA01T	MDVIKYMA02T	LACTKYXADS0	464	SI
KY	CONTEL-KY	0410	ARLINGTON	ARTNKYXARS0	502	655	MDVIKYMA02T	MDVIKYMA02T	BRWLKYXADS0	464	MM
KY	CONTEL-KY	0410	BARDWELL	BRWLKYXADS0	502	628	MDVIKYMA02T	MDVIKYMA02T		464	MM
KY	CONTEL-KY	0410	CALVERT CITY	CLCTKYXADS0	502	395	MDVIKYMA02T	MDVIKYMA02T		464	MM
KY	CONTEL-KY	0410	COLUMBUS	CLMBKYXARS0	502	677	MDVIKYMA02T	MDVIKYMA02T	BRWLKYXADS0	464	MM
KY	CONTEL-KY	0410	MILBURN	MLBNKYXARS0	502	694	MDVIKYMA02T	MDVIKYMA02T	BRWLKYXADS0	464	MM
KY	CONTEL-KY	0410	SMITHLAND	SMLDKYXADS0	502	928	MDVIKYMA02T	MDVIKYMA02T		464	MM
KY	SALEM	0417	SALEM	SALMKYXADS0	502	988	MDVIKYMA02T	MDVIKYMA02T		464	MM
KY	CONTEL-KY	0410	UNIONTOWN	UNTWKYXADS0	502	822	OWBOKYMA1GT	MDVIKYMA02T		464	MM
KY	LEWISPORT	0412	LEWISPORT	LWPTKYXADS0	502	295	OWBOKYMA1GT	MDVIKYMA02T		464	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKY39CM1	606	926	ASLDKYXA03T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	RSSLKY01CM1	606	471	ASLDKYXA03T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	324	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	325	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	326	ASLDKYXADS0	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	327	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	329	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	ASHLAND	ASLDKYXADS0	606	920	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	CATLETTSBURG	CTBGKYXADS0	606	739	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	CATLETTSBURG	CTBGKYXADS0	606	921	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	GRAYSON	GYSNKYXADS0	606	474	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	GRAYSON	GYSNKYXADS0	606	475	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	GREENUP	GNUPKYXADS0	606	473	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MEADS	MEDSKYAACM0	606	465	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MEADS	MEDSKYAACM0	606	922	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MEADS	MEDSKYAACM0	606	923	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MEADS	MEDSKYXADS0	606	928	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MEADS	MEDSKYXADS0	606	929	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	RUSSELL	RSSLKYXBDS0	606	831	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	RUSSELL	RSSLKYXBDS0	606	833	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	RUSSELL	RSSLKYXBDS0	606	834	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	RUSSELL	RSSLKYXBDS0	606	836	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	SOUTH SHORE	SSHRKYXARS0	606	932	ASLDKYXADS0	LXTNKYXA08T	GNUPKYXADS0	466	SI
KY	GENERAL (0772)	0407	ASHLAND	ASLDKY39CM1	606	924	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	GENERAL (0772)	0407	MEADS	MEDSKYAECM0	606	939	ASLDKYXADS0	LXTNKYXA08T		466	SI
KY	CONTEL-KY	0410	CUMBERLAND	CMLDKYXADS0	606	589	DAVLKYMA01T	WNCHKYMA02T		466	MM
KY	CONTEL-KY	0410	EVARTS	EVRSKYXADS0	606	837	DAVLKYMA01T	WNCHKYMA02T		466	MM
KY	CONTEL-KY	0410	SCIENCE HILL	SCHLKYXARS0	606	423	DAVLKYMA01T	LXTNKYXA08T	LONDKYXADS0	466	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	LESLIE COUNTY	0411	BLEDSOE	BLDSKYXARS0	606	558	DAVLKYMA01T	WNCHKYMA02T	HYDNKYXADS0	466	SI
KY	LESLIE COUNTY	0411	DWARF	DWRFKYXADS0	606	378	DAVLKYMA01T	WNCHKYMA02T		466	SI
KY	LESLIE COUNTY	0411	HYDEN	HYDNKYXADS0	606	672	DAVLKYMA01T	WNCHKYMA02T		466	SI
KY	LESLIE COUNTY	0411	STINNET	STNTKYXARS0	606	374	DAVLKYMA01T	WNCHKYMA02T	HYDNKYXADS0	466	SI
KY	LESLIE COUNTY	0411	WOOTEN	WOTNKYXARS0	606	279	DAVLKYMA01T	WNCHKYMA02T	HYDNKYXADS0	466	SI
KY	THACKER-GRGSBY	0419	CODY	CODYKYXADS0	606	642	HNMNKYXB1GT	WNCHKYMA02T		466	MM
KY	THACKER-GRGSBY	0419	FISTY	FSTYKYXARS0	606	251	HNMNKYXB1GT	WNCHKYMA02T	CODYKYXADS0	466	MM
KY	THACKER-GRGSBY	0419	HINDMAN	HNMNKYXBDS0	606	438	HNMNKYXB1GT	WNCHKYMA02T		466	MM
KY	THACKER-GRGSBY	0419	HINDMAN	HNMNKYXBDS0	606	785	HNMNKYXB1GT	WNCHKYMA02T		466	MM
KY	THACKER-GRGSBY	0419	MOUSIE	MOUSKYXARS0	606	946	HNMNKYXB1GT	WNCHKYMA02T	CODYKYXADS0	466	MM
KY	THACKER-GRGSBY	0419	PIPPA PASSES	PPSSKYXARS0	606	368	HNMNKYXB1GT	WNCHKYMA02T	CODYKYXADS0	466	MM
KY	THACKER-GRGSBY	0419	TOPMOST	TPMSKYXARS0	606	447	HNMNKYXB1GT	WNCHKYMA02T	CODYKYXADS0	466	MM
KY	COALFIELDS	0408	GRETHEL	GRTHKYXEDS0	606	587	HRLDKYXE1GT	WNCHKYMA02T		466	MM
KY	COALFIELDS	0408	HAROLD	HRLDKYXEDS0	606	478	HRLDKYXE1GT	WNCHKYMA02T		466	MM
KY	COALFIELDS	0408	HAROLD	HRLDKYXEDS0	606	479	HRLDKYXE1GT	WNCHKYMA02T		466	MM
KY	COALFIELDS	0408	WHEELWRIGHT	WHLWKYXADS0	606	452	HRLDKYXE1GT	WNCHKYMA02T		466	MM
KY	GENERAL-KY	0407	BEREA	BEREKYXADS0	606	985	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	BEREA	BEREKYXADS0	606	986	LXTNKYXA08T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	BRYANTSVILLE	BTVLKYXARS2	606	548	LXTNKYXA08T	LXTNKYXA08T	BEREKYXADS0	466	SI
KY	GENERAL-KY	0407	HAZARD	HZRDKYXADS0	606	435	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	HAZARD	HZRDKYXADS0	606	436	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	HAZARD	HZRDKYXADS0	606	439	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	HAZARD	HZRDKYXADS0	606	487	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	HUSTONVILLE	HTVLKYXEDS0	606	346	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LANCASTER	LNCSKYXADS0	606	792	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEATHERWOOD	LTWDKYXARS0	606	675	LXTNKYXA08T	LXTNKYXA08T	HZRDKYXADS0	466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYDS0	606	212	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYDS0	606	213	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYDS0	606	214	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYDS0	606	215	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXAMD0	606	216	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXFDS0	606	219	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY02CM2	606	221	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYDDCM1	606	222	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXFDS0	606	223	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXFDS0	606	224	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	225	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	226	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	455	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	227	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	229	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	230	LXTNKYXA08T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	231	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	232	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	233	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	243	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	244	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXCDS0	606	245	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	246	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	252	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	253	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	254	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	255	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYUKDS0	606	257	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	258	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	259	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	260	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXGDS0	606	263	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXGDS0	606	264	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXBDS0	606	266	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXBDS0	606	268	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXBDS0	606	269	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXCDS0	606	271	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXCDS0	606	272	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXCDS0	606	273	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	275	LXTNKYXA08T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	276	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	277	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	278	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	280	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	281	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	288	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXEDS0	606	293	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXEDS0	606	294	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXFDS0	606	296	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXEDS0	606	299	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY24OMD	606	312	LXTNKYXA08T			466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY02CM1	606	321	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYUKDS0	606	323	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	330	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	333	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXBDS0	606	335	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	338	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	339	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY01CM1	606	351	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	352	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	357	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY02CM2	606	361	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	367	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	373	LXTNKYXA08T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXDDS0	606	373	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	381	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	385	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	388	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	389	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	425	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	455	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYDDCM1	606	461	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	532	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY02CM2	606	533	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKY02CM2	606	537	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXGDS0	606	543	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXA2MD	606	875	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXADS1	606	892	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYXCDS0	606	971	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYH03	606	489	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LEXINGTON	LXTNKYYYH03	606	536	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	LIBERTY	LBRTKYXADS0	606	787	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MIDWAY	MDWYKYXARS0	606	846	LXTNKYXA08T	LXTNKYXA08T	VRSLKYXADS0	466	SI
KY	GENERAL-KY	0407	NICHOLASVILLE	NCVLKYXADS0	606	881	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	NICHOLASVILLE	NCVLKYXADS0	606	885	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	NICHOLASVILLE	NCVLKYXADS0	606	887	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	PAINT LICK	PNLCKYXERS0	606	925	LXTNKYXA08T	LXTNKYXA08T	BEREKYXADS0	466	SI
KY	GENERAL-KY	0407	VERSAILLES	VRSLKYXADS0	606	873	LXTNKYXA08T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	VERSAILLES	VRSLKYXADS0	606	879	LXTNKYXA08T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	VICCO	VICCKYXARL0	606	476	LXTNKYXA08T	LXTNKYXA08T	HZRDKYXADS0	466	SI
KY	GENERAL-KY	0407	WILMORE	WLMRKYXARS0	606	858	LXTNKYXA08T	LXTNKYXA08T	NCVLKYXADS0	466	SI
KY	PEOPLES RURAL-KY	0415	ANNVILLE	ANVLKYXADS0	606	364	MCKEKYXAIGT	WNCHKYMA02T	MCKEKYXADS0	466	MM
KY	PEOPLES RURAL-KY	0415	BOONEVILLE	BNVLKYXADS0	606	593	MCKEKYXAIGT	WNCHKYMA02T	MCKEKYXADS0	466	MM
KY	PEOPLES RURAL-KY	0415	MCKEE	MCKEKYXADS0	606	287	MCKEKYXAIGT	WNCHKYMA02T		466	MM
KY	PEOPLES RURAL-KY	0415	SAND GAP	SNDGKYXADS0	606	965	MCKEKYXAIGT	WNCHKYMA02T	MCKEKYXADS0	466	MM
KY	CONTEL-KY	0410	AUGUSTA	AGSTKYXARS0	606	756	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	BROOKSVILLE	BKVLKYXARS0	606	735	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	DOVER	DOVRKYXARS0	606	882	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	FERNLEAF	FRNLKYXARS0	606	883	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	GERMANTOWN	GMTWKYXARS0	606	728	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	JOHNSVILLE	JHVLKYXARS0	606	747	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	LEWISBURG	LWGMKYXARS0	606	742	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	MAYSLICK	MYLCKYXARS0	606	763	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	MT OLIVET	MTOLKYXARS0	606	724	MRHDKYXA02T	LXTNKYXA08T	WASHKYXADS0	466	MM
KY	CONTEL-KY	0410	WASHINGTON	WASHKYXADS0	606	759	MRHDKYXA02T	LXTNKYXA08T		466	MM
KY	GENERAL-KY	0407	EWING	EWNGKYXARS0	606	267	MRHDKYXA02T	LXTNKYXA08T	FMBGKYXADS0	466	SI
KY	GENERAL-KY	0407	FLEMINGSBURG	FMBGKYXADS0	606	845	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	FLEMINGSBURG	FMBGKYXADS0	606	849	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	GARRISON	GRSNKYXADS0	606	757	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	HILLSBORO	HLBOKYXARS0	606	876	MRHDKYXA02T	LXTNKYXA08T	FMBGKYXADS0	466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	MOREHEAD	MRHDKYXADS0	606	780	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MOREHEAD	MRHDKYADIMD	606	782	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MOREHEAD	MRHDKYXADS0	606	783	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MOREHEAD	MRHDKYXADS0	606	784	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	OLIVE HILL	OLHLKYXADS0	606	286	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	OWINGSVILLE	OWVLKYXADS0	606	674	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	SALT LICK	SLLCKYXARS0	606	683	MRHDKYXA02T	LXTNKYXA08T	OWVLKYXADS0	466	SI
KY	GENERAL-KY	0407	SHARPSBURG	SHBGKYXARS0	606	247	MRHDKYXA02T	LXTNKYXA08T	OWVLKYXADS0	466	SI
KY	GENERAL-KY	0407	TOLLESBORO	TLBOKYXADS0	606	798	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	TOLLESBORO	TLBOKYXADS0	606	799	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	VANCEBURG	VNBGKYXARS0	606	796	MRHDKYXA02T	LXTNKYXA08T	TLBOKYXADS0	466	SI
KY	GENERAL (0772)	0407	MOREHEAD	MRHDKYADIMD	606	776	MRHDKYXA02T	LXTNKYXA08T		466	SI
KY	FOOTHILLS	0406	BLAINE	BLANKYXARS0	606	652	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	CHAPMAN	CPMNKYXARS0	606	673	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	FALLSBURG	FLBGKYXARS0	606	686	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	FLAT GAP	FLGPKYXARS0	606	265	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	ROYALTON	RYTNKYXARS0	606	884	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	SALYERSVILLE	SLVLKYXARS0	606	349	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	FOOTHILLS	0406	STAFFORDSVLE	SFVLKYXADS1	606	228	SFVLKYXA1GT	WNCHKYMA02T		466	SI
KY	FOOTHILLS	0406	STAFFORDSVLE	SFVLKYXADS0	606	297	SFVLKYXA1GT	WNCHKYMA02T	SFVLKYXADS1	466	SI
KY	CONTEL-KY	0410	BARBOURVILLE	BBVLKYXARS0	606	545	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	BARBOURVILLE	BBVLKYXARS0	606	546	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	BRODHEAD	BRHDKYXARS0	606	758	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	EAST BERNSTAD	EBRNKYXARS0	606	843	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	CONTEL-KY	0410	EUBANK	EBNKKYXARS0	606	379	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	FAUBUSH	FBSHKYXA...		871	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	FLATLICK	FLLCKYXARS0	606	542	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	LIVINGSTON	LVTNKYXARS0	606	453	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	LONDON	LONDKYXADS0	606	862	SMRTKYXA02T	LXTNKYXA08T		466	MM
KY	CONTEL-KY	0410	LONDON	LONDKYXADS0	606	864	SMRTKYXA02T	LXTNKYXA08T		466	MM
KY	CONTEL-KY	0410	LONDON	LONDKYXADS0	606	877	SMRTKYXA02T	LXTNKYXA08T		466	MM
KY	CONTEL-KY	0410	LONDON	LONDKYXADS0	606	878	SMRTKYXA02T	LXTNKYXA08T		466	MM
KY	CONTEL-KY	0410	MANCHESTER	MNCHKYXARS0	606	596	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	MANCHESTER	MNCHKYXARS0	606	598	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	MANCHESTER	MNCHKYXARS0	606	599	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	MT VERNON	MTVRKYXARS0	606	256	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	ONEIDA	ONEDKYXARS0	606	847	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	SHOPVILLE	SOVLKYXARS0	606	274	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	CONTEL-KY	0410	WHITE LILY	WHLLKYXARS0	606	382	SMRTKYXA02T	LXTNKYXA08T	LONDKYXADS0	466	MM
KY	GENERAL-KY	0407	ALBANY	ALBYKYXADS0	606	387	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	BURNSIDE	BRSDKYXADS0	606	561	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MONTICELLO	MNTIKYXADS0	606	340	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MONTICELLO	MNTIKYXADS0	606	343	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	MONTICELLO	MNTIKYXADS0	606	348	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	NANCY	NANCKYXARS0	606	636	SMRTKYXA02T	LXTNKYXA08T	SMRTKYXADS0	466	SI
KY	GENERAL-KY	0407	SOMERSET	SMRTKYXADS0	606	676	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	SOMERSET	SMRTKYXADS0	606	677	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	SOMERSET	SMRTKYXADS0	606	678	SMRTKYXA02T	LXTNKYXA08T		466	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL-KY	0407	SOMERSET	SMRTKYXADS0	606	679	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	GENERAL-KY	0407	SOMERSET	SMRTKYXACM1	606	688	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	HIGHLAND-GTKY	4002	PINE KNOT	PNKNKYXADS0	606	354	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	HIGHLAND-GTKY	4002	STEARNS WHITL	STRNKYXADS0	606	376	SMRTKYXA02T	LXTNKYXA08T		466	SI
KY	MOUNTN RURAL	0414	CAMPTON	CMTNKYXADS0	606	668	WLBTKYXA01T	LXTNKYXA08T		466	SI
KY	MOUNTN RURAL	0414	EZEL	EZELKYXARS1	606	725	WLBTKYXA01T	LXTNKYXA08T	FRBGKYXADS0	466	SI
KY	MOUNTN RURAL	0414	FRENCHBURG	FRBGKYXADS0	606	768	WLBTKYXA01T	LXTNKYXA08T		466	SI
KY	MOUNTN RURAL	0414	HAZEL GREEN	HZGRKYXARS3	606	662	WLBTKYXA01T	LXTNKYXA08T	CMTNKYXADS0	466	SI
KY	MOUNTN RURAL	0414	JEPTHA	JPTHKYXARS2	606	522	WLBTKYXA01T	LXTNKYXA08T	WLBTKYXADS1	466	SI
KY	MOUNTN RURAL	0414	SANDY HOOK	SNDHKYXADS0	606	738	WLBTKYXA01T	LXTNKYXA08T		466	SI
KY	MOUNTN RURAL	0414	WEST LIBERTY	WLBTKYXADS1	606	743	WLBTKYXA01T	LXTNKYXA08T		466	SI
KY	COALFIELDS	0408	HAROLD	HRLDKY01CM1	606	477	WNCHKYMA02T	WNCHKYMA02T		466	MM
KY	CONTEL-KY	0410	IRVINE	IRVNKYXADS0	606	723	WNCHKYMA02T	WNCHKYMA02T		466	MM
KY	CONTEL-KY	0410	IRVINE	IRVNKYXADS0	606	726	WNCHKYMA02T	WNCHKYMA02T		466	MM
KY	CONTEL-KY	0410	JENKINS	JNKNKYXADS0	606	832	WNCHKYMA02T	WNCHKYMA02T		466	MM
KY	LESLIE COUNTY	0411	BUCKHORN	BCKHKYXEDS0	606	398	WNCHKYMA02T	WNCHKYMA02T		466	SI
KY	LESLIE COUNTY	0411	CANOE	CANOKYXARS0	606	295	WNCHKYMA02T	WNCHKYMA02T	BCKHKYXEDS0	466	SI
KY	GENERAL (0772)	0407	LEXINGTON	LXTNKY02CM3	606	421	LXTNKYXA08T	LXTNKYXA08T		468	SI

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Table S Kentucky (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
KY	GENERAL (0772)	0407	LEXINGTON	LXTNKYYYDS0	606	422	LXTNKYXA08T	LXTNKYXA08T		468	SI
KY	GENERAL (0772)	0407	LEXINGTON	LXTNKYYYDS0	606	514	LXTNKYXA08T	LXTNKYXA08T		468	SI

Table T Louisiana

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	CTE OF CENTRAL LA	0423	CALCASIEU	CLCSLAXARS1	318	659	ALXNLAMA05T	SHPTLAMA0GT	GLNMLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	GLENMORA	GLNMLAXADS0	318	748	ALXNLAMA05T	SHPTLAMA0GT		486	MM
LA	CTE OF CENTRAL LA	0423	JENA	JENALAXADS0	318	992	ALXNLAMA05T	SHPTLAMA0GT		486	MM
LA	CTE OF CENTRAL LA	0423	OLLA	OLLALAXARS1	318	495	ALXNLAMA05T	SHPTLAMA0GT	JENALAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	TULLOS	TLLSLAXARS1	318	534	ALXNLAMA05T	SHPTLAMA0GT	JENALAXADS0	486	MM
LA	ELIZABETH	0430	ELIZABETH	ELZBLAXADS0	318	634	ALXNLAMA05T	SHPTLAMA0GT		486	MM
LA	ELIZABETH	0430	PITKIN	PTKNLAXARS1	318	358	ALXNLAMA05T	SHPTLAMA0GT	ELZBLAXADS0	486	MM
LA	STAR	0441	CHENEYVILLE	CYVLLAXADS0	318	279	ALXNLAMA05T	SHPTLAMA0GT		486	MM
LA	CTE OF CENTRAL LA	0423	BIG CANE	BGCNLAXARS1	318	939	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	BORDELONVLE	BDVLLAXARS1	318	997	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	COTTONPORT	CTPTLAXADS0	318	876	CTPTLAXA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF CENTRAL LA	0423	MANSURA	MNSRLAXARS1	318	964	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	MOREAUVILLE	MOVLLAXARS1	318	985	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	PLAUCHEVILLE	PCVLLAXARS1	318	922	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	SIMMESPORT	SMPTLAXARS1	318	941	CTPTLAXA0GT	SHPTLAMA0GT	CTPTLAXADS0	486	MM
LA	CTE OF CENTRAL LA	0423	MANGHAM	MNGHLAXADS0	318	248	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF CENTRAL LA	0423	WISNER	WSNRLAXADS0	318	724	MONRLAMA06T	SHPTLAMA0GT		486	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	CTE OF CHATHAM	0427	CHATHAM	CHHMLAXADS0	318	249	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF CHATHAM	0427	HEBRON	HBRNLAXARS1	318	246	MONRLAMA06T	SHPTLAMA0GT	CHHMLAXADS0	486	MM
LA	CTE OF NO LA	0436	CHOUDRANT	CHORLAXADS0	318	768	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF NO LA	0436	MARION	MARNLAXADS0	318	292	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF NO LA	0436	OAK RIDGE	OKRGLAXADS0	318	244	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF NO LA	0436	SPENCER	SPNCLAXARS1	318	726	MONRLAMA06T	SHPTLAMA0GT	MARNLAXADS0	486	MM
LA	NORTHEAST-LA	0435	BONITA	BONTLAXARS1	318	823	MONRLAMA06T	SHPTLAMA0GT	CNSTLAXADS0	486	MM
LA	NORTHEAST-LA	0435	COLLINSTON	CNSTLAXADS0	318	874	MONRLAMA06T	SHPTLAMA0GT		486	MM
LA	CTE OF NO LA	0436	COTTON VALLY	CTVYLAXARS1	318	832	PLDNLAXA0GT	SHPTLAMA0GT	PLDNLAXADS0	486	MM
LA	CTE OF NO LA	0436	PLAIN DEALNG	PLDNLAXADS0	318	326	PLDNLAXA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NW LA	0431	CULLEN	SPHLLAXBRS1	318	994	PLDNLAXA0GT	SHPTLAMA0GT	SPHLLAXADS0	486	MM
LA	CTE OF NW LA	0431	SAREPTA	SRPTLAXADS0	318	847	PLDNLAXA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NW LA	0431	SHONGALOO	SHNGLAXARS1	318	846	PLDNLAXA0GT	SHPTLAMA0GT	PLDNLAXADS0	486	MM
LA	CTE OF NW LA	0431	SPRINGHILL	SPHLLAXADS0	318	539	PLDNLAXA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NW LA	0431	SPRINGHILL	SPHLLAXADS0	870	859	PLDNLAXA0GT	SHPTLAMA0GT		486	MM
LA	CAMPTI-PLEASANT HILL	0426	CAMPTI	CAMPLAXADS0	318	476	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CAMPTI-PLEASANT HILL	0426	CRESTON	CETNLAXADS0	318	875	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CAMPTI-PLEASANT HILL	0426	PELICAN	PLCNLAXADS0	318	755	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CAMPTI-PLEASANT HILL	0426	PLEASANT HL	PLHLLAXADS0	318	796	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NO LA	0436	ATHENS	ATHNLAXADS0	318	258	SHPTLAMA0GT	SHPTLAMA0GT		486	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	CTE OF NO LA	0436	RODESSA	RDSSLAXARS1	318	223	SHPTLAMA0GT	SHPTLAMA0GT	VIVNLAXADS0	486	MM
LA	CTE OF NW LA	0431	BELCHER	BLCHLAXARS1	318	378	SHPTLAMA0GT	SHPTLAMA0GT	VIVNLAXADS0	486	MM
LA	CTE OF NW LA	0431	GILLIAM	GLLMLAXARS1	318	296	SHPTLAMA0GT	SHPTLAMA0GT	VIVNLAXADS0	486	MM
LA	CTE OF NW LA	0431	HOSSTON	HSTNLAXARS1	318	287	SHPTLAMA0GT	SHPTLAMA0GT	VIVNLAXADS0	486	MM
LA	CTE OF NW LA	0431	IDA	IDA LAXARS1	318	284	SHPTLAMA0GT	SHPTLAMA0GT	VIVNLAXADS0	486	MM
LA	CTE OF NW LA	0431	VIVIAN	VIVNLAXADS0	318	672	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NW LA	0431	VIVIAN, LA	VIVNLAXADS0	318	375	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF NW LA	0431	VIVIAN, TX	VIVNLAXADS0	318	672	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CTE OF RINGGOLD	0439	RINGGOLD	RNGLLAXADS0	318	894	SHPTLAMA0GT	SHPTLAMA0GT		486	MM
LA	CAMERON	4476	CAMERON	CMRNLAXADS0	318	775	CRLYLAXA1GT	LFYTLAMA0GT		488	MM
LA	CAMERON	4476	CARLYSS	CRLYLAXA1GT	318	583	CRLYLAXA1GT	LFYTLAMA0GT		488	MM
LA	CAMERON	4476	CARYLSS	CRLYLAXADS1	318	558	CRLYLAXA1GT	LFYTLAMA0GT		488	MM
LA	CAMERON	4476	CREOLE	CRELLAXARS1	318	542	CRLYLAXA1GT	LFYTLAMA0GT	CMRNLAXADS0	488	MM
LA	CAMERON	4476	GRND CHENIER	GRCHLAXARS1	318	538	CRLYLAXA1GT	LFYTLAMA0GT	CMRNLAXADS0	488	MM
LA	CAMERON	4476	HACKBERRY	HCKBLAXARS1	318	762	CRLYLAXA1GT	LFYTLAMA0GT	CRLYLAXADS0	488	MM
LA	CAMERON	4476	JOHNSON BYOU	JHBYLAXARS1	318	569	CRLYLAXA1GT	LFYTLAMA0GT	CMRNLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	CANKTON	CNTNLAXARS1	318	668	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	CHURCH POINT	CHPNLAXADS0	318	684	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	CTE OF EVANGELINE	0434	IOTA	IOTALAXARS1	318	779	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	MAMOU	MAMOLAXADS0	318	468	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	CTE OF EVANGELINE	0434	SUNSET	SNSTLAXARS1	318	662	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF SE LA	0424	ARNAUDVILLE	ARVLLAXARS1	318	754	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF SE LA	0424	BREAUX BRDGE	BRBRLAXADS0	318	332	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	CTE OF SE LA	0424	CECELIA	CECLLAXARS1	318	667	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF SE LA	0424	HENDERSON	HNSNLAXARS1	318	228	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	CTE OF SE LA	0424	PARKS	PRKSLAXARS1	318	845	LFYTLAMA0GT	LFYTLAMA0GT	BRBRLAXADS0	488	MM
LA	DELCAMBRE	0428	DELCAMBRE	DLCMLAXADS0	318	685	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	KAPLAN	0432	FORKED ISLND	FRISLAXARS0	318	642	LFYTLAMA0GT	LFYTLAMA0GT	KPLNLAXADS0	488	MM
LA	KAPLAN	0432	KAPLAN	KPLNLAXADS0	318	225	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	KAPLAN	0432	KAPLAN	KPLNLAXADS0	318	643	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	KAPLAN	0432	KAPLAN	KPLNLAXADS0	318	652	LFYTLAMA0GT	LFYTLAMA0GT		488	MM
LA	KAPLAN	0432	PECAN ISLAND	PCISLAXARS0	318	737	LFYTLAMA0GT	LFYTLAMA0GT	KPLNLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	DEQUINCY	DQNCLAXADS0	318	786	LKCHLADT03T	LFYTLAMA0GT		488	MM
LA	CTE OF SW LA	0442	RAGLEY	RGLYLAXARS1	318	725	LKCHLADT03T	LFYTLAMA0GT	DQNCLAXADS0	488	MM
LA	CTE OF SW LA	0442	STARKS	STKSLAXARS1	318	743	LKCHLADT03T	LFYTLAMA0GT	DQNCLAXADS0	488	MM
LA	ELIZABETH	0430	SUGAR TOWN	SGTWLAXADS0	318	328	LKCHLADT03T	LFYTLAMA0GT		488	MM
LA	CTE OF EVANGELINE	0434	CHATAIGNIER	CHTGLAXARS1	318	885	VLPLLAXA0GT	LFYTLAMA0GT	VLPLLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	PINE PRAIRE	PNPRLAXARS1	318	599	VLPLLAXA0GT	LFYTLAMA0GT	VLPLLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	VILLE PLATT	VLPLLAXADS0	318	360	VLPLLAXA0GT	LFYTLAMA0GT		488	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	CTE OF EVANGELINE	0434	VILLE PLATT	VLPLLAXADS0	318	363	VLPLLAXA0GT	LFYTLAMA0GT		488	MM
LA	CTE OF SW LA	0442	TURKEY CREEK	TRCKLAXADS0	318	461	VLPLLAXA0GT	LFYTLAMA0GT	VLPLLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	BASILE	BASLLAXARS1	318	432	WLSHLAXA02T	LFYTLAMA0GT	KNDRLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	ELTON	ELTOLAXARS1	318	584	WLSHLAXA02T	LFYTLAMA0GT	KNDRLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	FENTON	FNTNLAXARS1	318	756	WLSHLAXA02T	LFYTLAMA0GT	WLSHLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	HAYES	HAYSLAXARS1	318	622	WLSHLAXA02T	LFYTLAMA0GT	WLSHLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	IOWA	IOWALAXADS0	318	582	WLSHLAXA02T	LFYTLAMA0GT		488	MM
LA	CTE OF EVANGELINE	0434	KINDER	KNDRLAXADS0	318	738	WLSHLAXA02T	LFYTLAMA0GT		488	MM
LA	CTE OF EVANGELINE	0434	LACASSINE	LCSNLAXARS1	318	588	WLSHLAXA02T	LFYTLAMA0GT	WLSHLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	ROANOKE	RONKLAXARS1	318	753	WLSHLAXA02T	LFYTLAMA0GT	WLSHLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	THORNWELL	THWLLAXARS1	318	587	WLSHLAXA02T	LFYTLAMA0GT	WLSHLAXADS0	488	MM
LA	CTE OF EVANGELINE	0434	WELSH	WLSHLAXADS0	318	734	WLSHLAXA02T	LFYTLAMA0GT		488	MM
LA	CTE OF SW LA	0442	OBERLIN	OBRLLAXADS0	318	639	WLSHLAXA02T	LFYTLAMA0GT		488	MM
LA	CTE OF SW LA	0442	REEVES	REVSLAXADS0	318	666	WLSHLAXA02T	LFYTLAMA0GT		488	MM
LA	LAFOURCHE	0433	GALLIANO	GALNLAXARS1	504	632	LARSLAXA02T	LARSLAXA02T	LARSLAXADS0	490	MM
LA	LAFOURCHE	0433	GOLDN MEADOW	GLMDLAXARS1	504	475	LARSLAXA02T	LARSLAXA02T	LARSLAXADS0	490	MM
LA	LAFOURCHE	0433	GRAND ISLE	GDISLAXARS1	504	787	LARSLAXA02T	LARSLAXA02T	LARSLAXADS0	490	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	LAFOURCHE	0433	LAROSE	LARSLAXADS0	504	672	LARSLAXA02T	LARSLAXA02T		490	MM
LA	LAFOURCHE	0433	LAROSE	LARSLA02CM1	504	691	LARSLAXA02T	LARSLAXA02T		490	MM
LA	LAFOURCHE	0433	LAROSE	LARSLAXADS0	504	693	LARSLAXA02T	LARSLAXA02T		490	MM
LA	LAFOURCHE	0433	LAROSE	LARSLAXADS0	504	696	LARSLAXA02T	LARSLAXA02T		490	MM
LA	LAFOURCHE	0433	LAROSE	LARSLAXADS0	504	798	LARSLAXA02T	LARSLAXA02T		490	MM
LA	LAFOURCHE	0433	LEEVILLE	LEEVLAXBDS0	504	396	LARSLAXA02T	LARSLAXA02T		490	MM
LA	RESERVE	0438	GARYVILLE	GRVLLAXADS0	504	535	RSRVLAXB0GT	New OrleansLAMA20T		490	MM
LA	RESERVE	0438	GARYVILLE	GRVLLAXADS0	504	742	RSRVLAXB0GT	New OrleansLAMA20T		490	MM
LA	RESERVE	0438	RESERVE	RSRVLAXBDS0	504	479	RSRVLAXB0GT	New OrleansLAMA20T		490	MM
LA	RESERVE	0438	RESERVE	RSRVLAXBDS0	504	536	RSRVLAXB0GT	New OrleansLAMA20T		490	MM
LA	CTE OF EAST LA	0440	GREENSBURG	GNBGLAXADS0	225	222	BTRGLAGW0GT	BTRGLAGW0GT		492	MM
LA	CTE OF EAST LA	0440	MONTPELIER	MTPLLAXARS1	225	777	BTRGLAGW0GT	BTRGLAGW0GT	GNBGLAXADS0	492	MM
LA	STAR	0441	INNIS	INNSLAXARS1	225	492	BTRGLAGW0GT	BTRGLAGW0GT	MRNGLAXADS0	492	MM
LA	STAR	0441	LIVONIA	LIVNLAXARS1	225	637	BTRGLAGW0GT	BTRGLAGW0GT	MRNGLAXADS0	492	MM
LA	STAR	0441	MARINGOUIN	MRNGLAXADS0	225	625	BTRGLAGW0GT	BTRGLAGW0GT		492	MM
LA	STAR	0441	ROSEDALE	RSDLLAXARS1	225	648	BTRGLAGW0GT	BTRGLAGW0GT	MRNGLAXADS0	492	MM
LA	E ASCENSION	0429	DUTCHTOWN	DTTWLAXARS1	225	673	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM
LA	E ASCENSION	0429	DUTCHTOWN	DTTWLAXARS1	225	677	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM
LA	E ASCENSION	0429	DUTCHTOWN	DTTWLAXARS1	225	744	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM
LA	E ASCENSION	0429	FR SETTLEMNT	FSTLLAXADS0	225	698	GNZLLAXA0GT	BTRGLAGW0GT		492	MM
LA	E ASCENSION	0429	GALVEZ	GLVZLAXARS1	225	622	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM
LA	E ASCENSION	0429	GONZALES	GNZLLAXADS1	225	621	GNZLLAXA0GT	BTRGLAGW0GT		492	MM

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Table T Louisiana (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
LA	E ASCENSION	0429	GONZALES	GNZLLAXADS1	225	644	GNZLLAXA0GT	BTRGLAGW0GT		492	MM
LA	E ASCENSION	0429	GONZALES	GNZLLAXADS1	225	647	GNZLLAXA0GT	BTRGLAGW0GT		492	MM
LA	E ASCENSION	0429	GONZALES	GNZLLAXADS1	225	743	GNZLLAXA0GT	BTRGLAGW0GT		492	MM
LA	E ASCENSION	0429	GONZALES	GNZLLAXADS1	225	022	GNZLLAXA0GT	BTRGLAGW0GT		492	MM
LA	E ASCENSION	0429	MAUREPAS	MRPSLAXARS1	225	695	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM
LA	E ASCENSION	0429	SORRENTO	SRNTLAXARS1	225	675	GNZLLAXA0GT	BTRGLAGW0GT	GNZLLAXADS1	492	MM

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Table U Mississippi

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
MS	BRUCE	0447	BRUCE	BRUCMSXADS1	601	983	BRUCMSXA06T	GNWDMSMA06T		482	MM
MS	BRUCE	0447	BRUCE	BRUCMSXAO6T	601	030	BRUCMSXA06T	GNWDMSMA06T		482	MM
MS	BRUCE	0447	BRUCE	LONGMSXADS1	601	414	BRUCMSXA06T	GNWDMSMA06T		482	MM
MS	BRUCE	0447	BRUCE	PRKRMSXADS1	601	413	BRUCMSXA06T	GNWDMSMA06T		482	MM
MS	BRUCE	0447	BRUCE	PTBOMSXADS1	601	412	BRUCMSXA06T	GNWDMSMA06T		482	MM
MS	DELTA	0452	ACKERMAN	ACKRMSXADS0	601	285	CLMBMSMA06T	GNWDMSMA06T		482	MM
MS	DELTA	0452	CHESTER	CHESMSXARS1	601	387	CLMBMSMA06T	GNWDMSMA06T	ACKRMSXADS0	482	MM
MS	FRANKLIN	0454	ARTSIA-CRWFD	ARTSMSXADS0	601	272	CLMBMSMA06T	GNWDMSMA06T		482	MM
MS	LAMAR	0301	KENNEDY	KNDYALXARS1	205	596	CLMBMSMA06T	GNWDMSMA06T	MLPTALXADS0	482	MM
MS	LAMAR	0301	MILLPORT	MLPTALXADS0	205	662	CLMBMSMA06T	GNWDMSMA06T		482	MM
MS	FRANKLIN	0454	HOLLY BLUFF	HLBLMSXARS1	601	828	GNWDMSMA06T	GNWDMSMA06T	LOUSMSXADS0	482	MM
MS	FRANKLIN	0454	ISOLA	ISOLMSXARS1	601	962	GNWDMSMA06T	GNWDMSMA06T	LOUSMSXADS0	482	MM
MS	FRANKLIN	0454	LOUISE	LOUSMSXADS0	601	836	GNWDMSMA06T	GNWDMSMA06T		482	MM
MS	FRANKLIN	0454	MERIGOLD	MRGLMSXADS0	601	748	GNWDMSMA06T	GNWDMSMA06T		482	MM
MS	LAKESIDE	0457	GLEN ALLAN	GLALMSXARS0	601	839	GNWDMSMA06T	GNWDMSMA06T	SNFLMSXADS0	482	SI
MS	MOUND BAYOU	0462	MOUND BAYOU	MNBYMSXADS0	601	741	GNWDMSMA06T	GNWDMSMA06T		482	SI
MS	SLEDGE	0466	SUNFLOWER	SNFLMSXADS0	601	569	GNWDMSMA06T	GNWDMSMA06T		482	SI
MS	ALLTEL-MS	0453	BASSFIELD	BSFDMSXARS1	601	943	HTBGMSMA06T	JCSNMSCP06T	PRNTMSXADS0	482	MM
MS	ALLTEL-MS	0453	PRENTISS	PRNTMSXA	601	792	HTBGMSMA06T	JCSNMSCP06T		482	MM
MS	FRANKLIN	0454	BENNDALE	BNDLMSXARS0	601	945	HTBGMSMA06T	JCSNMSCP06T	NWAGMSXADS0	482	MM
MS	FRANKLIN	0454	JANICE	JNCEMSXARS0	601	598	HTBGMSMA06T	JCSNMSCP06T	NWAGMSXADS0	482	MM
MS	FRANKLIN	0454	NEW AUGUSTA	NWAGMSXADS0	601	964	HTBGMSMA06T	JCSNMSCP06T		482	MM
MS	S E MISS	3301	LEAKESVILLE	LKVLMSXADS2	601	394	HTBGMSMA06T	JCSNMSCP06T		482	SI

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Table U Mississippi (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
MS	S E MISS	3301	NEELY	NELYMSXARS1	601	525	HTBGMSMA06T	JCSNMSCP06T	LKVLMSXADS2	482	SI
MS	S E MISS	3301	SAND HILL	SNHLMSXARS1	601	989	HTBGMSMA06T	JCSNMSCP06T	LKVLMSXADS2	482	SI
MS	S E MISS	3301	STATE LINE	STTLMSXARS1	601	848	HTBGMSMA06T	JCSNMSCP06T	LKVLMSXADS2	482	SI
MS	ALLTEL-MS	0453	FLORENCE	FLRNMSXA	601	845	JCSNMSCP06T	JCSNMSCP06T		482	MM
MS	BAY SPRINGS	0446	BAY SPRINGS	BYSPMSXADS0	601	764	JCSNMSCP06T	JCSNMSCP06T		482	SI
MS	BAY SPRINGS	0446	BIG CREEK	BGCKMSXARS0	601	763	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	HOMEWOOD	HMWDMSXARS0	601	536	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	LOUIN	LOUNMSXARS0	601	739	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	OLD TAYLRSVL	OLTYMSXARS0	601	725	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	PITTMAN	PTMNMSXARS0	601	752	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	POLKVILLE	PLVLMSXARS0	601	537	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	ROSEHILL	RSHLMSXARS0	601	727	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	SOSO	SOSOMSXARS1	601	729	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	SYLVARENA	SYLVMSXARS0	601	789	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	WALTERS	WLTRMSXARS0	601	546	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	BAY SPRINGS	0446	WHITE OAK	WHOKMSXARS0	601	269	JCSNMSCP06T	JCSNMSCP06T	BYSPMSXADS0	482	SI
MS	DELTA	0452	EAGLE LAKE,LA	EGLKMSXADS0	318	275	JCSNMSCP06T	JCSNMSCP06T		482	MM
MS	DELTA	0452	EAGLE LAKE,MS	EGLKMSXADS0	601	279	JCSNMSCP06T	JCSNMSCP06T		482	MM

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Table U Mississippi (continued)

ST	Company		Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
MS	FRANKLIN	0454	BARLOW	BRLWMSXARS0	601	277	JCSNMSCP06T	JCSNMSCP06T	MDVLMSXADS0	482	MM
MS	FRANKLIN	0454	CROSBY	CRSBMSXARS0	601	639	JCSNMSCP06T	JCSNMSCP06T	MDVLMSXADS0	482	MM
MS	FRANKLIN	0454	EDDICETON	EDTNMSXARS0	601	532	JCSNMSCP06T	JCSNMSCP06T	MDVLMSXADS0	482	MM
MS	FRANKLIN	0454	HERMANVILLE	HRVLMSXARS0	601	535	JCSNMSCP06T	JCSNMSCP06T	MDVLMSXADS0	482	MM
MS	FRANKLIN	0454	MEADVILLE	MDVLMSXADS0	601	384	JCSNMSCP06T	JCSNMSCP06T		482	MM
MS	FRANKLIN	0454	NEW HEBRON	NWHBMSXADS0	601	694	JCSNMSCP06T	JCSNMSCP06T		482	MM
MS	GEORGETOWN	0456	GEORGETOWN	GRTWMSXADS0	601	858	JCSNMSCP06T	JCSNMSCP06T		482	SI
MS	DECATUR	0451	DECATUR	DCTRMSXADS0	601	635	MRDNMSTL07T	JCSNMSCP06T		482	SI
MS	NOXAPATER	0461	NOXAPATER	NXPRMSXADS0	601	724	MRDNMSTL07T	JCSNMSCP06T		482	MM
MS	CALHOUN CTY	0448	CALHOUN CITY	CLCYMSXADS0	601	628	TUPLMSMA07T	GNWDMSMA06T		482	SI
MS	CALHOUN CTY	0448	SLATE SPRNGS	SLSPMSXARS1	601	637	TUPLMSMA07T	GNWDMSMA06T	CLCYMSXADS0	482	SI
MS	CALHOUN CTY	0448	VARDAMAN	VRDMMSXARS1	601	682	TUPLMSMA07T	GNWDMSMA06T	CLCYMSXADS0	482	SI
MS	FRONTIER/ MID-SOUTH	0460	GUNTOWN	GNTWMSXADS0	601	348	TUPLMSMA07T	GNWDMSMA06T		482	MM
MS	FRONTIER/ MID-SOUTH	0460	HOULKA	HOLKMSXADS0	601	568	TUPLMSMA07T	GNWDMSMA06T		482	MM
MS	FRONTIER/ MID-SOUTH	0460	RIENZI	RINZMSXADS0	601	462	TUPLMSMA07T	GNWDMSMA06T		482	MM
MS	FRONTIER/ MID-SOUTH	0460	TISHOMINGO	TSMGMSXADS0	601	438	TUPLMSMA07T	GNWDMSMA06T		482	MM
MS	FULTON	0455	FAIRVIEW	FRVWMSXARS0	601	585	TUPLMSMA07T	GNWDMSMA06T	FLTNMSXADS0	482	SI
MS	FULTON	0455	FULTON	FLTNMSXADS0	601	862	TUPLMSMA07T	GNWDMSMA06T		482	SI
MS	FULTON	0455	MANTACHIE	MNTCMSXARS0	601	282	TUPLMSMA07T	GNWDMSMA06T	FLTNMSXADS0	482	SI
MS	FULTON	0455	TREMONT	TRMTMSXARS0	601	652	TUPLMSMA07T	GNWDMSMA06T	FLTNMSXADS0	482	SI

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Table U Mississippi (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
MS	MYRTLE	0449	MYRTLE	MYRTMSXADS0	601	988	TUPLMSMA07T	JCSNMSCP06T		482	SI
MS	SMITHVILLE	0467	SMITHVILLE	SMVLMSXADS0	601	651	TUPLMSMA07T	GNWDMSMA06T		482	SI

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Table V North Carolina

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	BELL ATLANTIC	5040	GATEWOOD	GTWDNCMA38F	910	388	DAVLVADA03T			250	
NC	BELL ATLANTIC	5040	MILTON	MLTNNCMA23F	910	224	DAVLVADA03T			250	
NC	BARNARDSVILLE	0469	BARNARDSVILLE	BDVLNCXADS0	828	626	AHVLNCOH04T	AHVLNCOH04T		420	SI
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	862	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	877	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	883	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	884	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	885	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CITIZENS - NC	0473	BREVARD	BRVRNCXA88F	828	966	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	BAKERSVILLE	BAVLNCXARS0	828	688	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	BURNSVILLE	BRVLNCXARS0	828	678	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	BURNSVILLE	BRVLNCXARS0	828	682	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	GARDEN CITY	GRCYNCXARS0	828	724	AHVLNCOH04T	AHVLNCOH04T	MARNNCXBDS0	420	MM
NC	CONTEL-NC	0509	GLENWD PROVDNCE	GWPRNCXARS0	828	738	AHVLNCOH04T	AHVLNCOH04T	MARNNCXBDS0	420	MM
NC	CONTEL-NC	0509	GUNTERTOWN	GTTWNCXARS0	828	656	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	HOT SPRINGS	HTSPNCXARS0	828	622	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	MARION	MARNNCXBDS0	828	652	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MARION	MARNNCXBDS0	828	655	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MARION	MARNNCXBDS0	828	659	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MARION	MARNNCXBDS0	828	925	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MARS HILL	MRHLNCXARSM	828	680	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	MARS HILL	MRHLNCXARSM	828	689	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	MARSHALL	MRSHNCXARS0	828	649	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM
NC	CONTEL-NC	0509	MICAVILLE	MIVLNCXARS0	828	675	AHVLNCOH04T	AHVLNCOH04T	WVVLNCXADS0	420	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CONTEL-NC	0509	OLD FORT	OLFTNCXARS0	828	668	AHVLNCOH04T	AHVLNCOH04T	MARNNCXBDS0	420	MM
NC	CONTEL-NC	0509	SEVIER	SEVRNCXARS0	828	756	AHVLNCOH04T	AHVLNCOH04T	MARNNCXBDS0	420	MM
NC	CONTEL-NC	0509	WEAVERVILLE	WVVLNCXADS0	828	645	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	WEAVERVILLE	WVVLNCXADS0	828	658	AHVLNCOH04T	AHVLNCOH04T		420	MM
NC	SALUDA MTN	0498	SALUDA	SALDNCXADS0	828	749	AHVLNCOH04T	AHVLNCOH04T		420	SI
NC	CONTEL-NC	0509	MARION	MARNNCXBDS0	828	475	AHVLNCXBDS0	ANVLNCOH04T		420	MM
NC	CONTEL-NC	0509	ANDREWS	ANDRNCXADS0	828	321	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	BRYSON CITY	BRCYNCXARS0	828	488	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	CASHIERS	CSHRNCXARS0	828	743	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	CHEROKEE	CHRKNCXBRS0	828	497	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	CULLOWHEE	CLWHNCXARS0	828	227	SYLVNCXA02T	SYLVNCXA02T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	CULLOWHEE	CLWHNCXARS0	828	293	SYLVNCXA02T	SYLVNCXA02T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	FONTANA VILLAGE	FNVLNCXARS0	828	498	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	FRANKLIN	FKLNNCACCM0	828	421	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	FRANKLIN	FKLNNCXADS0	828	349	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	FRANKLIN	FKLNNCXADS0	828	369	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	FRANKLIN	FKLNNCXADS0	828	524	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	HAYESVILLE	HYVLNCXARS0	828	389	SYLVNCXA02T	AHVLNCOH04T	MRPHNCXBDS0	420	MM
NC	CONTEL-NC	0509	HIGHLANDS	HGLNNCXARS0	828	526	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	HIGHLANDS	HGLNNCXARS0	828	787	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MURPHY	MRPHNCXBDS0	828	835	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	MURPHY	MRPHNCXBDS0	828	837	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	ROBBINSVILLE	ROVLNCXARS0	828	479	SYLVNCXA02T	AHVLNCOH04T	SYLVNCXADS0	420	MM
NC	CONTEL-NC	0509	SUIT	SUITNCXARS0	828	644	SYLVNCXA02T	AHVLNCOH04T	MRPHNCXBDS0	420	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CONTEL-NC	0509	SYLVA	SYLVNCA11MD	828	506	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	SYLVA	SYLVNCA11MD	828	507	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	SYLVA	SYLVNCXACM1	828	269	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	SYLVA	SYLVNCXADS0	828	586	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	CONTEL-NC	0509	SYLVA	SYLVNCXADS0	828	631	SYLVNCXA02T	AHVLNCOH04T		420	MM
NC	ALLTEL-NC	0476	GRANITE QUARRY	GRQYNCXA27F	704	209	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	GRANITE QUARRY	GRQYNCXA27F	704	279	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	PINEVILLE	0494	PINEVILLE	PIVLNCXBDS0	704	889	CHRLNCBO05T	CHRLNCCA05T		422	SI
NC	SKYLINE	0501	BANNER ELK	BNELNCXA89F	704	898	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	SKYLINE	0501	BEECH MOUNTAIN	BEMTNCXA38F	828	387	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	SKYLINE	0501	SUGAR GROVE	SGGVNCXA29F	828	297	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	SKYLINE	0501	WATAUGA	WATGNCXA96F	828	963	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	SKYLINE	0501	WATAUGA	WATGNCXA96F	828	964	CHRLNCBO05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	ANSONVILLE	ASVLNCXARS0	704	826	CHRLNCCA05T	CHRLNCCA05T	WDBONCXADS1	422	MM
NC	ALLTEL-NC	0476	HEMBY BRIDGE	HMBRNCXARS0	704	882	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC	ALLTEL-NC	0476	INDIAN TRAIL	INTRNCXARS0	704	821	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC	ALLTEL-NC	0476	LILESVILLE	LLVLNCXARS0	704	848	CHRLNCCA05T	CHRLNCCA05T	WDBONCXADS1	422	MM
NC	ALLTEL-NC	0476	MARSHVILLE	MHVLNCXARS0	704	624	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC	ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	708	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	710	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	814	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	841	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC	ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	844	CHRLNCCA05T	CHRLNCCA05T		422	MM

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	845	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	847	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	849	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MATTHEWS	MTHWNCXCRS0	704	846	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		ALLTEL-NC	0476	MATTHEWS	MTHWNCXB84F	704	744	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXA66F	704	662	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXA66F	704	663	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXA66F	704	664	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXADS1	704	660	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXADS1	704	677	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCAT1MD	704	490	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MOORESVILLE	MRVINCXADS1	704	799	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	MORVEN	MRVNNCXARS0	704	851	CHRLNCCA05T	CHRLNCCA05T	WDBONCXADS1	422	MM
NC		ALLTEL-NC	0476	NEW SALEM	NWSLNCXARS0	704	385	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		ALLTEL-NC	0476	NORWOOD	NRWDNCXARS0	704	474	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		ALLTEL-NC	0476	PEACHLND-PLKTN	PCLDNCXARS0	704	272	CHRLNCCA05T	CHRLNCCA05T	WDBONCXADS1	422	MM
NC		ALLTEL-NC	0476	WADESBORO	WDBONCXADS1	704	690	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	WADESBORO	WDBONCXADS1	704	694	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	WADESBORO	WDBONCXADS1	704	695	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	WADESBORO	WDBONCXADS1	704	994	CHRLNCCA05T	CHRLNCCA05T		422	MM
NC		ALLTEL-NC	0476	WAXHAW	WXHWNCXA84F	704	243	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		ALLTEL-NC	0476	WAXHAW	WXHWNCXARS0	704	843	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		ALLTEL-NC	0476	WINGATE	WNGTNCXARS0	704	233	CHRLNCCA05T	CHRLNCCA05T	MTHWNCXB84F	422	MM
NC		GENERAL-NC	4334	ALTON	ALTNNCXARS0	704	764	CHRLNCCA05T	CHRLNCCA05T	MONRNCXADS0	422	SI

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	GENERAL-NC	4334	GOOSE CREEK	GSCKNCXARS0	704	753	CHRLNCCA05T	CHRLNCCA05T	MONRNCXADS0	422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	218	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	221	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	225	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	226	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	238	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	282	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	283	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	289	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	291	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	292	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCXADS0	704	296	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCAJ1MD	704	242	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	GENERAL-NC	4334	MONROE	MONRNCAJ1MD	704	242	CHRLNCCA05T	CHRLNCCA05T		422	SI
NC	SPRINT (CENTEL)-NC	0471	MOCKSVILLE	MKVLNCXADS0	336	634	CHRLNCCA05T	HCKRNCXA02T		422	MM
NC	CONCORD	0474	ALBEMARLE	ALBMNCXA98F	704	982	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	ALBEMARLE	ALBMNCXA98F	704	983	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	ALBEMARLE	ALBMNCXA98F	704	984	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	ALBEMARLE	ALBMNCXA98F	704	985	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	ALBEMARLE	ALBMNCXA98F	704	986	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	BADIN	BADNNCXARS0	704	422	CNCRNCXA03T	CNCRNCXA03T	ALBMNCXA98F	422	MM
NC	CONCORD	0474	CHNA GROV-LANDIS	CHGVNCXA85F	704	855	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CHNA GROV-LANDIS	CHGVNCXA85F	704	856	CNCRNCXA03T	CNCRNCXA03T		422	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CONCORD	0474	CHNA GROV-LANDIS	CHGVNCXA85F	704	857	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	425	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	721	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	722	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	723	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	782	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	783	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	784	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	785	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	786	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	788	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	789	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	791	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	792	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	793	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	794	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	795	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCXA78F	704	796	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	CONCORD	CNCRNCAOCM1	704	467	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	HARRISBURG	HRBGNCXA45F	704	454	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	HARRISBURG	HRBGNCXA45F	704	455	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	KANNAPOLIS	KNPLNCXA93F	704	932	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	KANNAPOLIS	KNPLNCXA93F	704	933	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	KANNAPOLIS	KNPLNCXA93F	704	934	CNCRNCXA03T	CNCRNCXA03T		422	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CONCORD	0474	KANNAPOLIS	KNPLNCXA93F	704	938	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	KANNAPOLIS	KNPLNCXA93F	704	939	CNCRNCXA03T	CNCRNCXA03T		422	MM
NC	CONCORD	0474	MOUNT PLEASANT	MNPLNCXARS0	704	436	CNCRNCXA03T	CNCRNCXA03T	CNCRNCXA78F	422	MM
NC	CONCORD	0474	NEW LONDON	NWLNNCXARS0	704	463	CNCRNCXA03T	CNCRNCXA03T	ALBMNCXA98F	422	MM
NC	CONCORD	0474	OAKBORO	OKBONCXARS0	704	485	CNCRNCXA03T	CNCRNCXA03T	ALBMNCXA98F	422	MM
NC	SPRINT (CENTEL)-NC	0471	BETHLEHEM	BHLHNCXARS0	828	495	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXBDS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	CATAWBA	CTWBNCXARS0	828	241	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXBDS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	GRANITE FALLS	GRFLNCFACM1	828	493	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	GRANITE FALLS	GRFLNCXARS0	828	313	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	GRANITE FALLS	GRFLNCXARS0	828	396	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	GRANITE FALLS	GRFLNCXARS0	828	496	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	GRANITE FALLS	GRFLNCXARS0	828	499	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-N	0471	HICKORY	HCKRNCBMCM0	828	308	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM1	828	234	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM1	828	244	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM1	828	850	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM2	828	310	HCKRNCXA02T	HCKRNCXA02T		422	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM2	828	381	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM2	828	612	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	261	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	267	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	304	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	312	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	314	HCKRNCXA02T	HCKRNCXA0		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	315	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	320	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	322	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	323	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	324	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	325	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	326	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	327	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	328	HCKRNCXA02T	HCKRNCXA02T		422	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	345	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	431	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXBDS0	828	256	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXBDS0	828	441	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXACM1	828	302	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HICKORY	HCKRNCXADS0	828	249	HCKRNCXA02T	HCKRNCXA02T		422	MM
NC	SPRINT (CENTEL)-NC	0471	HILDEBRAN	HLDBNCXARS0	828	397	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXBDS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNTAIN VIEW	MTVWNCXARS0	828	294	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	SHERRILLS FORD	SHFRNCXARS0	828	478	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXBDS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	VALDESE	VLDSNCXARS0	828	874	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	VALDESE	VLDSNCXARS0	828	879	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	SPRINT (CENTEL)-NC	0471	VALDESE	VLDSNCXARS0	828	893	HCKRNCXA02T	HCKRNCXA02T	HCKRNCXADS0	422	MM
NC	YADKIN	0511	COOLEEMEE	COLMNCXADS0	336	284	HRMYNCXA02T	CHRLNCCA05T		422	MM
NC	YADKIN	0511	HARMONY	HRMYNCXADS0	704	546	HRMYNCXA02T	CHRLNCCA05T		422	MM
NC	YADKIN	0511	IJAMES	IJAMNCXADS0	336	492	HRMYNCXA02T	CHRLNCCA05T		422	MM
NC	YADKIN	0511	NEW HOPE	NWHPNCXARS0	704	592	HRMYNCXA02T	CHRLNCCA05T	HRMYNCXADS0	422	MM
NC	YADKIN	0511	UNION GROVE	UNGVNCXBRS0	704	539	HRMYNCXA02T	CHRLNCCA05T	HRMYNCXADS0	422	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	330		GNBONCEU05T	ASBONCXA02T	424	MM
NC	RANDOLPH TMG	0496	BADIN LAKE	BDLKNCXA461	336	461	ASBONCXA02T	ELKNNCXA03T	FRMRNCXA857	424	MM
NC	RANDOLPH TMG	0496	FARMER	FRMRNCXA857	336	857	ASBONCXA02T	ELKNNCXA03T		424	MM
NC	RANDOLPH TMG	0496	JACKSON CREEK	JKCKNCXA241	336	241	ASBONCXA02T	ELKNNCXA03T	FRMRNCXA857	424	MM
NC	RANDOLPH TMG	0496	PISGAH	PSGHNCXA381	336	381	ASBONCXA02T	ELKNNCXA03T	FRMRNCXA857	424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCAQCM1	336	301	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCAQCM1	336	302	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCAQCM1	336	460	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCAQCM1	336	465	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCDMCM1	336	953	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCDMCM1	336	963	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	318	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	625	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	626	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	629	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	633	ASBONCXA02T	ASBONCXA02T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXADS0	336	636	ASBONCXA02T	ASBONCXA02T		424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXBRS0	336	672	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	ASHEBORO	ASBONCXBRS0	336	683	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	BISCOE	BISCNCXARS0	910	428	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	CANDOR	CNDRNCXARS0	910	974	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	CANDOR	CNDRNCXARS0	910	975	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT GILEAD	MTGLNCXARS0	910	439	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	RAMSEUR	RMSRNCXARS0	336	824	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	SEAGROVE	SEGVNCXARS0	336	873	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	TROY	TROYNCXARS0	910	571	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	TROY	TROYNCXARS0	910	572	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	TROY	TROYNCXARS0	910	576	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	TROY	TROYNCABCM1	910	220	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	WEST END	WENDNCXBRS0	910	673	ASBONCXA02T	ASBONCXA02T	ASBONCXADS0	424	MM
NC	YADKIN	0511	ADVANCE	ADVNNCAACM1	336	466	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	ADVANCE	ADVNNCAACM1	336	909	CRTYNCXA02T	CRTYNCXA02T		424	MM
NC	YADKIN	0511	ADVANCE	ADVNNCXARS0	336	941	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	ADVANCE	ADVNNCXARS0	336	998	CRTYNCXA02T	GNBONCEU05T		424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	YADKIN	0511	BROOKS	BRKSNCXARS0	336	467	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	BROOKS	BRKSNCXARS0	336	468	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	BROOKS	BRKSNCXADS0	336	469	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	COURTNEY	CRTYNCXADS0	336	463	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	YADKIN	0511	EAST BEND	EBNDNCXARS0	336	699	CRTYNCXA02T	GNBONCEU05T	CRTYNCXADS1	424	MM
NC	YADKIN	0511	FORBUSH	FRBSNCXBRS0	910	961	CRTYNCXA02T	GNBONCEU05T	BRKSNCXADS0	424	MM
NC	YADKIN	0511	HILLSDALE	ADVNNCXARS0	336	940	CRTYNCXA02T	GNBONCEU05T		424	MM
NC	SKYLINE	0501	BALDWIN	BLDWNCXA877	336	877	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	BALDWIN	BLDWNCXA877	336	977	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	BALDWIN	BLDWNCXA877	910	977	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	CRESTON	CETNNCXA385	336	385	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	GLADE CREEK	GLCKNCXA657	336	657	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	LANSING	LNNGNCXA384	336	384	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	NATHANS CREEK	NTCKNCXA982	910	982	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	SCOTTVILLE	SCVLNCXA359	336	359	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SKYLINE	0501	SPARTA	SPRTNCXA372	336	372	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	BOONEVILLE	BNVLNCXARS0	336	367	ELKNNCXA03T	ELKNNCXA03T	ELKNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	DOBSON	DBSNNCXBRS0	336	386	ELKNNCXA03T	ELKNNCXA03T	MTARNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	ELKIN	ELKNNCXADS0	336	526	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ELKIN	ELKNNCXADS0	336	527	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	ELKIN	ELKNNCXADS0	336	835	ELKNNCXA03T	ELKNNCXA03T		424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	ELKIN	ELKNNCXACM0	336	244	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	HAYS	HAYSNCXARS0	336	696	ELKNNCXA03T	ELKNNCXA03T	NWBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	MADISON	MDSNNCXADS0	336	445	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT AIRY	ELKNNCXACM0	336	710	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT AIRY	MTARNCXADS0	336	719	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT AIRY	MTARNCXADS0	336	783	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT AIRY	MTARNCXADS0	336	786	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MOUNT AIRY	MTARNCXADS0	336	789	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MULBERRY	MLBYNCXBRS0	336	670	ELKNNCXA03T	ELKNNCXA03T	NWBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	651	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	658	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	667	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	838	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	902	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	N WILKESBORO	NWBONCXADS0	336	903	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	NORTH WILKESBORO	ELKNNCXACM0	336	262	ELKNNCXA03T	ELKNNCXA03T		424	MM

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Table V North Carolina (continued)

S	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	SPRINT (CENTEL)-NC	0471	PILOT MOUNTAIN	PLMTNCXARS0	336	368	ELKNNCXA03T	ELKNNCXA03T	MTARNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	ROARING GAP	RRGPNCXARS0	336	363	ELKNNCXA03T	ELKNNCXA03T	ELKNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	STATE ROAD	STRDNCXARS0	336	874	ELKNNCXA03T	ELKNNCXA03T	ELKNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	WEST JEFFERSON	WJSNNCXADS0	336	246	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	YADKINVILLE	YDVLNCXARS0	336	679	ELKNNCXA03T	ELKNNCXA03T	ELKNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	YADKINVILLE	YDVLNCXARS0	336	849	ELKNNCXA03T	ELKNNCXA03T	ELKNNCXADS0	424	MM
NC	SURRY	0503	BEULAH	BELHNCXA352	336	352	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SURRY	0503	LEVEL CROSS	LVCRNCXA374	336	374	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SURRY	0503	LEVEL CROSS	LVCRNCXA374	336	401	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SURRY	0503	RED BRUSH	RDBSNCXA320	336	320	ELKNNCXA03T	ELKNNCXA03T	BELHNCXA352	424	MM
NC	SURRY	0503	SHOALS	SHLSNCXA325	336	325	ELKNNCXA03T	ELKNNCXA03T	LVCRNCXA374	424	MM
NC	SURRY	0503	WESTFIELD	WSFDNCXA351	336	351	ELKNNCXA03T	ELKNNCXA03T		424	MM
NC	SURRY	0503	ZEPHYR	ZPHYNCXA366	336	366	ELKNNCXA03T	ELKNNCXA03T	LVCRNCXA374	424	MM
NC	ALLTEL-NC	0476	KING	KINGNCXA98F	336	983	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	KING	KINGNCXA98F	336	985	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	LEWISVILLE	LWVLNCXA94F	336	945	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	LEWISVILLE	LWVLNCXA94F	336	946	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	OLDTOWN	OLTWNCXA92F	336	922	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	OLDTOWN	OLTWNCXA92F	336	924	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	OLDTOWN	OLTWNCXA92F	336	923	GNBONCEU05T	GNBONCEU05T		424	MM
NC	ALLTEL-NC	0476	RURAL HALL	RRHLNCXARS0	336	969	GNBONCEU05T	GNBONCEU05T	LWVLNCXA94F	424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	ALLTEL-NC	0476	STANLEYVILLE	SLVLNCXARS0	336	377	GNBONCEU05T	GNBONCEU05T	LWVLNCXA94F	424	MM
NC	CAROLINA	0470	GIBSONVILLE	GBVLNCXA44F	336	446	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	CAROLINA	0470	GIBSONVILLE	GBVLNCXA44F	336	447	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	CAROLINA	0470	GIBSONVILLE	GBVLNCXA44F	336	449	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	CAROLINA	0470	KERNERSVILLE	KRVLNCXA99F	336	992	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	CAROLINA	0470	KERNERSVILLE	KRVLNCXA99F	336	993	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	CAROLINA	0470	KERNERSVILLE	KRVLNCXA99F	336	996	GNBONCEU05T	RCMTNCXA04T		424	MM
NC	MEBANE	0485	MEBANE	MEBNNCXA56F	919	304	GNBONCEU05T	GNBONCEU05T		424	SI
NC	MEBANE	0485	MEBANE	MEBNNCXA56F	919	563	GNBONCEU05T	GNBONCEU05T		424	SI
NC	RANDOLPH	0495	LIBERTY	LBRTNCXA62F	336	622	GNBONCEU05T	GNBONCEU05T		424	MM
NC	SPRINT (CENTEL)-NC	0471	DANBURY	DNBRNCXARS0	336	593	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	EDEN	EDENNCXARS0	336	635	GNBONCEU05T	ELKNNCXA03T	EDENNCXBDS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	EDEN	EDENNCXBDS0	336	623	GNBONCEU05T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	EDEN	EDENNCXBDS0	336	627	GNBONCEU05T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MADISON	MDSNNCXADS0	336	427	GNBONCEU05T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	MADISON	MDSNNCXADS0	336	548	GNBONCEU05T	ELKNNCXA03T		424	MM
NC	SPRINT (CENTEL)-NC	0471	PROSPECT HILL	PRHLNCXARS0	336	562	GNBONCEU05T	ASBONCXA02T	RXBONCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	QUAKER GAP	QKGPNCXARS0	336	994	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC	SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	502	GNBONCEU05T	ASBONCXA02T		424	MM

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	503	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	504	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	597	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	598	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	ROXBORO	RXBONCXADS0	336	599	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	SANDY RIDGE	SNRGNCXARS0	336	871	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC		SPRINT (CENTEL)-NC	0471	STONEVILLE	STVLNCXARS0	336	573	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC		SPRINT (CENTEL)-NC	0471	TIMBERLAKE	TMLKNCXARS0	336	364	GNBONCEU05T	ASBONCXA02T	RXBONCXADS0	424	MM
NC		SPRINT (CENTEL)-NC	0471	WALKERTOWN	WKTWNCXARS0	336	595	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC		SPRINT (CENTEL)-NC	0471	WALNUT COVE	WLCVNCXARS0	336	591	GNBONCEU05T	ELKNNCXA03T	MDSNNCXADS0	424	MM
NC		SPRINT (CENTEL)-NC	0471	YANCEYVILLE	YCVLNCXADS0	336	514	GNBONCEU05T	ASBONCXA02T		424	MM
NC		SPRINT (CENTEL)-NC	0471	YANCEYVILLE	YCVLNCXADS0	336	694	GNBONCEU05T	ASBONCXA02T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	410	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	801	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	802	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	819	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	821	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC		NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	841	HGPNNCXA03T	HGPNNCXA03T		424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	878	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	881	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	882	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	883	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	884	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	885	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	886	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	887	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	888	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	889	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM1	336	687	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM1	336	688	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM1	336	689	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM1	336	803	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM2	336	870	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM2	336	880	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM2	336	905	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM2	336	906	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXACM3	336	847	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXB43F	336	431	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXB43F	336	434	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXCRS0	336	454	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXA88F	424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXDRS0	336	869	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXA88F	424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXERS0	336	861	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXB43F	424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXFRS0	336	812	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXA88F	424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXA88F	336	898	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	RANDLEMAN	RNMNNCXARS0	336	495	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXB43F	424	MM
NC	NORTH STATE	0491	RANDLEMAN	RNMNNCXARS0	336	498	HGPNNCXA03T	HGPNNCXA03T	HGPNNCXB43F	424	MM
NC	NORTH STATE	0491	THOMASVILLE	THVLNCXA47F	336	472	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	THOMASVILLE	THVLNCXA47F	336	475	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	THOMASVILLE	THVLNCXA47F	336	476	HGPNNCXA03T	HGPNNCXA03T		424	MM
NC	NORTH STATE	0491	THOMASVILLE	THVLNCXBRS0	336	474	HGPNNCXA03T	HGPNNCXA03T	THVLNCXA47F	424	MM
NC	NORTH STATE	0491	HIGH POINT	HGPNNCXFRS0	336	836	HGPNNCXA0T	HGPNNCXA03T	HGPNNCXA88F	424	MM
NC	WILKES	0510	BOOMER	BOMRNCXADS0	336	921	LOMXNCXA01T	ELKNNCXA03T		424	MM
NC	WILKES	0510	CHAMPION	CHMPNCXADS0	336	973	LOMXNCXA01T	ELKNNCXA03T		424	MM
NC	WILKES	0510	CLINGMAN	CLNGNCXADS0	336	984	LOMXNCXA01T	ELKNNCXA03T		424	MM
NC	WILKES	0510	LOMAX	LOMXNCXA01T	336	927	LOMXNCXA01T	ELKNNCXA03T		424	MM
NC	WILKES	0510	LOMAX	LOMXNCXADS0	336	957	LOMXNCXA01T	ELKNNCXA03T		424	MM
NC	ALLTEL-NC	0476	DENTON	DNTNNCXADS0	336	859	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	224	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	237	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	238	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	242	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	243	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	248	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	249	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	250	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXACM1	336	225	LXTNNCXA02T	LXTNNCXA02T		424	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXACM2	336	239	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXACM3	336	240	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXBRS0	336	357	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXCRS0	336	956	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXDRS0	336	746	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXERS0	336	853	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXACM2	336	247	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	236	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	LEXINGTON	LXTNNCXA24A	336	966	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	LEXINGTON	0483	SOUTHMONT	SMNTNCXARS0	336	798	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	LEXINGTON	0483	WELCOME	WLCMNCXARS0	336	731	LXTNNCXA02T	LXTNNCXA02T	LXTNNCXA24A	424	MM
NC	Piedmont -NC	0497	CHURCHLAND	CHLDNCXA762	336	752	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	Piedmont -NC	0497	CHURCHLAND	REDSNCXA787	336	220	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	Piedmont -NC	0497	REEDS	REDSNCXA787	336	787	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	Piedmont -NC	0497	REEDS	REDSNCXA787	336	797	LXTNNCXA02T	LXTNNCXA02T		424	MM
NC	GENERAL-NC	4334	CREEDMOOR	CRDMNCXMDS0	919	528	DRHMNCXM01T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	CREEDMOOR	CRDMNCXMDS0	919	529	DRHMNCXM01T	DRHMNCXT1UD	CRDM	426	SI
NC	GENERAL-NC	4334	CREEDMOOR BUTNER	CRDMNCXARS0	919	575	DRHMNCXM01T	DRHMNCXT1UD	CRDMNCXMDS0	426	SI
NC	GENERAL-NC	4334	DURHAM	RALEIGHNCSCCM	919	730	DRHMNCXM01T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXMDS0	919	410	DRHMNCXM01T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM ANGIER	DRHMNCXDDS0	919	318	DRHMNCXM01T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM ANGIER	DRHMNCXDDS0	919	596	DRHMNCXM01T	DRHMNCXT1UD		426	SI

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		GENERAL-NC	4334	DURHAM ANGIER	DRHMNCXDDS0	919	598	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM ANGIER	DRHMNCXDDS0	919	957	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BENNETT	DRHMNCXGDS0	919	309	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BENNETT	DRHMNCXGDS0	919	382	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BENNETT	DRHMNCXGDS0	919	383	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BENNETT	DRHMNCXGDS0	919	384	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BRAGTOWN	DRHMNCXTDS0	919	220	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM BRAGTOWN	DRHMNCXTDS0	919	317	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM HOLT	DRHMNCXC47F	919	470	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM HOLT	DRHMNCXC47F	919	471	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM HOLT	DRHMNCXC47F	919	477	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM HOLT	DRHMNCXC47F	919	479	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM HOLT	DRHMNCXC47F	919	620	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	401	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	402	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	403	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	408	DRHMNCXM0	TDRHMNCXT1UD		426	SI

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	419	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	489	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	490	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM LAKEWOOD	DRHMNCXB48F	919	493	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	530	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	613	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	660	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	667	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	668	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	680	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	681	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	682	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	683	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	684	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	687	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	688	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	956	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXM68F	919	970	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXMDS0	919	409	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXMDS0	919	560	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXMDS0	919	564	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM MAIN	DRHMNCXMDS0	919	686	DRHMNCXM0	TDRHMNCXT1UD		426	SI

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	472	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	474	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	476	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	905	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	941	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	991	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	992	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	993	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	997	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	248	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	315	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	316	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	361	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	405	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	406	DRHMNCXM0	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	483	DRHMNCXM0	TDRHMNCXT1UD		426	SI

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	484	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	485	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	486	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	506	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	517	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	540	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	541	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	544	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	547	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	549	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	558	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	572	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	685	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM PARKWOOD	DRHMNCXEDS0	919	990	DRHMNCXM0T	DRHMNCXT1UD		426	SI
NC	GENERAL-NC	4334	DURHAM TRIANGLE	DRHMNCXFRS0	919	254	DRHMNCXM0T	DRHMNCXT1UD	DRHMNCXEDS0	426	SI
NC	GENERAL-NC	4334	DURHAM TRIANGLE	DRHMNCXFRS0	919	543	DRHMNCXM0T	DRHMNCXT1UD	DRHMNCXEDS0	426	SI

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		GENERAL-NC	4334	DURHAM WATTS	DRHMNCXADS0	919	286	DRHMNCXM01	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM WATTS	DRHMNCXADS0	919	416	DRHMNCXM01	TDRHMNCXT1UD		426	SI
NC		SPRINT (CENTEL)-NC	0471	HILLSBOROUGH	HLBONCXBDS0	919	643	DRHMNCXM01	TASBONCXA02T		426	MM
NC		SPRINT (CENTEL)-NC	0471	HILLSBOROUGH	HLBONCXBDS0	919	644	DRHMNCXM01	TASBONCXA02T		426	MM
NC		SPRINT (CENTEL)-NC	0471	HILLSBOROUGH	HLBONCXBDS0	919	732	DRHMNCXM01	TASBONCXA02T		426	MM
NC		GENERAL-NC	4334	DURHAM	DRHMNCXEDS0	919	576	DRHMNCXM68	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM	DRHMNCXEDS0	919	579	DRHMNCXM68	TDRHMNCXR1UD		426	SI
NC		GENERAL-NC	4334	DURHAM	DRHMNCXMDS0	919	385	DRHMNCXM68	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM	DRHMNCXM68F	919	385	DRHMNCXM68	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	994	DRHMNCXM68	TDRHMNCXT1UD		426	SI
NC		GENERAL-NC	4334	DURHAM NELSON	DRHMNCXHDS0	919	998	DRHMNCXM68	TDRHMNCXT1UD		426	SI
NC		ALLTEL-NC	0476	BROADWAY	BRWYNCXARS0	919	258	RLGHNCHO01T	RLGHNCHO01T	SNFRNCXA77F	426	MM
NC		ALLTEL-NC	0476	OLIVIA	OLIVNCXARS0	919	498	RLGHNCHO01T	RLGHNCHO01T	SNFRNCXA77F	426	MM
NC		ALLTEL-NC	0476	OLIVIA	OLIVNCXARS0	919	499	RLGHNCHO01T	RLGHNCHO01T	SNFRNCXA77F	426	MM
NC		ALLTEL-NC	0476	OLIVIA	OLIVNCXARS0	919	343	RLGHNCHO01T	RLGHNCHO01T	SNFRNCXA77F	426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	708	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	718	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	721	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	770	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	774	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	775	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC		ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	776	RLGHNCHO01T	RLGHNCHO01T		426	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	ALLTEL-NC	0476	SANFORD	SNFRNCXA77F	919	777	RLGHNCHO01T	RLGHNCHO01T		426	MM
NC	CAROLINA	0470	ANGIER	ANGRNCXA63F	919	639	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	CLAYTON	CYTNNCXA55F	919	550	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	CLAYTON	CYTNNCXA55F	919	553	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	FUQUAY-VARINA	FQVRNCXA55G	252	552	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	FUQUAY-VARINA	FQVRNCXA55G	919	557	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	FUQUAY-VARINA	FQVRNCXA55G	919	567	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	FUQUAY-VARINA	FQVRNCXA55G	919	577	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	WAKE FOREST	WKFSNCXA55F	919	554	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	WAKE FOREST	WKFSNCXA55F	919	556	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	WAKE FOREST	WKFSNCXA55F	919	562	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	CAROLINA	0470	WAKE FOREST	WKFSNCXA55F	919	570	RLGHNCHO01T	RCMTNCXA04T		426	MM
NC	GENERAL-NC	4334	RALEIGH	GRNRNCJBCM1	919	591	RLGHNCHO01T			426	SI
NC	ALLTEL-NC	0476	LAUREL HILL	LRHLNCXADS0	910	462	LRBGNCMA02T	LRBGNCMA02T		428	MM
NC	ALLTEL-NC	0476	WAGRAM	WGRMNCXA36F	910	369	LRBGNCMA02T	LRBGNCMA02T		428	MM
NC	ELLERBE	0478	ELLERBE	ELRBNCXA65F	910	652	LRBGNCMA02T	LRBGNCMA02T		428	MM
NC	SERVICE	0500	FAIR BLUFF	FRBLNCXADS0	910	649	LRBGNCMA02T	LRBGNCMA02T		428	SI
NC	ATLANTIC	0468	BOILNG SPNG LKS	BSLKNCXARS0	910	845	SHLTNCXA01T	LRBGNCMA02T	HLBHNCXBDS0	428	SI
NC	ATLANTIC	0468	BOLIVIA	BOLVNCXARS0	910	253	SHLTNCXA01T	LRBGNCMA02T	SHLTNCXADS0	428	SI
NC	ATLANTIC	0468	HOLDEN BEACH	HLBHNCXBDS0	910	842	SHLTNCXA01T	LRBGNCMA02T		428	SI
NC	ATLANTIC	0468	HOLDEN BEACH	HLBHNCXBDS0	910	846	SHLTNCXA01T	LRBGNCMA02T		428	SI
NC	ATLANTIC	0468	LONGWOOD	LGWDNCXARS0	910	287	SHLTNCXA01T	LRBGNCMA02T	SESDNCXBDS0	428	SI
NC	ATLANTIC	0468	SEASIDE	SESDNCXBDS0	910	575	SHLTNCXA01T	LRBGNCMA02T		428	SI
NC	ATLANTIC	0468	SEASIDE	SESDNCXBDS0	910	579	SHLTNCXA01T	LRBGNCMA02T		428	SI

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		ATLANTIC	0468	SHALLOTTE	SHLTNCXADS0	910	754	SHLTNCXA01T	LRBGNCMA02T		428	SI
NC		ATLANTIC	0468	SHALLOTTE	SHLTNCXADS0	910	755	SHLTNCXA01T	LRBGNCMA02T		428	SI
NC		ATLANTIC	0468	SHALLOTTE	SHLTNCXA01T	910	012	SHLTNCXA02T	LRBGNCMA02T		428	SI
NC		ATLANTIC	0468	SHALLOTTE	SHLTNCXA02T	910	015	SHLTNCXA02T	LRBGNCMA02T		428	SI
NC		ALLTEL-NC	0476	COLUMBUS	CLMBNCXA89F	828	802	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		ALLTEL-NC	0476	COLUMBUS	CLMBNCXA89F	828	817	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		ALLTEL-NC	0476	COLUMBUS	CLMBNCXA89F	828	894	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		ALLTEL-NC	0476	COLUMBUS	CLMBNCXA89F	828	899	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		ALLTEL-NC	0476	GREEN CREEK	GRCKNCXADS0	828	863	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		ALLTEL-NC	0476	TRYON	TRYNNCXA85E	828	859	GNVLSCDT60T	GNVLSCDT60T		430	MM
NC		CAROLINA	0470	ELIZABETH CITY	ELCYNCAEH01	252	339	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	333	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	334	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	335	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	338	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXA44F	252	441	ELCYNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	SHILOH	SHLHNCXARS0	252	336	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	949	MM
NC		CAROLINA	0470	SUNBURY	SNBYNCXARS0	252	465	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	949	MM
NC		CAROLINA	0470	WEEKSVILLE	WKVLNCXA330	252	330	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	949	MM
NC		ALLTEL-NC	0476	ABERDEEN	ABRDNCXADS0	910	944	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC		ALLTEL-NC	0476	PINEBLUFF	PNBLNCXA28F	910	281	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	BENSON	BNSNNCXA894	919	207	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	949	MM
NC		CAROLINA	0470	BLADENBORO	BLBONCXARS0	910	863	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC		CAROLINA	0470	BONLEE	BONLNCXARS0	919	837	FYVLNCXA03T	RCMTNCXA04T	SLCYNCXA74B	949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	CARTHAGE	CRTHNCXA947	910	947	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	CHADBOURN	CHDBNCXARS0	910	654	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	CLARKTON	CKTNNCXARS0	910	647	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	CLINTON	CLTNNCXA59A	910	592	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	CLINTON	CLTNNCXA59A	910	596	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	CLINTON	CLTNNCXA59A	910	990	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	DUNN	DUNNNCXA89A	910	891	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	DUNN	DUNNNCXA89A	910	892	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	DUNN-ERWIN	DUNNNCXB89A	910	897	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	949	MM
NC	CAROLINA	0470	ELIZABETHTOWN	EZTWNCXARS0	910	862	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	ELIZABETHTOWN	EZTWNCXARS0	910	862	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	ELIZABETHTOWN	EZTWNCXARS0	910	872	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	ELIZABETHTOWN	EZTWNCXARS0	910	876	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	ELIZABETHTOWN	EZTWNCXARS0	910	876	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	624	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	827	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	850	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	391	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	489	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	494	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	916	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	986	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	987	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	988	FYVLNCXA03T	RCMTNCXA04T		949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCDLCM1	910	499	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCDLCM1	910	964	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	323	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	433	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	435	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	481	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	483	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	490	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	491	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	492	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	609	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	677	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	678	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	825	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	829	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	432	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	826	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	860	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	864	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	867	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	868	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	907	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	394	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	496	FYVLNCXA03T	RCMTNCXA04T		949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	497	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	960	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	480	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	482	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	630	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	822	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	823	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	423	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	424	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	425	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	425	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	426	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXG42A	910	426	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	968	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	FAYETTEVLLE	FYVLNCXACM0	910	967	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	989	FYVLNCXA03T	CMTNCXA04T		949	MM
NC	CAROLINA	0470	LAKE WACCAMAW	LKWCNCXARS0	910	646	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM
NC	CAROLINA	0470	LILLINGTON	LLTNNCABCM1	910	890	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	949	MM
NC	CAROLINA	0470	LILLINGTON	LLTNNCXA89F	910	814	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	949	MM
NC	CAROLINA	0470	LILLINGTON	LLTNNCXA89F	910	893	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	949	MM
NC	CAROLINA	0470	MAXTON	MXTNNCXARS0	910	844	FYVLNCXA03T	RCMTNCXA04T	FYVLNCXA32F	949	MM
NC	CAROLINA	0470	PARKTON	PKTNNCXARS0	910	858	FYVLNCXA03T	RCMTNCXA04T	FYVLNCXA32F	949	MM
NC	CAROLINA	0470	PINEHURST	PNHRNCXA295	910	235	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	PINEHURST	PNHRNCXA295	910	255	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	PITTSBORO	PTBONCXARS0	919	542	FYVLNCXA03T	RCMTNCXA04T	SLCYNCXA74B	949	MM
NC	CAROLINA	0470	PITTSBORO	PTBONCXARS0	919	545	FYVLNCXA03T	RCMTNCXA04T	SLCYNCXA74B	949	MM
NC	CAROLINA	0470	PITTSBORO	PTBONCXARS0	919	548	FYVLNCXA03T	RCMTNCXA04T	SLCYNCXA74B	949	MM
NC	CAROLINA	0470	RAEFORD	RAFDNCXADS0	910	848	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	RAEFORD	RAFDNCXADS0	910	875	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	RAEFORD	RAFDNCXADS0	910	904	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	RED SPRINGS	RDSPNCXARS0	910	843	FYVLNCXA03T	RCMTNCXA04T	FYVLNCXA32F	949	MM
NC	CAROLINA	0470	ROBBINS	RBNSNCXA948	910	948	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	949	MM
NC	CAROLINA	0470	SMITHFIELD	SMFDNCHLCM1	919	915	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SMITHFIELD	SMFDNCXA93F	919	912	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SMITHFIELD	SMFDNCXA93F	919	934	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SMITHFIELD	SMFDNCXA93F	919	938	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCCACM1	910	690	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCXA692	910	603	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCXA692	910	639	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCXA692	910	692	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCXA692	910	693	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCXA692	910	695	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SOUTHERN PINES	SPNSNCAIH01	910	528	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	ST. PAULS	STPLNCXA86F	910	865	FYVLNCXA03T	RCMTNCXA04T	FYVLNCXA32F	949	MM
NC	CAROLINA	0470	TABOR CITY	TBCYNCXARS0	910	653	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	WHITEVILLE	WHVLNCXA64F	910	640	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WHITEVILLE	WHVLNCXA64F	910	641	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WHITEVILLE	WHVLNCXA64F	910	642	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WHITEVILLE	WHVLNCXA64F	910	914	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	206	FYVLNCXA03T	RCMTNCXA04T		949	MM
NC	RANDOLPH TMC	0498	BENNETT	BNNTNCXA581	336	581	FYVLNCXA03T	RCMTNCXA04T		949	
NC	RANDOLPH TMC	0499	COLERIDGE	CLRGNCXA879	336	879	FYVLNCXA03T	RCMTNCXA04T		949	
NC	RANDOLPH TMC	0496	HIGHFALLS	HGHFNCXA464	910	464	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	ABBOTTSBURG	ABBGNCXA648	910	648	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	
NC	STAR TMC	0502	COHARIE	COHRNCXA567	910	567	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	CYPRESS CREEK	CYCKNCXA588	910	588	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	HARRELLS	HRLSNCXA532	910	532	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	HERRING	HRNGNCXA564	910	564	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	KELLY	KLLYNCXA669	910	669	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	
NC	STAR TMC	0502	LISBON	LSBNNCXA645	910	645	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	
NC	STAR TMC	0502	SIX RUN	SXRNNCXA533	910	533	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	SOUTH RIVER	SORVNCXA531	910	531	FYVLNCXA03T	RCMTNCXA04T		949	
NC	STAR TMC	0502	WHITE OAK	WHOKNCXA866	910	866	FYVLNCXA03T	RCMTNCXA04T	WHVLNCXA64F	949	
NC	CAROLINA	0470	AYDEN	AYDNNCXA746	252	746	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	949	MM
NC	CAROLINA	0470	BELHAVEN	BLHNNCXARS0	252	943	GNVLNCXA02T	RCMTNCXA04T	WASHNCXA94B	949	MM
NC	CAROLINA	0470	FARMVILLE	FRVLNCXA753	252	753	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	949	MM
NC	CAROLINA	0470	FOUNTAIN	FONTNCXA749	252	749	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	949	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	320	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	531	GNVLNCXA02T	RCMTNCXA04T		949	MM

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	714	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	717	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	323	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	551	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	752	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	757	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	758	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXB35F	252	353	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	526	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	527	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	939	GNVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	LAGRANGE	LGRNNCXARS0	252	566	GNVLNCXA02T	RCMTNCXA04T	KSTNNCXA52F	949	MM
NC		CAROLINA	0470	PINK HILL	PKHLNCXARS0	252	568	GNVLNCXA02T	RCMTNCXA04T	KSTNNCXA52F	949	MM
NC		CAROLINA	0470	SNOW HILL	SNHLNCXA74F	252	747	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	949	MM
NC		CAROLINA	0470	HOLLYRIDGE	HLRGNCXA32F	910	329	JCVLNCXA02T	RCMTNCXA04T	JCVLNCXA34A	949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCNBCM1	910	358	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCNBCM1	910	389	JCVLNCXAQ2T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	346	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	937	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	938	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	450	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	453	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	456	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC		CAROLINA	0470	RICHLANDS	RCLDNCXARS0	910	324	JCVLNCXA02T	RCMTNCXA04T	JCVLNCXA34A	949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	SWANSBORO	SWNSNCXA39F	252	326	JCVLNCXA02T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	SWANSBORO	SWNSNCXBRS0	252	354	JCVLNCXA02T	RCMTNCXA04T	SWNSNCXA39F	949	MM
NC	CAROLINA	0470	TOPSAIL ISLAND	TPISNCXA328	910	328	JCVLNCXA02T	RCMTNCXA04T	JCVLNCXA34A	949	MM
NC	CAROLINA	0470	BAYBORO	BYBONCXA74F	252	745	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	949	MM
NC	CAROLINA	0470	HAVELOCK	HVLCNCXA44A	252	444	NWBRNCXA02T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	633	NWBRNCXA02T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	POLLOCKSVILLE	PCVLNCXARS0	252	224	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	949	MM
NC	CAROLINA	0470	AHOSKIE	AHSKNCXA33A	252	332	RCMTNCXA04T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	AULANDER	ALNDNCXARS0	252	345	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	949	MM
NC	CAROLINA	0470	AULANDER	ALNDNCXARS0	252	346	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	949	MM
NC	CAROLINA	0470	COLUMBIA	CLMANCXARS0	252	766	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	COLUMBIA	CLMANCXARS0	252	796	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	CRESWELL	CRWLNCXA79F	252	797	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	HALIFAX	HLFXNCXARS0	252	593	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	949	MM
NC	CAROLINA	0470	HALIFAX	HLFXNCXARS0	252	583	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	949	MM
NC	CAROLINA	0470	HAMILTON	HMTNNCXA79F	252	798	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	LEWISTON	LSTNNCXARS0	252	348	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	949	MM
NC	CAROLINA	0470	LITTLETON	LTTNNCXA58F	252	586	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	949	MM
NC	CAROLINA	0470	NASHVILLE	NSVLNCXA45F	252	459	RCMTNCXA04T	RCMTNCXA04T	RCMTNCXB44F	949	MM
NC	CAROLINA	0470	PINETOPS	PNTPNCXARS0	252	827	RCMTNCXA04T	RCMTNCXA04T	RCMTNCXA97F	949	MM
NC	CAROLINA	0470	PLYMOUTH	PLMONCXA79A	252	741	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	PLYMOUTH	PLMONCXA79A	252	791	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	ROBERSONVILLE	RBVLNCXARS0	252	795	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	984	RCMTNCXA04T	RCMTNCXA04T		949	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXX44F	252	443	RCMTNCXA04T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXX44F	252	937	RCMTNCXA04T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	ROXOBEL	RXBLNCXARS0	252	344	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	949	MM
NC	CAROLINA	0470	TARBORO	TRBONCXA82F	252	823	RCMTNCXA04T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WILLIAMSTON	WMTNNCXA79F	252	809	RCMTNCXA04T	RCMTNCXA04T		949	MM
NC	CAROLINA	0470	WINDSOR	WNDSNCXA79F	252	724	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	949	MM
NC	CAROLINA	0470	BUXTON	BXTNNCXA995	252	995	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	BUXTON	BXTNNCXA[illegible]	252	996	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	BUXTON-HATTERAS	BXTNNCXB98[illegible]	252	986	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	COINJOCK	CNJCNCXA453	252	453	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	COINJOCK	CNJCNCXA453	252	455	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	COINJOCK	CNJCNCXA453	252	457	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	EDENTON	EDTNNCXA48F	252	482	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	331	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ELIZABETH CITY	ELCYNCXA33A	252	337	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HERTFORD	HRFRNCXARS0	252	426	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXA44F	252	256	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXA44F	252	449	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXA44F	252	480	ELCYNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXBRS0	252	255	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	KILL DEVIL HILLS	KDHLNCXBRS0	252	261	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	MAMIE	MAMINCXARS0	252	491	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	MANTEO	MANTNCXA47F	252	423	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	MANTEO	MANTNCXA47F	252	473	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	MANTEO	MANTNCXA47F	252	475	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	MOYOCK	MOYCNCXARS0	252	435	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	MOYOCK	MOYCNCXBRS0	252	232	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	PINEYWOODS	PYWDNCXARS0	252	297	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	SOUTH MILLS	STMLNCXARS0	252	771	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	WAVES	WAVSNCXA987	252	987	ELCYNCXA02T	RCMTNCXA04T	KDHLNCXA44F	951	MM
NC	CAROLINA	0470	WELCH	WLCHNCXARS0	252	221	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	WOODVILLE	WDVLNCXARS0	252	264	ELCYNCXA02T	RCMTNCXA04T	ELCYNCXA33A	951	MM
NC	CAROLINA	0470	BENSON	BNSNNCXA894	919	820	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	951	MM
NC	CAROLINA	0470	BENSON	BNSNNCXA894	919	894	FYVLNCXA03T	RCMTNCXA04T	DUNNNCXA89A	951	MM
NC	CAROLINA	0470	BEULAVILLE	BEVLNCXARS0	910	298	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	CLINTON	CLTNNCXA59A	910	590	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	DUNN	DUNNNCXA89A	910	980	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAISON	FASNNCXA26F	910	267	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	303	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	308	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	910	309	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCBECM1	919	303	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	910	322	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCCDCM1	919	988	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	223	FYVLNCXA03T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	306	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	307	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	437	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	438	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	484	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	485	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXA32F	910	486	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXB86F	910	487	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	396	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	436	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXD49F	910	493	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FAYETTEVILLE	FYVLNCXF48G	910	488	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	FOUR OAKS	FROKNCXARS0	919	963	FYVLNCXA03T	RCMTNCXA04T	SMFDNCXA93F	951	MM
NC	CAROLINA	0470	GARLAND	GRLDNCXARS0	910	529	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	GOLDSTON	GLDSNCXARS0	919	898	FYVLNCXA03T	RCMTNCXA04T	SLCYNCXA74B	951	MM
NC	CAROLINA	0470	KENANSVILLE	KNVLNCXARS0	910	290	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	KENANSVILLE	KNVLNCXARS0	910	296	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	NEWTON GROVE	NWGVNCXARS0	910	594	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	PINEHURST	PNHRNCXA295	910	295	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	951	MM
NC	CAROLINA	0470	PINEHURST	PNHRNCXA295	910	215	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	951	MM
NC	CAROLINA	0470	PRINCETON	PRTNNCXARS0	919	936	FYVLNCXA03T	RCMTNCXA04T	SMFDNCXA93F	951	MM
NC	CAROLINA	0470	ROSE HILL	RSHLNCXARS0	910	284	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	ROSE HILL	RSHLNCXARS0	910	289	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	ROSEBORO	RSBONCXARS0	910	525	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	SILER CITY	SLCYNCXA74B	919	663	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	SILER CITY	SLCYNCXA74B	919	742	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	SMITHFIELD	SMFDNCXA93F	919	989	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	VASS	VASSNCXA245	910	245	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	951	MM
NC	CAROLINA	0470	WALLACE	WLLCNCXA285	910	285	FYVLNCXA03T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WARSAW	WRSWNCXARS0	910	293	FYVLNCXA03T	RCMTNCXA04T	CLTNNCXA59A	951	MM
NC	CAROLINA	0470	WHISPERING PINES	WHPNNCXA94F	910	949	FYVLNCXA03T	RCMTNCXA04T	SPNSNCXA692	951	MM
NC	CAROLINA	0470	BATH	BATHNCXA923	252	923	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC	CAROLINA	0470	BELHAVEN	BLHNNCXARS0	252	944	GNVLNCXA02T	RCMTNCXA04T	WASHNCXA94B	951	MM
NC	CAROLINA	0470	BETHEL	BETHNCXARS0	252	825	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC	CAROLINA	0470	ENGELHARD	ENGLNCXARS0	252	924	GNVLNCXA02T	RCMTNCXA04T	WASHNCXA94B	951	MM
NC	CAROLINA	0470	ENGLEHARD	ENGLNCXARS0	252	925	GNVLNCXA02T	RCMTNCXA04T	WASHNCXA94B	951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCFSCM2	252	916	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCFSCM2	252	917	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	328	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	329	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	412	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	413	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	561	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	707	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	744	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	754	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	816	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	830	GNVLNCXA02T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST		Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	931	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXB35F	252	321	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXB35F	252	355	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXB35F	252	756	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	324	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	341	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCXA75F	252	695	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GREENVILLE	GNVLNCSRCM1	252	342	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	GRIFTON	GFTNNCXA524	252	524	GNVLNCXA02T	RCMTNCXA04T	KSTNNCXA52F	951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	520	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	521	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	522	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	523	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	525	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	KINSTON	KSTNNCXA52F	252	559	GNVLNCXA02T	RCMTNCXA04T		951	MM
NC		CAROLINA	0470	MOSS HILL	MSHLNCXARS0	252	569	GNVLNCXA02T	RCMTNCXA04T	KSTNNCXA52F	951	MM
NC		CAROLINA	0470	SWANQUARTER	SWNQNCXA92F	252	926	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		CAROLINA	0470	WASHINGTON	WASHNCXA94B	252	946	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		CAROLINA	0470	WASHINGTON	WASHNCXA94B	252	947	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		CAROLINA	0470	WASHINGTON	WASHNCXA94B	252	948	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		CAROLINA	0470	WASHINGTON	WASHNCXA94B	252	974	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		CAROLINA	0470	WASHINGTON	WASHNCXA94B	252	975	GNVLNCXA02T	RCMTNCXA04T	GNVLNCXA75F	951	MM
NC		TRICOUNTY	0505	PIKE ROAD	PKRDNCXA935	252	935	GNVLNCXA02T	RCMTNCXA04T		951	
NC		TRICOUNTY	0505	PINETOWN	PNTWNCXA927	252	927	GNVLNCXA02T	RCMTNCXA04T		951	

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	TRICOUNTY	0505	SIDNEY	SDNYNCXA964	252	964	GNVLNCXA02T	RCMTNCXA04T		951	
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCNBCM1	910	459	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	347	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXA34A	910	455	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	219	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	353	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	355	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	451	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSONVILLE	JCVLNCXB35A	910	577	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MAYSVILLE	MYVLNCXARS0	910	743	JCVLNCXA02T	RCMTNCXA04T	JCVLNCXA34A	951	MM
NC	CAROLINA	0470	SNEADS FERRY	SNFYNCXARS0	910	327	JCVLNCXA02T	RCMTNCXA04T	JCVLNCXA34A	951	MM
NC	CAROLINA	0470	SWANSBORO	SWNSNCXA39F	252	393	JCVLNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ATLANTIC	ATLTNCXA22F	252	225	NWBRNCXA02T	RCMTNCXA04T	MRCYNCXA24F	951	MM
NC	CAROLINA	0470	AURORA	AURRNCXARS0	252	322	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	BEAUFORT	BUFTNCXA728	252	504	NWBRNCXA02T	RCMTNCXA04T	MRCYNCXA24F	951	MM
NC	CAROLINA	0470	BEAUFORT	BUFTNCXA728	252	728	NWBRNCXA02T	RCMTNCXA04T	MRCYNCXA24F	951	MM
NC	CAROLINA	0470	HAVELOCK	HVLCNCXA44A	252	447	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HAVELOCK	HVLCNCXA44A	252	463	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HAVELOCK	HVLCNCXA44A	252	464	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HAVELOCK	HVLCNCXA44A	252	466	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MARSHALLBERG	MRBGNCXA72F	252	729	NWBRNCXA02T	RCMTNCXA04T	MRCYNCXA24F	951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCADCM1	252	723	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCADCM1	252	725	NWBRNCXA02T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	240	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	247	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	726	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	727	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	808	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCAICM1	252	617	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCAICM1	252	670	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCAICM1	252	671	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	514	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	634	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	635	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	636	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	637	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	638	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEW BERN	NWBRNCXA63F	252	672	NWBRNCXA02T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	NEWPORT	NWPTNCXA22F	252	223	NWBRNCXA02T	RCMTNCXA04T	MRCYNCXA24F	951	MM
NC	CAROLINA	0470	OCRACOKE	OCRCNCXA92F	252	921	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	OCRACOKE	OCRCNCXA92F	252	928	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	ORIENTAL	ORNTNCXARS0	252	249	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	TRENTON	TRENNCXA44F	252	448	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	VANCEBORO	VNBONCXARS0	252	244	NWBRNCXA02T	RCMTNCXA04T	NWBRNCXA63F	951	MM
NC	CAROLINA	0470	AHOSKIE	AHSKNCXA33A	252	209	RCMTNCXA04T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	BAILEY	BALYNCXARS0	252	235	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	CENTERVILLE	CNVLNCXARS0	919	853	RCMTNCXA04T	RCMTNCXA04T	HNSNNCXA43A	951	MM
NC	CAROLINA	0470	COLERAIN	CLRNNCXARS0	252	356	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	SI
NC	CAROLINA	0470	COLUMBIA	CLMANCXARS0	252	706	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	951	MM
NC	CAROLINA	0470	CONWAY	CNWYNCXARS0	252	585	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	ELM CITY	EMCYNCXA23F	252	236	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	ELM CITY	EMCYNCXA23F	252	245	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	ENFIELD	ENFDNCXARS0	252	445	RCMTNCXA04T	RCMTNCXA04T	RCMTNCXA97F	951	MM
NC	CAROLINA	0470	FRANKLINTON	FKTNNCXA494	919	494	RCMTNCXA04T	RCMTNCXA04T	HNSNNCXA43A	951	MM
NC	CAROLINA	0470	FREMONT	FRMTNCXARS0	919	242	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	GATESVILLE	GTVLNCXARS0	252	357	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	GREENVILLE	GNVLNCXB35F	252	439	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA01W	919	800	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	436	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	430	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	431	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	432	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	433	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	434	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	438	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	HENDERSON	HNSNNCXA43A	252	492	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	JACKSON	JCSNNCXARS0	252	574	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	JACKSON	JCSNNCXARS0	252	534	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	KENLY	KNLYNCXA28F	919	284	RCMTNCXA04T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	LOUISBURG	LSBGNCXA496	919	495	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	LOUISBURG	LSBGNCXA496	919	496	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	LOUISBURG	LSBGNCXA496	919	497	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	LOUISBURG	LSBGNCXA496	919	340	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	LUCAMA	LUCMNCXARS0	252	239	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	MOREHEAD CITY	MRCYNCXA24F	252	222	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	MURFREESBORO	MRBONCXARS0	252	395	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	MURFREESBORO	MRBONCXARS0	252	396	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	MURFREESBORO	MRBONCXARS0	252	398	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	NORLINA	NRLNNCXARS0	252	456	RCMTNCXA04T	RCMTNCXA	A43A	951	MM
NC	CAROLINA	0470	OXFORD	OXFRNCXA69F	919	603	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	OXFORD	OXFRNCXA69F	919	690	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	OXFORD	OXFRNCXA69F	919	691	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	OXFORD	OXFRNCXA69F	919	692	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	OXFORD	OXFRNCXA69F	919	693	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	PLYMOUTH	PLMONCXA79A	252	793	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	951	MM
NC	CAROLINA	0470	RICH SQUARE	RCSQNCXARS0	252	539	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	519	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	308	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	532	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	533	RCMTNCXA04T	RCMTNCXA04T		951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	535	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROANOKE RAPIDS	RNRPNCXA53A	252	537	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCAQCM1	252	904	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCAQCM1	252	908	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCBRCM1	252	907	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	407	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	442	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	446	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	450	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	454	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	972	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	973	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	977	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXA97F	252	985	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCXX44F	252	451	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	ROCKY MOUNT	RCMTNCBRCM1	252	883	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	SCOTLAND NECK	SCNKNCXARS0	252	826	RCMTNCXA04T	RCMTNCXA04T	TRBONCXA82F	951	SI
NC	CAROLINA	0470	SEABOARD	SBRDNCXARS0	252	589	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	SPRING HOPE	SPRHNCXA47F	252	478	RCMTNCXA04T	RCMTNCXA04T	RCMTNCXB44F	951	MM
NC	CAROLINA	0470	STANTONSBURG	STBGNCXARS0	252	238	RCMTNCXA04T	RCMTNCXA04T	WLSNNCXA23F	951	MM
NC	CAROLINA	0470	TARBORO	TRBONCXA82F	252	641	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	TARBORO	TRBONCXA82F	252	824	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WARRENTON	WRTNNCXA257	252	257	RCMTNCXA04T	RCMTNCXA04T	HNSNNCXA43A	951	MM

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Table V North Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
NC	CAROLINA	0470	WELDON	WLDNNCXARS0	252	536	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	WELDON	WLDNNCXARS0	252	538	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	WELDON	WLDNNCXARS0	252	578	RCMTNCXA04T	RCMTNCXA04T	RNRPNCXA53A	951	MM
NC	CAROLINA	0470	WHITAKERS	WHTKNCXARS0	252	437	RCMTNCXA04T	RCMTNCXA04T	RCMTNCXA97F	951	MM
NC	CAROLINA	0470	WILLIAMSTON	WMTNNCXA79F	252	792	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILLIAMSTON	WMTNNCXA79F	252	799	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILLIAMSTON	WMTNNCXA79F	252	802	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	234	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	237	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	243	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	246	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	291	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	292	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	293	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WILSON	WLSNNCXA23F	252	399	RCMTNCXA04T	RCMTNCXA04T		951	MM
NC	CAROLINA	0470	WINDSOR	WNDSNCXA79F	252	794	RCMTNCXA04T	RCMTNCXA04T	WMTNNCXA79F	951	MM
NC	CAROLINA	0470	WINTON	WITNNCXARS0	252	358	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	CAROLINA	0470	WOODLAND	WDLDNCXARS0	252	587	RCMTNCXA04T	RCMTNCXA04T	AHSKNCXA33A	951	MM
NC	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCCM1	423	747	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table W South Carolina

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	ALLTEL-SC	0517	KERSHAW	KRSHSCXB47E	843	475	RCHLSCXB02T	RCHLSCXB02T		422	MM
SC	FORT MILL	0521	FORT MILL	FTMLSCXB54S	803	547	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	FORT MILL	0521	FORT MILL	FTMLSCXB54S	803	548	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	FORT MILL	0521	FORT MILL	FTMLSCXB54S	803	802	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	HEATH SPRNGS	0524	HEATH SPRINGS	HTSPSCXA273	803	273	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	FORT LAWN	FTLWSCXA872	803	472	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	FORT LAWN	FTLWSCXA872	803	872	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	283	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	285	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	286	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	289	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	320	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	416	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXA28S	803	804	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LANCASTER	0531	LANCASTER	LNCSSCXACM1	803	287	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB02T	803	011	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	230	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	299	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	323	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	324	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	325	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	327	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	328	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	329	RCHLSCXB02T	RCHLSCXB02T		422	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	366	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	367	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	371	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	372	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	417	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	517	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	817	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	909	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	980	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	981	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	984	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXB32S	803	985	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXBCM1	803	322	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXBCM2	803	370	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	ROCK HILL	0542	ROCK HILL	RCHLSCXBCM2	803	242	RCHLSCXB02T	RCHLSCXB02T		422	SI
SC	LOCKHART	0532	LOCKHART	LCKHSCXARS0	803	545	CHESSCXA03T	CHESSCXA03T		430	SI
SC	ALLTEL-SC	0517	CAMPOBELLO	CMPBSCXARS0	864	468	GNVLSCDT60T	GNVLSCDT60T	INMNSCXA47E	430	MM
SC	ALLTEL-SC	0517	INMAN	INMNSCXA47E	864	472	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	ALLTEL-SC	0517	INMAN	INMNSCXA47E	864	473	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	ALLTEL-SC	0517	INMAN	INMNSCXA47E	864	504	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	ALLTEL-SC	0517	LANDRUM	LNDRSCXA45E	864	457	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	CHESNEE	0515	CHESNEE	CHSNSCXADS0	864	461	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	CHESNEE	0515	CHESNEE	CHSNSCXADS0	864	703	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	CONTEL-SC	0526	SIMPSONVILLE	SSVLSCXADS0	864	228	GNVLSCDT60T	GNVLSCDT60T		430	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	CONTEL-SC	0526	SIMPSONVILLE	SSVLSCXADS0	[illegible]	962	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	CONTEL-SC	0526	SIMPSONVILLE	SSVLSCXAD[illegible]	[illegible]	963	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	CONTEL-SC	0526	SIMPSONVILLE	SSVLSCXADS0	864	967	GNVLSCDT60T	GNVLSCDT60T		430	MM
SC	GENERAL-SC	4335	ABBEVILLE	ABVLSCXADS0	803	459	GNVLSCDT60T	GNVLSCDT60T		430	SI
SC	GENERAL-SC	4335	CALHOUN FALLS	CLFLSCXADS0	864	447	GNVLSCDT60T	GNVLSCDT60T		430	SI
SC	GENERAL-SC	4335	MC CORMICK	MCCRSCXBDS0	864	465	GNVLSCDT60T	GNVLSCDT60T		430	SI
SC	GENERAL-SC	4335	WOODRUFF	WDRFSCXADS0	864	476	GNVLSCDT60T	GNVLSCDT60T		430	SI
SC	SPRINT (UNITED)-SC	0506	CHAPPELLS	CRHLSCXARS0	843	995	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	CROSS HILL	CRHLSCXARS0	864	998	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCLLCM5	864	992	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXBRS0	864	227	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	223	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	229	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	388	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	720	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	910	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	941	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	942	GNWDSCXC02T	GNVLSCDT60T		430	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	943	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCXCDS0	864	980	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	GREENWOOD	GNWDSCLLCM5	864	993	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	HODGES	HDGSSCXARS0	864	374	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	MOUNTVILLE	MTVLSCXARS0	864	994	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	NINETY SIX	NTSXSCXARS0	864	543	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	SALUDA	SALDSCXADS0	864	445	GNWDSCXC02T	GNVLSCDT60T		430	MM
SC	SPRINT (UNITED)-SC	0506	TROY	TROYSCXARS0	864	746	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	SPRINT (UNITED)-SC	0506	WARE SHOALS	WRSHSCXARS0	864	456	GNWDSCXC02T	GNVLSCDT60T	GNWDSCNCDS0	430	MM
SC	GENERAL-SC	4335	LAURENS	LRNSSCXCDS0	864	983	LRNSSCXB02T	FLRNSCMA60T		430	SI
SC	GENERAL-SC	4335	LAURENS	LRNSSCXCDS0	864	984	LRNSSCXB02T	FLRNSCMA60T		430	SI
SC	Piedmont Rural	0538	ENOREE	ENORSCXA969	864	969	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	GRAY COURT	GRCRSCXADS0	864	871	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	GRAY COURT	GRCRSCXADS0	864	876	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	HICKORY TAVERN	HCTVSCXARS0	864	575	LRNSSCXB03T	GNVLSCDT60T	LRNSSCXB68E	430	MM
SC	Piedmont Rural	0538	LAURENS	LRNSSCXB03T	864	684	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	LAURENS	LRNSSCXB03T	864	981	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	LAURENS RURAL	LRNSSCXBDS0	864	682	LRNSSCXB03T	GNVLSCDT60T		430	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	Piedmont Rural	0538	LAURENS RURAL	LRNSSCXBDS0	864	683	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	WATERLOO	WTRLSCXARS0	864	677	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	Piedmont Rural	0538	WEST END	WENDSCXARS0	864	861	LRNSSCXB03T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	CLARKS HILL	CLHLSCXA333	864	333	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	DUE WEST	DWSTSCXA379	864	378	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	DUE WEST	DWSTSCXA379	864	379	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	IVA	IVA SCXA348	864	348	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	MOUNT CARMEL	MTCRSCXA391	864	391	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	PLUM BRANCH	PLBHSCXA443	864	443	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	STARR	STARSCXA352	864	352	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	WEST ABBEVILLE	WAVLSCXA446	864	418	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	WEST ABBEVILLE	WAVLSCXA446	864	446	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	W CAROLINA	0550	WEST ABBEVILLE	WAVLSCXB02T	864	014	WAVLSCXA01T	GNVLSCDT60T		430	MM
SC	HORRY	0528	W MYRTLE BEACH	MYBHSC38CM0	843	907	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	AYNOR	AYNRSCXA358	843	358	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	COLLINS CREEK	CLCKSCXA650	843	215	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	COLLINS CREEK	CLCKSCXA650	843	650	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	CONWAY	CNWYSCXC01T	803	021	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	EAST CONWAY	CNWYSCXE347	843	234	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	EAST CONWAY	CNWYSCXE347	843	347	CNWYSCXC01T	FLRNSCMA60T		432	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	HORRY	0528	EAST CONWAY	CNWYSCXE347	843	349	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	FLOYDS	FLYDSCXARSO	843	392	CNWYSCXC01T	FLRNSCMA60T	LORISCXADS0	432	MM
SC	HORRY	0528	LAKEWOOD	LKWDSCXARSO	843	293	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	LORIS	LORISCXADS0	843	716	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	LORIS	LORISCXADS0	843	756	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	MURRELLS INLET	MRINSCXA651	843	357	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	MURRELLS INLET	MRINSCXA651	843	651	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	MYRTLE BEACH	MYBHSC38CM0	843	995	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	NORTH CONWAY	CNWYSCXM365	843	365	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	NORTH CONWAY	CNWYSCXM365	843	369	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	SOUTH CONWAY	CNWYSCXB397	843	397	CNWYSCXC01T	FLRNSCMA60T		432	MM
SC	HORRY	0528	W MYRTLE BEACH	WMBHSCXARS0	843	236	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	W MYRTLE BEACH	MYBHSC38CM0	843	340	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	W MYRTLE BEACH	WMBHSCXARS0	843	902	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	W MYRTLE BEACH	WMBHSCXARS0	843	903	CNWYSCXC01T	FLRNSCMA60T	MRINSCXADS0	432	MM
SC	HORRY	0528	WAMPEE	WAMPSCXARS0	843	390	CNWYSCXC01T	FLRNSCMA60T	LORISCXADS0	432	MM
SC	HORRY	0528	WAMPEE	WAMPSCXARS0	843	399	CNWYSCXC01T	FLRNSCMA60T	LORISCXADS0	432	MM
SC	GENERAL-SC	4335	HEMINGWAY	HMNGSCXADS0	843	558	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	JOHNSONVILLE	JSVLSCXADS0	843	380	FLRNSCMA60T	MYBHSCXM1JB		432	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	JOHNSONVILLE	JSVLSCXADS0	843	386	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	KINGSTREE	KGTRSCXADS0	843	314	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	KINGSTREE	KGTRSCXADS0	843	354	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LAKE CITY	LKCYSCXA39A	843	394	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LAKE CITY	LKCYSCXA39A	843	956	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LAMAR	LAMRSCXA32E	843	326	FLRNSCMA60T	FLRNSCMA60T		432	SI
SC	GENERAL-SC	4335	OLANTA	OLNTSCXARS0	843	396	FLRNSCMA60T	MYBHSCXM1JB	LKCYSCXA39A	432	SI
SC	GENERAL-SC	4335	PAMPLICO	PMPLSCXADS0	843	493	FLRNSCMA60T	MYBHSCXM1JB		432	SI
SC	SAND HILL	0546	BETHUNE	BTHNSCXA334	843	334	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	CHESTERFIELD	CHFDSCXADS0	843	623	FLRNSCMA60T	FLRNSCMA60T		432	MM
SC	SAND HILL	0546	JEFFERSON	JFSNSCXARS0	843	658	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	MCBEE	MCBESCXA335	843	335	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	PAGELAND	PGLDSCXARS0	843	672	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	PAGELAND	PGLDSCXARS0	843	675	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	PAGELAND	PGLDSCXARS0	843	680	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	PATRICK	PTRCSCXA498	843	498	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	SAND HILL	0546	RUBY	RUBYSCXA634	843	634	FLRNSCMA60T	FLRNSCMA60T	CHFDSCXADS0	432	MM
SC	GENERAL-SC	4335	ANDREWS	ANDRSCXADS0	843	264	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	CONWAY	CNWYSCXA24E	843	248	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	CONWAY	CNWYSCXA24E	843	381	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	CONWAY	CNWYSCXAH30	843	915	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXMDS0	432	SI
SC	GENERAL-SC	4335	CONWAY	CNWYSCXE347	843	246	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCAFCM0	843	543	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXADS0	843	520	MYBHSCXM01T	MYBHSCXM1JB		432	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXADS0	843	527	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXADS0	843	545	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXADS0	843	546	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXADS0	843	833	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXMDS0	432	SI
SC	GENERAL-SC	4335	GEORGETOWN	GRTWSCXAH30	843	904	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXMDS0	432	SI
SC	GENERAL-SC	4335	LITTLE RIVER	ODBHSCXBRS0	843	249	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXB44E	432	SI
SC	GENERAL-SC	4335	LONG BAY/ MYRTLE	MYBHSCXC23E	843	238	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LONG BAY/ MYRTLE	MYBHSCXC23E	843	239	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LONG BAY/ MYRTLE	MYBHSCXC23E	843	477	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	LONG BAY/ MYRTLE	MYBHSCXC23E	843	828	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCAKCM0	843	455	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCAKCM0	843	602	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCAKCM0	843	997	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCICCMO	843	446	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCICCMO	843	457	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXB44E	843	449	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXB44E	843	497	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXB44E	843	692	MYBHSCXM01T	MYBHSCXM1JB		432	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXC23E	843	233	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM01T	803	018	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	443	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	444	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	445	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	448	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	450	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	451	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENER	35	MYRTLE BEACH	MYBHSCXM44E	843	458	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	626	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	916	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXM44E	843	946	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXMDS0	843	447	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXMDS0	843	913	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXMDS0	843	918	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXC23E	843	231	MYBHSCXM01T	MYBHSCXM1JB		432	SI

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Table W South Carolina (continued)

ST	Company	P Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSCXB44E	843	467	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSC38CM0	843	340	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSC38CM0	843	907	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	MYRTLE BEACH	MYBHSC38CM0	843	907	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	N MYRTLE BEACH	ODBHSCXBRS0	843	280	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXB44E	432	SI
SC	GENERAL-SC	4335	N MYRTLE BEACH	ODBHSCXBRS0	843	281	MYBHSCXM01T	MYBHSCXM1JB	MYBHSCXB44E	432	SI
SC	GENERAL-SC	4335	PAWLEYS ISLAND	PWISSCXARS0	843	235	MYBHSCXM01T	MYBHSCXM1JB	GRTWSCXADS0	432	SI
SC	GENERAL-SC	4335	PAWLEYS ISLAND	PWISSCXARS0	843	237	MYBHSCXM01T	MYBHSCXM1JB	GRTWSCXADS0	432	SI
SC	GENERAL-SC	4335	WINDY HILL	WNHLSCXADS0	843	272	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	GENERAL-SC	4335	WINDY HILL	WNHLSCXADS0	843	361	MYBHSCXM01T	MYBHSCXM1JB		432	SI
SC	FARMERS	0520	GREELEYVILLE	GRVLSCXA426	843	426	NSMTSCXA02T	NSMTSCXA02T	NKGSSCXA382	432	SI
SC	FARMERS	0520	LANE	LANESCXA387	843	387	NSMTSCXA02T	NSMTSCXA02T	NKGSSCXA382	432	SI
SC	FARMERS	0520	NORTH KINGSTREE	NKGSSCXA382	843	201	NSMTSCXA02T	NSMTSCXA02T		432	SI
SC	FARMERS	0520	NORTH KINGSTREE	NKGSSCXA382	843	382	NSMTSCXA02T	NSMTSCXA02T		432	SI
SC	FARMERS	0520	SCRANTON	SCTNSCXA389	843	210	NSMTSCXA02T	NSMTSCXA02T		432	SI
SC	FARMERS	0520	SCRANTON	SCTNSCXA389	843	389	NSMTSCXA02T	NSMTSCXA02T		432	SI
SC	FARMERS	0520	TURBERVILLE	TBVLSCXA659	843	659	NSMTSCXA02T	NSMTSCXA02T		432	SI
SC	FARMERS	0520	WEST ANDREWS	WANDSCXA221	843	221	NSMTSCXA02T	NSMTSCXA02T	NKGSSCXA382	432	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	CHESTER	0516	CHESTER	CHESSCXA02T	803	014	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	374	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	375	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	377	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	379	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	385	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	519	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	CHESTER	CHESSCXADS0	803	581	CHESSCXA03T	CHESSCXA03T		434	SI
SC	CHESTER	0516	GREAT FALLS	GRFLSCXARS0	803	482	CHESSCXA03T	CHESSCXA03T	CHESSCXADS0	434	SI
SC	CHESTER	0516	LEWISVILLE	LWVLSCXARS0	803	789	CHESSCXA03T	CHESSCXA03T	CHESSCXADS0	434	SI
SC	RIDGEWAY	0541	RIDGEWAY	RDWYSCXADS0	803	337	CHESSCXA03T	CHESSCXA03T		434	SI
SC	RIDGEWAY	0541	RIDGEWAY	RDWYSCXADS0	803	338	CHESSCXA03T	CHESSCXA03T		434	SI
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXC35A	803	996	CLMA			434	MM
SC	ALLTEL-SC	0517	CAMERON	CMRNSCXARS1	803	823	CLMASCSN60T	CLMASCSN60T	STMTSCXADS0	434	MM
SC	ALLTEL-SC	0517	CRESTON	CMRNSCXARS2	803	826	CLMASCSN60T	CLMASCSN60T	STMTSCXADS0	434	MM
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXBRS0	803	356	CLMASCSN60T	CLMASCSN60T	LXTNSCXC35A	434	MM
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXC35A	803	359	CLMASCSN60T	CLMASCSN60T		434	MM
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXC35A	803	808	CLMASCSN60T	CLMASCSN60T		434	MM
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXC35A	803	951	CLMASCSN60T	CLMASCSN60T		434	MM
SC	ALLTEL-SC	0517	LEXINGTON	LXTNSCXC35A	803	957	CLMASCSN60T	CLMASCSN60T		434	MM
SC	ALLTEL-SC	0517	SAINT MATTHEWS	STMTSCXADS0	803	655	CLMASCSN60T	CLMASCSN60T		434	MM
SC	ALLTEL-SC	0517	SAINT MATTHEWS	STMTSCXADS0	803	874	CLMASCSN60T	CLMASCSN60T		434	MM
SC	CONTEL-SC	0526	BOWMAN	BWMNSCXADS0	803	829	CLMASCSN60T	CLMASCSN60T		434	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	CONTEL-SC	0526	ELLOREE	ELLRSCXARS0	803	897	CLMASCSN60T	CLMASCSN60T	BWMNSCXADS0	434	MM
SC	CONTEL-SC	0526	SANTEE	SANTSCXARS0	803	854	CLMASCSN60T	CLMASCSN60T	BWMNSCXADS0	434	MM
SC	GENERAL-SC	4335	BISHOPVILLE	BSVLSCXARS3	803	484	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	BISHOPVILLE	BSVLSCXARS3	803	486	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	EHRHARDT	EHRHSCXA26E	803	267	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	FAIRFAX	FRFXSCXADS0	803	632	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	MANNING	MNNGSCXARS1	803	410	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	MANNING	MNNGSCXARS1	803	435	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	MANNING	MNNGSCXARS1	803	587	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	OLAR	OLARSCXARS0	803	368	CLMASCSN60T	CLMASCSN60T	FRFXSCXADS0	434	SI
SC	GENERAL-SC	4335	SHAWAFB HGHTS	SHHGSCXB66E	803	666	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	SHAWAFB HGHTS	SHHGSCXB66E	803	668	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	SUMMERTON	SMTNSCXARS2	803	485	CLMASCSN60T	CLMASCSN60T	STMRSCXA77E	434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	418	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	436	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	773	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	775	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	778	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	840	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	847	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	848	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	890	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	895	CLMASCSN60T	CLMASCSN60T		434	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	934	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	938	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	SUMTER	SMTRSCXA77E	803	297	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	WINNSBORO	WNBOSCXADS0	803	633	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	WINNSBORO	WNBOSCXADS0	803	635	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	WINNSBORO	WNBOSCXADS0	803	712	CLMASCSN60T	CLMASCSN60T		434	SI
SC	GENERAL-SC	4335	WINNSBORO	WNBOSCXADS0	803	718	CLMASCSN60T	CLMASCSN60T		434	SI
SC	HOME	0527	HARLEYVILLE	HLVLSCXA46E	843	462	CLMASCSN60T	CLMASCSN60T		434	MM
SC	NORWAY	0535	NORWAY	NRWYSCXARS0	803	263	CLMASCSN60T	CLMASCSN60T	WLSTSCXADS1	434	SI
SC	SPRINT (UNITED)-SC	0506	BRANCHVILLE	BHVLSCXARS0	803	274	CLMASCSN60T	CLMASCSN60T	HLHLSCXADS0	434	MM
SC	SPRINT (UNITED)-SC	0506	ESTILL	ESTLSCXADS0	803	625	CLMASCSN60T	CLMASCSN60T		434	MM
SC	SPRINT (UNITED)-SC	0506	EUTAWVILLE	ETVLSCXARS0	803	492	CLMASCSN60T	CLMASCSN60T	HLHLSCXADS0	434	MM
SC	SPRINT (UNITED)-SC	0506	HAMPTON	HMPNSCXADS0	803	942	CLMASCSN60T	CLMASCSN60T		434	MM
SC	SPRINT (UNITED)-SC	0506	HAMPTON	HMPNSCXADS0	803	943	CLMASCSN60T	CLMASCSN60T		434	MM
SC	SPRINT (UNITED)-SC	0506	HOLLY HILL	HLHLSCXADS0	803	496	CLMASCSN60T	CLMASCSN60T		434	MM
SC	WILLISTON	0551	NORTH	NRTHSCXBDS0	803	247	CLMASCSN60T	CLMASCSN60T	WLSTSCXADS1	434	SI
SC	WILLISTON	0551	WILLISTON	WLSTSCXADS0	803	266	CLMASCSN60T	CLMASCSN60T		434	SI
SC	FARMERS	0520	BISHOPVILLE RUR	BSVLSCXB428	803	428	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	EAST SUMTER	ESMTSCXA495	803	495	NSMTSCXA02T	NSMTSCXA02T	NSMTSCXB469	434	SI
SC	FARMERS	0520	LYNCHBURG	LYBGSCXA437	803	437	NSMTSCXA02T	NSMTSCXA02T	BSVLSCXB42B	434	SI
SC	FARMERS	0520	MAYESVILLE	MYVLSCXA453	803	453	NSMTSCXA02T	NSMTSCXA02T	NSMTSCXB469	434	SI

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	FARMERS	0520	NORTH MANNING	NMNGSCXA473	803	473	NSMTSCXA02T	NSMTSCXA02T	POCLSCXA481	434	SI
SC	FARMERS	0520	NORTH MANNING	NMNGSCXA473	803	505	NSMTSCXA02T	NSMTSCXA02T	POCLSCXA481	434	SI
SC	FARMERS	0520	NORTH SUMMERTN	NSTNSCXA478	803	478	NSMTSCXA02T	NSMTSCXA02T	POCLSCXA481	434	SI
SC	FARMERS	0520	NORTH SUMTER	NSMTSCXACM2	803	468	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	NORTH SUMTER	NSMTSCXB469	803	469	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	NORTH SUMTER	NSMTSCXB469	803	491	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	NORTH SUMTER	NSMTSCXB469	803	905	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	NORTH SUMTER	NSMTSCXB469	803	983	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	OAKLAND	OKLDSCXA499	803	499	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	PINEWOOD	PNWDSCXA452	803	452	NSMTSCXA02T	NSMTSCXA02T	POCLSCXA481	434	SI
SC	FARMERS	0520	POCALLA	POCLSCXA481	803	481	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	POCALLA	POCLSCXA481	803	506	NSMTSCXA02T	NSMTSCXA02T		434	SI
SC	FARMERS	0520	STATEBURG	STBGSCXA494	803	494	NSMTSCXA02T	NSMTSCXA02T	OKLDSCXA499	434	SI
SC	FARMERS	0520	STATEBURG	STBGSCXA494	803	501	NSMTSCXA02T	NSMTSCXA02T	OKLDSCXA499	434	SI
SC	POND BRANCH	0539	GILBERT	GLBRSCXARS1	803	892	PELISCXA02T	CLMASCSN60T	PELISCXADS0	434	MM
SC	POND BRANCH	0539	PELION	PELISCXADS0	803	894	PELISCXA02T	CLMASCSN60T		434	MM
SC	POND BRANCH	0539	POND BRANCH	PNBHSCXARS1	803	657	PELISCXA02T	CLMASCSN60T	PELISCXADS0	434	MM
SC	POND BRANCH	0539	RIDGE SPRING	RDSPSCXARS1	803	685	PELISCXA02T	CLMASCSN60T	PELISCXADS0	434	MM
SC	POND BRANCH	0539	SWANSEA	SWNSSCXARS1	803	568	PELISCXA02T	CLMASCSN60T	PELISCXADS0	434	MM
SC	POND BRANCH	0539	WAGENER	WGNRSCXARS1	803	564	PELISCXA02T	CLMASCSN60T	PELISCXADS0	434	MM

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Table W South Carolina (continued)

ST	Company	OCN Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	GENERAL-SC	4335	HOLLYWOOD	HLWDSCXADS0	843	889	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	GENERAL-SC	4335	WALTERBORO	WLBOSCXCDS0	843	542	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	GENERAL-SC	4335	WALTERBORO	WLBOSCXCDS0	843	549	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	GENERAL-SC	4335	YEMASSEE	YMSSSCXADS0	843	589	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	HOME	0527	CROSS	CRSSSCXA753	843	753	CHTNSCDT60T	CHTNSCDT60T	MNCRSCXB76E	436	MM
SC	HOME	0527	HUGER	HUGRSCXA336	803	336	CHTNSCDT60T	CHTNSCDT60T	MNCRSCXB76E	436	MM
SC	HOME	0527	JAMESTOWN	JMTWSCXA257	803	257	CHTNSCDT60T	CHTNSCDT60T	MNCRSCXB76E	436	MM
SC	HOME	0527	LEBANON	LBNNSCXA688	843	688	CHTNSCDT60T	CHTNSCDT60T	MNCRSCXB76E	436	MM
SC	HOME	0527	MACEDONIA	MCDNSCXA565	843	565	CHTNSCDT60T	CHTNSCDT60T	MNCRSCXB76E	436	MM
SC	HOME	0527	MONCKS CORNER	MNCRSCXB76E	843	719	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	HOME	0527	MONCKS CORNER	MNCRSCXB76E	843	761	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	HOME	0527	MONCKS CORNER	MNCRSCXC76E	843	899	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	MCCLELLANVLE	0533	AWENDAW	AWDWSCXARS0	843	928	CHTNSCDT60T	CHTNSCDT60T	MLVLSCXADS0	436	SI
SC	MCCLELLANVLE	0533	MC CLELLANVILLE	MLVLSCXADS0	843	887	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	PALMETTO	0536	COTTAGEVILLE	CTVLSCXA835	843	835	CHTNSCDT60T	CHTNSCDT60T	WLBOSCXE538	436	MM
SC	PALMETTO	0536	HENDERSONVILLE	HNVLSCXA844	843	844	CHTNSCDT60T	CHTNSCDT60T	WLBOSCXE538	436	MM
SC	PALMETTO	0536	LODGE	LODGSCXA866	843	866	CHTNSCDT60T	CHTNSCDT60T	WLBOSCXE538	436	MM
SC	PALMETTO	0536	N WALTERBORO RUR	WLBOSCXE538	843	538	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	PALMETTO	0536	N WALTERBORO RUR	WLBOSCXE538	843	908	CHTNSCDT60T	CHTNSCDT60T		436	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	PALMETTO	0536	S WALTERBORO RUR	WLBOSCXD893	843	893	CHTNSCDT60T	CHTNSCDT60T	WLBOSCXE538	436	MM
SC	PALMETTO	0536	WILLIAMS	WLMSSCXA562	843	562	CHTNSCDT60T	CHTNSCDT60T	WLBOSCXE538	436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	490	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	521	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	522	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	524	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	525	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	575	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	770	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	812	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	982	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	986	CHTNSCDT60T	CHTNSCDT60T		436	MM
SC	SPRINT (UNITED)-SC	0506	BEAUFORT	BUFTSCXADS0	843	470	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	SPRINT (UNITED)-SC	0506	LAUREL BAY	LRBYSCXARS0	843	846	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM
SC	SPRINT (UNITED)-SC	0506	LOW COUNTRY	LWCNSCAAL01	843	987	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM
SC	SPRINT (UNITED)-SC	0506	RIDGELAND	RDLDSCXARS0	803	226	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	SPRINT (UNITED)-SC	0506	RIDGELAND	RDLDSCXARS0	843	717	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM
SC	SPRINT (UNITED)-SC	0506	RIDGELAND	RDLDSCXARS0	843	726	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM
SC	SPRINT (UNITED)-SC	0506	SAINT HELENA	STHLSCXARS0	843	838	CHTNSCDT60T	CHTNSCDT60T	BUFTSCXADS0	436	MM
SC	ST STEPHEN	0544	BONNEAU	BONNSCXARS0	843	825	CHTNSCDT60T	CHTNSCDT60T	STSTSCXBDS0	436	SI
SC	ST STEPHEN	0544	PINEVILLE	PIVLSCXARS0	803	351	CHTNSCDT60T	CHTNSCDT60T	STSTSCXBDS0	436	SI
SC	ST STEPHEN	0544	SAINT STEPHEN	STSTSCXBDS0	843	567	CHTNSCDT60T	CHTNSCDT60T		436	SI
SC	BLUFFTON	0512	BLUFFTON	BFTNSCXA75E	843	705	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	BLUFFTON	0512	BLUFFTON	BFTNSCXA75E	843	706	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	BLUFFTON	0512	BLUFFTON	BFTNSCXA75E	843	757	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	BLUFFTON	0512	BLUFFTON	BFTNSCXA75E	843	815	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	BLUFFTON	0512	MOSS CREEK	MCRKSCXA83E	843	836	PTVLSCXA01T	SVNHGABS03T	BFTNSCXA75E	440	MM
SC	BLUFFTON	0512	MOSS CREEK	MCRKSCXA83E	843	837	PTVLSCXA01T	SVNHGABS03T	BFTNSCXA75E	440	MM
SC	HARGRAY	0523	HARDEEVILLE	HRVLSCXA784	843	784	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	341	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	342	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	683	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	686	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	785	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXA78E	843	842	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXB67E	843	363	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXB67E	843	671	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXC68E	843	681	PTVLSCXA01T	SVNHGABS03T		440	MM

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Table W South Carolina (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
SC	HARGRAY	0523	HILTON HEAD	HLHDSCXC68E	843	689	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	PTVLSCAAH01	843	295	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	PTVLSCAAH01	843	384	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	PTVLSCAAH01	843	816	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	HILTON HEAD	PTVLSCXACM0	843	290	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	HARGRAY	0523	PRITCHARDVILL	EPTVLSCXA01T	803	020	PTVLSCXA01T	SVNHGABS03T		440	MM
SC	CONTEL-SC	0526	JACKSON	JCSNSCXADS0	803	471	AGSTGAMT03T	AGSTGAMT03T		442	MM

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Table X Tennessee

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	CITIZENS-TN	4336	DRESDEN	DRSDTNXADS0	901	364	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	CITIZENS-TN	4336	LATHAM	LTHMTNXARS0	901	799	MMPHTNMA84T	MMPHTNMA84T	DRSDTNXADS0	468	SI
TN	CITIZENS-TN	4336	MARTIN	MARTTNXADS0	901	587	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	CITIZENS-TN	4336	MARTIN	MARTTNXADS0	901	588	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	CITIZENS-TN	4336	PALMERVILLE	PLVLTNXARS0	901	822	MMPHTNMA84T	MMPHTNMA84T	DRSDTNXADS0	468	SI
TN	CITIZENS-TN	4336	SHARON	SHRNTNXADS0	901	456	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	CITIZENS-TN	4336	SIDONIA	SIDNTNXARS0	901	973	MMPHTNMA84T	MMPHTNMA84T	MARTTNXADS0	468	SI
TN	CROCKETT	0561	ALAMO	ALAMTNXADS1	901	696	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	CROCKETT	0561	FRIENDSHIP	FRSHTNXARS5	901	677	MMPHTNMA84T	MMPHTNMA84T	ALAMTNXADS1	468	SI
TN	CROCKETT	0561	MAURY CITY	MRCYTNXARS5	901	656	MMPHTNMA84T	MMPHTNMA84T	ALAMTNXADS1	468	SI
TN	CTE OF ADAMSVILLE	0552	ADAMSVILLE	ADVLTNXADS1	901	632	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF ADAMSVILLE	0552	MILLEDGEVLE	MDVLTNXADS0	901	687	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF ADAMSVILLE	0552	MILLEDGEVLE	MDVLTNXADS0	901	688	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF ADAMSVILLE	0552	SHILOH	SHLHTNXADS0	901	689	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF ADAMSVILLE	0552	YELLOW CREEK	SHLHTNXADS0	601	667	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF NO MS	0458	BYHALIA	BYHLMSXADS0	601	838	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF NO MS	0458	CHULAHOMA	CHLHMSXADS1	601	564	MMPHTNMA84T	MMPHTNMA84T	BYHLMSXADS0	468	MM
TN	CTE OF NO MS	0458	OLIVE BRANCH	OLBRMSXADS0	601	893	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF NO MS	0458	OLIVE BRANCH	OLBRMSXADS0	601	895	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CTE OF NO MS	0458	OLIVE BRANCH	OLBRMSXADS1	601	890	MMPHTNMA84T	MMPHTNMA84T		468	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	MILLINGTON	0571	DRUMMONDS	DRMNTNXARS5	901	835	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	MASON	MASNTNXARS5	901	294	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	MASON	MASNTNXARS5	901	594	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	MILLINGTON	MGTNTNXADS0	901	872	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	MILLINGTON	0571	MILLINGTON	MGTNTNXADS0	901	873	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	MILLINGTON	0571	MILLINGTON	MGTNTNXADS0	901	874	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	MILLINGTON	0571	MUNFORD	MNFDTNXARS5	901	837	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	ROSEMARK	RSMRTNXARS5	901	829	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	SHELBY FOREST	SHFRTNXARS5	901	876	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	MILLINGTON	0571	STANTON	SNTNTNXARS5	901	548	MMPHTNMA84T	MMPHTNMA84T	MGTNTNXADS0	468	MM
TN	PEOPLES-TN	0576	HENRY	HNRYTNXARS5	901	243	MMPHTNMA84T	MMPHTNMA84T	BRFRTNXADS0	468	MM
TN	TENNESSEE	0575	BRUCETON	BCTNTNXARS0	901	586	MMPHTNMA84T	MMPHTNMA84T	PRSSTNXADS1	468	SI
TN	TENNESSEE	0575	DECATURVLE	DCVLTNXARS0	901	852	MMPHTNMA84T	MMPHTNMA84T	PRSSTNXADS1	468	SI
TN	TENNESSEE	0575	PARSONS	PRSSTNXADS1	901	845	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	TENNESSEE	0575	PARSONS	PRSSTNXADS1	901	847	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	TENNESSEE	0575	SARDIS	SRDSTNXARS1	901	858	MMPHTNMA84T	MMPHTNMA84T	PRSSTNXADS1	468	SI
TN	TENNESSEE	0575	SCOTTS HILL	SCHLTNXARS0	901	549	MMPHTNMA84T	MMPHTNMA84T	PRSSTNXADS1	468	SI
TN	W TENNESSEE	0583	ATWOOD	ATWDTNXARS0	901	662	MMPHTNMA84T	MMPHTNMA84T	BRFRTNXADS0	468	SI
TN	W TENNESSEE	0583	BRADFORD	BRFRTNXADS0	901	742	MMPHTNMA84T	MMPHTNMA84T		468	SI
TN	W TENNESSEE	0583	RUTHERFORD	RTFRTNXARS0	901	665	MMPHTNMA84T	MMPHTNMA84T	BRFRTNXADS0	468	SI
TN	W TENNESSEE	0583	TREZEVANT	TRZVTNXARS5	901	669	MMPHTNMA84T	MMPHTNMA84T	BRFRTNXADS0	468	SI
TN	YORKVILLE	0584	BRAZIL	BRZLTNXADS0	901	559	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	YORKVILLE	0584	MASON HALL	MSHLTNXADS0	901	673	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	YORKVILLE	0584	TRIMBLE	TRMBTNXADS0	901	297	MMPHTNMA84T	MMPHTNMA84T		468	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	YORKVILLE	0584	YORKVILLE	YRVLTNXADS0	901	643	MMPHTNMA84T	MMPHTNMA84T		468	MM
TN	CITIZENS-TN	4336	ALGOOD	ALGDTNXARS0	931	537	CKVLTNXA71T	CKVLTNXA71T	CKVLTNXADS0	470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	ALGDTNABCM1	931	544	CKVLTNXA71T	CKVLTNXA71T	CKVLTNXADS0	470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	372	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	520	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	525	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	526	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	528	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	COOKEVILLE	CKVLTNXADS0	931	979	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	CROSSVILLE	CSVLTNXADS0	931	456	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	CROSSVILLE	CSVLTNXADS0	931	484	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	CROSSVILLE	CSVLTNXADS0	931	707	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	MCMINNVILLE	MMVLTNXADS0	931	473	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	MCMINNVILLE	MMVLTNXADS0	931	506	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	MONTEREY	MTRYTNAA1MD	931	260	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	MONTEREY	MTRYTNAA1MD	931	261	CKVLTNXA71T	CKVLTNXA71T		470	SI
TN	CITIZENS-TN	4336	MONTEREY	MTRYTNXARS0	931	839	CKVLTNXA71T	CKVLTNXA71T	CKVLTNXADS0	470	SI
TN	CITIZENS-TN	4336	PLEASANT HILL	PLHLTNXARS0	931	277	CKVLTNXA71T	CKVLTNXA71T	CSVLTNXADS0	470	SI
TN	CITIZENS-TN	4336	SPARTA	SPRTTNXARS0	931	836	CKVLTNXA71T	CKVLTNXA71T	CKVLTNXADS0	470	SI
TN	CITIZENS-TN	4336	TANSI	TANSTNXARS0	931	788	CKVLTNXA71T	CKVLTNXA71T	CSVLTNXADS0	470	SI
TN	UNITED-TN	0581	BELFAST	BLFSTNXARS0	931	276	CPHLTNXA96T	NSVLTNMT86T	CPHLTNXADS1	470	MM
TN	UNITED-TN	0581	CHAPEL HILL	CPHLTNXADS2	615	996	CPHLTNXA96T	NSVLTNMT86T		470	MM
TN	UNITED-TN	0581	CHAPEL HILL	CPHLTNXADS2	931	364	CPHLTNXA96T	NSVLTNMT86T		470	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNITED-TN	0581	COLLEGE GROVE	CLGVTNXARS0	615	368	CPHLTNXA96T	NSVLTNMT86T	CPHLTNXADS1	470	MM
TN	UNITED-TN	0581	ESTILL SPRINGS	ESSPTNXARS0	931	649	CPHLTNXA96T	NSVLTNMT86T	CPHLTNXADS1	470	MM
TN	UNITED-TN	0581	FLAT CREEK	FLCKTNXARS0	931	695	CPHLTNXA96T	NSVLTNMT86T	UNVLTNXADS0	470	MM
TN	UNITED-TN	0581	FOSTERVILLE	FSTVTNXARS0	615	233	CPHLTNXA96T	NSVLTNMT86T	UNVLTNXADS0	470	MM
TN	UNITED-TN	0581	FOSTERVILLE	FSTVTNXARS0	931	437	CPHLTNXA96T	NSVLTNMT86T	UNVLTNXADS0	470	MM
TN	UNITED-TN	0581	NOLENSVILLE	NLVLTNXARS1	615	776	CPHLTNXA96T	NSVLTNMT86T	CPHLTNXADS1	470	MM
TN	UNITED-TN	0581	NOLENSVILLE	NLVLTNXARS1	615	941	CPHLTNXA96T	NSVLTNMT86T	CPHLTNXADS1	470	MM
TN	UNITED-TN	0581	UNIONVILLE	UNVLTNXADS0	931	294	CPHLTNXA96T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	BAXTER	BXTRTNXADS0	931	858	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	BYRDSTOWN	BYTWTNXARS0	931	864	GNBOTNXA95T	NSVLTNMT86T	LVTNTNXADS0	470	MM
TN	TWIN LAKES	0579	CELINA	CELNTNXADS0	931	243	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	CHESTNUT MOUND	CHMNTNXARS0	615	897	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	CLARKRANGE	CLRKTNXARS0	931	863	GNBOTNXA95T	NSVLTNMT86T	JMTWTNXADS0	470	MM
TN	TWIN LAKES	0579	COOKEVILLE SO	CKVLTNXBDS0	931	432	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	CRAWFORD	CRFRTNXARS0	931	445	GNBOTNXA95T	NSVLTNMT86T	LVTNTNXADS0	470	MM
TN	TWIN LAKES	0579	GAINESBORO	GNBOTNXADS0	931	268	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	GAINESBORO	GNBOTNXADS0	931	405	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	GRANVILLE	GRVITNXARS0	931	653	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	HIGHLAND	HGLDTNXARS0	931	678	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	JAMESTOWN	JMTWTNXADS0	931	752	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	JAMESTOWN	JMTWTNXADS0	931	879	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	LIVINGSTON	LVTNTNXADS0	931	397	GNBOTNXA95T	NSVLTNMT86T		470	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	TWIN LAKES	0579	LIVINGSTON	LVTNTNXADS0	931	403	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	LIVINGSTON	LVTNTNXADS0	931	823	GNBOTNXA95T	NSVLTNMT86T		470	MM
TN	TWIN LAKES	0579	MOSS	MOSSTNXADS0	931	258	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	NORTH SPRINGS	NRSPTNXARS0	931	621	GNBOTNXA95T	NSVLTNMT86T	GNBOTNXADS0	470	MM
TN	TWIN LAKES	0579	RICKMAN	RKMNTNXARS0	931	498	GNBOTNXA95T	NSVLTNMT86T	LVTNTNXADS0	470	MM
TN	LORETTO	0570	ETHRIDGE	ETRGTNXADS0	931	829	LRTTTNXA94T	NSVLTNMT86T		470	MM
TN	LORETTO	0570	FIVE POINTS	FVPLTNXARS5	931	556	LRTTTNXA94T	NSVLTNMT86T	LRTTTNXADS0	470	MM
TN	LORETTO	0570	LEOMA	LEOMTNXARS5	931	852	LRTTTNXA94T	NSVLTNMT86T	LRTTTNXADS0	470	MM
TN	LORETTO	0570	LORETTO	LRTTTNXADS0	931	853	LRTTTNXA94T	NSVLTNMT86T		470	MM
TN	LORETTO	0570	ST JOSEPH	STJSTNXARS5	931	845	LRTTTNXA94T	NSVLTNMT86T	LRTTTNXADS0	470	MM
TN	BEN LOMAND	0553	BEECH GROVE	BCGVTNXARS0	931	394	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	BEN LOMAND	0553	BEERSHEBA	BRSHTNXARS0	931	692	MMRLTNXA94T	NSVLTNMT86T	TRCYTNXBDS1	470	MM
TN	BEN LOMAND	0553	BON DECROFT	DRSTTNXARS0	931	935	MMRLTNXA94T	NSVLTNMT86T	SPRLTNXADS1	470	MM
TN	BEN LOMAND	0553	CENTERTOWN	CNTWTNXARS0	931	939	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	BEN LOMAND	0553	DIBRELL	DBRLTNXARS0	931	934	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	BEN LOMAND	0553	DOYLE	DOYLTNXARS0	931	657	MMRLTNXA94T	NSVLTNMT86T	SPRL	470	MM
TN	BEN LOMAND	0553	HILLSBORO	HLBOTNXARS0	931	596	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	BEN LOMAND	0553	LAAGER	LAGRTNXARS0	931	779	MMRLTNXA94T	NSVLTNMT86T	TRCYTNXBDS1	470	MM
TN	BEN LOMAND	0553	MCMINNVILLE	MMRLTNXADS0	931	668	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	MCMINNVILLE	MMRLTNXADS0	931	815	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	MONTEAGLE	MTEGTNXARS0	931	924	MMRLTNXA94T	NSVLTNMT86T	TRCYTNXBDS1	470	MM
TN	BEN LOMAND	0553	OLD ZION	OLZITNXADS0	931	761	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	PELHAM	PLHMTNXARS0	931	467	MMRLTNXA94T	NSVLTNMT86T	TRCYTNXBDS1	470	MM
TN	BEN LOMAND	0553	ROCK ISLAND	RCISTNXARS0	931	686	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	BEN LOMAND	0553	SPARTA	SPRLTNXADS1	931	738	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	SPARTA	SPRLTNXADS1	931	739	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	SPENCER	SPNCTNXARS0	931	946	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	BEN LOMAND	0553	TRACY CITY	TRCYTNXBDS1	931	592	MMRLTNXA94T	NSVLTNMT86T		470	MM
TN	BEN LOMAND	0553	VIOLA	VIOLTNXARS0	931	635	MMRLTNXA94T	NSVLTNMT86T	MMRLTNXADS0	470	MM
TN	ARDMORE	0280	ARDMORE	ARMRALXADS0	205	420	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	ARDMORE	0280	ARDMORE	ARMRALXADS0	205	423	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	ARDMORE	4000	ARDMORE	ARMRALXADS0	931	427	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	ARDMORE	4000	MCBURG	MCBGTNXARS5	931	732	NSVLTNMT84T	NSVLTNMT86T	ARMRALXADS0	470	MM
TN	ARDMORE	4000	MINOR HILL	MNHLTNXARS5	931	565	NSVLTNMT84T	NSVLTNMT86T	ARMRALXADS0	470	MM
TN	DEKALB	0562	ALEXANDRIA	ALXNTNXARS0	615	408	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	ALEXANDRIA	ALXNTNXARS0	615	529	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	AUBURNTOWN	ABTWTNXARS0	615	464	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	GORDONSVILLE	GOVLTNXARS0	615	683	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	LIBERTY	LBRTTNXARS5	615	536	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	MILTON	MLTNTNXARS0	615	273	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	NORENE	NORNTNXARS0	615	286	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	SMITHVILLE	SMVLTNXACM0	615	235	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	DEKALB	0562	SMITHVILLE	SMVLTNXADS1	615	597	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	DEKALB	0562	TEMPRNCE HALLS	TMHLTNXARS0	615	548	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	WOODBURY	WDBYTNXARS0	615	409	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	WOODBURY	WDBYTNXARS0	615	563	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM
TN	DEKALB	0562	WOODLAND	WDLDTNXARS0	615	765	NSVLTNMT84T	NSVLTNMT86T	SMVLTNXADS1	470	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	HUMPHREYS CTY	0566	NEW JOHNSONVLE	NWJHTNXARS5	931	535	NSVLTNMT84T	NSVLTNMT86T	MTJLTNXADS2	470	SI
TN	NORTH CENTRAL	0573	BETHPAGE	BTHPTNXARS0	615	841	NSVLTNMT84T	NSVLTNMT86T	WMLDTNXADS	470	MM
TN	NORTH CENTRAL	0573	DEFEATED	DFTDTNXARS5	615	774	NSVLTNMT84T	NSVLTNMT86T	LFYTTNXADS0	470	MM
TN	NORTH CENTRAL	0573	GREEN GROVE	GNGVTNXARS5	615	655	NSVLTNMT84T	NSVLTNMT[illegible]	LFYTTNXADS0	470	MM
TN	NORTH CENTRAL	0573	HILLSDALE	HLDLTNXARS5	615	633	NSVLTNMT84T	NSVLTNMT86T	LFYTTNXADS0	470	MM
TN	NORTH CENTRAL	0573	LAFAYETTE	LFYTTNXADS0	615	666	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	NORTH CENTRAL	0573	LAFAYETTE	LFYTTNXADS0	615	688	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	NORTH CENTRAL	0573	OAK GROVE	OKGVTNXADS0	615	888	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	NORTH CENTRAL	0573	OAK GROVE	OKGVTNXADS0	615	362	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	NORTH CENTRAL	0573	PLEASANT SHADE	PLSHTNXARS5	615	677	NSVLTNMT84T	NSVLTNMT86T	LFYTTNXADS0	470	MM
TN	NORTH CENTRAL	0573	REDBLNG SPGS	RBSPTNXADS0	615	699	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	NORTH CENTRAL	0573	WESTMORELND	WMLDTNXADS[illegible]	615	644	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	PEOPLES-TN	0576	ERIN	ERINTNXADS0	931	289	NSVLTNMT84T	NSVLTNMT86T		470	MM
TN	PEOPLES-TN	0576	TENN RIDGE	TNRGTNXARS5	931	721	NSVLTNMT84T	NSVLTNMT86T	ERINTNXADS0	470	MM
TN	TENNESSEE	0575	CLIFTON	CFTNTNXARS1	931	676	NSVLTNMT84T	NSVLTNMT86T	WYBOTNXADS[illegible]	470	SI
TN	TENNESSEE	0575	COLLINWOOD	CNWDTNXARS0	931	724	NSVLTNMT84T	NSVLTNMT86T	WYBOTNXADS[illegible]	470	SI
TN	TENNESSEE	0575	CORNERSVILLE	COVLTNXARS0	931	293	NSVLTNMT84T	NSVLTNMT86T	MTJLTNXADS2	470	SI
TN	TENNESSEE	0575	LAVERGNE	LVRGTNXADS2	615	287	NSVLTNMT84T	NSVLTNMT86T		470	SI

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	TENNESSEE	0575	LAVERGNE	LVRGTNXADS2	615	641	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	LAVERGNE	LVRGTNXADS2	615	793	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	LAVERGNE	LVRGTNXADS2	615	213	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	LINDEN	LNDNTNXADS0	931	589	NSVLTNMT84T	NSVLTNMT86T	WYBOTNXADS1	470	SI
TN	TENNESSEE	0575	LOBELVILLE	LBVLTNXARS0	931	593	NSVLTNMT84T	NSVLTNMT86T	WYBOTNXADS1	470	SI
TN	TENNESSEE	0575	MT JULIET	MTJLTNXADS2	615	754	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	MT JULIET	MTJLTNXADS2	615	758	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	MT JULIET	MTJLTNXADS2	615	773	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	TENNESSEE	0575	WAYNESBORO	WYBOTNXADS0	931	722	NSVLTNMT84T	NSVLTNMT86T		470	SI
TN	ALLTEL-GA	4425	KENSINGTON	KETNGAXADS0	706	539	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	ALLTEL-GA	4425	LAFAYETTE	LFYTGAXADS0	706	638	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	ALLTEL-GA	4425	LAFAYETTE	LFYTGAXADS0	706	639	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	ALLTEL-GA	4425	NOBLE	NOBLGAXARS0	706	764	CHTGTNNS84T	CHTGTNNS84T	LFYTGAXADS0	472	MM
TN	ALLTEL-GA	4425	VILLANOW	VLNWGAXARS1	706	397	CHTGTNNS84T	CHTGTNNS84T	LFYTGAXADS0	472	MM
TN	BLEDSOE	0554	COLLEGE STATION	CLSTTNXADS0	423	554	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	BLEDSOE	0554	DUNLAP	DNLPTNXADS0	423	949	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	BLEDSOE	0554	FALL CRK FALLS	FCFLTNXADS0	423	881	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	BLEDSOE	0554	NINE MILE	NNMLTNXADS0	423	533	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	BLEDSOE	0554	PIKEVILLE	PKVLTNXADS0	423	447	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	CHICKAMAUGA	0354	CHICKAMAUGA	CHCMGAXADS1	706	375	CHTGTNNS84T	CHTGTNNS84T		472	SI
TN	CHICKAMAUGA	0354	HIGH POINT	HGPNGAXARS5	706	931	CHTGTNNS84T	CHTGTNNS84T	CHCMGAXADS1	472	SI
TN	CTE OF OOLTEWAH CLDLE	0574	APISON	APSNTNXARS5	423	236	CHTGTNNS84T	CHTGTNNS84T	OLTWTNXADS1	472	MM

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	CTE OF OOLTEWAH CLDLE	0574	COLLEGEDALE	CLDLTNXARS5	423	396	CHTGTNNS84T	CHTGTNNS84T	OLTWTNXADS1	472	MM
TN	CTE OF OOLTEWAH CLDLE	0574	OOLTEWAH	OLTWTNXADS1	423	238	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	RINGGOLD-GA	0382	RINGGOLD	RNGLGAXA93A	706	937	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	RINGGOLD-GA	0382	RINGGOLD	RNGLGAXBDS1	706	935	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	RINGGOLD-GA	0382	RINGGOLD	RNGLGAXBDS1	706	965	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	TRENTON	0389	RISING FAWN	RSFWGAXA[illegible]	706	462	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	TRENTON	0389	TRENTON	TRENGAXADS1	706	657	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	TRENTON	0389	WEST BROW	WBRWGAXADS	706	398	CHTGTNNS84T	CHTGTNNS84T		472	MM
TN	CITIZENS (Volunteer St)	0577	CLAXTON	CXTNTNXADS0	423	945	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CITIZENS (Volunteer St)	0577	POWELL	POWLTNXADS0	423	362	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CITIZENS (Volunteer St)	0577	POWELL	POWLTNXADS0	423	938	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CITIZENS (Volunteer St)	0577	POWELL	POWLTNXADS0	423	947	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CITIZENS (Volunteer St)	0577	RUTLEDGE	RTLGTNXADS1	423	828	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CITIZENS (Volunteer St)	0577	TATE SPRINGS	TTSPTNXARS0	423	767	KNVLTNMA84T	KNVLTNMA84T	RTLGTNXADS1	474	MM
TN	CITIZENS (Volunteer St)	0577	WASHBURN	WSBNTNXARS0	423	497	KNVLTNMA84T	KNVLTNMA84T	RTLGTNXADS1	474	MM
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	216	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	218	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	640	KNVLTNMA84T	KNVLTNMA84T		474	SI

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	643	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	654	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	660	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	661	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	671	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	675	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	679	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	680	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	777	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXADS2	423	966	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXBCM1	423	254	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXBCM1	423	258	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXBCM1	423	659	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CONCORD	0559	CONCORD	CNCRTNXBCM1	423	705	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	CTE OF CLAIBORNE	0557	NEW TAZEWLL	NWTZTNXADS0	423	526	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CTE OF CLAIBORNE	0557	NEW TAZEWLL	NWTZTNXADS0	423	626	KNVLTNMA84T	KNVLTNMA84T		474	MM
TN	CTE OF CLAIBORNE	0557	SHARPS CHAPEL	SHCPTNXARS5	423	278	KNVLTNMA84T	KNVLTNMA84T	NWTZTNXADS0	474	MM
TN	HIGHLAND	0565	DEER LODGE	DRLDTNXARS0	423	965	KNVLTNMA84T	KNVLTNMA84T	WABGTNXADS0	474	SI
TN	HIGHLAND	0565	HUNTSVILLE	HNVITNXADS0	423	319	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	HIGHLAND	0565	HUNTSVILLE	HNVITNXADS0	423	663	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	HIGHLAND	0565	OAKDALE	OKDLTNXARS0	423	369	KNVLTNMA84T	KNVLTNMA84T	WABGTNXADS0	474	SI
TN	HIGHLAND	0565	ONEIDA	ONEDTNXADS0	423	569	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	HIGHLAND	0565	PETROS	PTRSTNXARS0	423	324	KNVLTNMA84T	KNVLTNMA84T	WABGTNXADS0	474	SI

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	HIGHLAND	0565	ROBBINS	RBNSTNXARS0	423	627	KNVLTNMA84T	KNVLTNMA84T	HNVITNXADS0	474	SI
TN	HIGHLAND	0565	SUNBRIGHT	SNBRTNXARS0	423	628	KNVLTNMA84T	KNVLTNMA84T	WABGTNXADS0	474	SI
TN	HIGHLAND	0565	WARTBURG	WABGTNXADS0	423	346	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TELLICO	0578	BALL PLAY	BLPLTNXARS0	423	295	KNVLTNMA84T	KNVLTNMA84T	TLPLTNXADS0	474	SI
TN	TELLICO	0578	COKER CREEK	CKCKTNXARS0	423	261	KNVLTNMA84T	KNVLTNMA84T	TLPLTNXADS0	474	SI
TN	TELLICO	0578	ENGLEWOOD	ENWDTNXADS0	423	887	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TELLICO	0578	NIOTA	NIOTTNXARS0	423	568	KNVLTNMA84T	KNVLTNMA84T	ENWDTNXADS0	474	SI
TN	TELLICO	0578	RICEVILLE	RCVLTNXARS0	423	462	KNVLTNMA84T	KNVLTNMA84T	ENWDTNXADS0	474	SI
TN	TELLICO	0578	TELLICO PLAINS	TLPLTNXADS0	423	253	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TELLICO	0578	VONORE	VONRTNXADS0	423	884	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TELLICO	0578	VONORE	VONRTNXAH00	423	792	KNVLTNMA84T	KNVLTNMA84T	CNCRTNXADS2	474	SI
TN	TELLICO	0578	VONORE	VONRTNXAH00	423	885	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TENNESSEE	0575	HALL CROSS RDS	HCRDTNXADS1	423	922	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	TENNESSEE	0575	HALL CROSS RDS	HCRDTNXADS1	423	925	KNVLTNMA84T	KNVLTNMA84T		474	SI
TN	UNITED-TN	0567	JOHNSON CITY	JHCYTNXADS0	423	433	JHCYTNXADS0	JCYTNXC42T		956	NO
TN	UNTD-INTRMTN	0567	BAILEYTON	BLTNTNXARS0	423	234	JHCYTNXC42T	JHCYTNXC42T	GRVLTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BLOUNTVILLE	BUVLTNXARS0	423	279	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BLOUNTVILLE	BUVLTNXARS0	423	323	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	BLOUNTVILLE	BUVLTNXARS0	423	325	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BLOUNTVILLE	BUVLTNXARS0	423	917	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BLUFF CITY	BLCYTNXARS0	423	538	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BLUFF CITY	BLYTNXARS0	423	391	JHCYTNXC42T	JHCYTNXC42T	BRSTTNXADS0	956	NO
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	274	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	534	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	612	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	652	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	764	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	844	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	914	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	968	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	989	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXADS0	423	990	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BRISTOL	BRSTTNXARS0	423	878	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	BUTLER	BTLRTNXARS0	423	768	JHCYTNXC42T	JHCYTNXC42T	ELTNTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	CHURCH HILL	CHHLTNXARS0	423	357	JHCYTNXC42T	JHCYTNXC42T	KGPTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	ELIZABETHTOWN	ELTNTNXADS0	423	542	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	ELIZABETHTOWN	ELTNTNXADS0	423	543	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	ELIZABETHTOWN	ELTNTNXADS0	423	547	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	ERWIN	ERWNTNXARS0	423	735	JHCYTNXC42T	JHCYTNXC42T	JHCYTNXCDS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	ERWIN	ERWNTNXARS0	423	743	JHCYTNXC42T	JHCYTNXC42T	JHCYTNXCDS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	FALL BRANCH	FLBRTNXARS0	423	348	JHCYTNXC42T	JHCYTNXC42T	KGPTTNXADS0	956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	GREENVILLE	GRVLTNXADS0	423	636	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	GREENVILLE	GRVLTNXADS0	423	638	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	GREENVILLE	GRVLTNXADS0	423	639	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	GREENVILLE	GRVLTNXADS0	423	787	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	GREENVILLE	GRVLTNXADS0	423	798	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	HAMPTON	HMPNTNXARS0	423	725	JHCYTNXC42T	JHCYTNXC42T	ELTNTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXADS0	423	433	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXADS0	423	461	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXADS0	423	926	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXADS0	423	928	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXADS0	423	929	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	232	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	282	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	283	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	410	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	412	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	431	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	434	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	439	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	610	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	795	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	854	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	915	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	952	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	953	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	975	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JOHNSON CITY	JHCYTNXCDS0	423	975	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JONESBORO	JNBOTNXARS0	423	753	JHCYTNXC42T	JHCYTNXC42T	JHCYTNXCDS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	JONESBORO	JNBOTNXARS0	423	913	JHCYTNXC42T	JHCYTNXC42T	JHCYTNXCDS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	224	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	229	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	230	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	245	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	246	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	247	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	378	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	392	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXADS0	423	578	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXCRS0	423	288	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	KINGSPORT	KGPTTNXCRS0	423	343	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	LIMESTONE	LMSTTNXADS0	423	257	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY	MDWYTNXARS	423	416	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY	MDWYTNXADS	423	418	JHCYTNXC42T	JHCYTNXC42T		956	NO
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	BRSTTN02CM1	423	341	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	BRSTTN02CM1	423	956	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS2	423	306	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS1	423	335	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS1	423	360	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS1	423	361	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS1	423	502	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXADS1	423	571	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-SLIVN	MDWYTNXARS2	423	239	JHCYTNXC42T	JHCYTNXC42T	KGPTTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY-WSHGTN	MDWYTNXARS2	423	477	JHCYTNXC42T	JHCYTNXC42T	JHCYTNXCDS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MIDWAY SUL	MDWYTNXARS2	423	467	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MOSHEIM	MOSHTNXARS0	423	422	JHCYTNXC42T	JHCYTNXC42T	GRVLTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	MOUNTAIN CITY	MTCYTNXARS0	423	727	JHCYTNXC42T	JHCYTNXC42T	ELTNTNXADS0	956	NO MEET POINT

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Table X Tennessee (continued)

ST	Company	AP Code	Exchange Name	Exchange CLLI	NPA	NXX	AT	AT Oper	Host OFC	NUM LATA	BO SW
TN	UNTD-INTRMTN	0567	ROAN MOUNTAIN	RNMTTNXARS0	423	772	JHCYTNXC42T	JHCYTNXC42T	ELTNTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	SHADY VALLEY	SHVYTNXADS0	423	739	JHCYTNXC42T	JHCYTNXC42T		956	NO MEET POINT
TN	UNTD-INTRMTN	0567	STONEY CREEK	STCKTNXARS0	423	474	JHCYTNXC42T	JHCYTNXC42T	ELTNTNXADS0	956	NO MEET POINT
TN	UNTD-INTRMTN	0567	SULLIVAN GARDEN	SLGRTNXARS0	423	349	JHCYTNXC42T	JHCYTNXC42T	KGPTTNXADS0	956	NO MEET POINT

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2. Service Areas

2.1 Introduction

This chapter deals with two subjects: **LATA** Information, and the **LERG**.

The first section includes geographic area information, referred to as LATA information. The term Local Access and Transport Area (LATA) refers to a geographic area established for the provision and administration of communications service. It encompasses one or more designated exchanges that are grouped to serve common, social, economic, and other purposes.

The latter section provides a general description of the **Local Exchange Routing Guide** (LERG). The LERG includes data used for the administration and routing of telecommunications with the North American Numbering Plan (NANP), excluding Canada.

2.1.1 Section A

2.1.1.1 LATA Information

2.1.1.2 LATA Index

Area	LATA	Prefix
Alabama	Birmingham	476
	Huntsville	477
	Montgomery	478
	Mobile	478
Florida	Pensacola	448
	Panama City	450
	Jacksonville	452
	Gainsville	454
	Daytona Beach	456
	Orlando	458
	South Florida	460
Georgia	Atlanta	438
	Savannah	440
	Augusta	442

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Area	LATA	Prefix
	Albany	440
	Macon	446
Kentucky	Louisville	462
	Owensboro	464
	Winchester	466
l ana	Shreveport	486
	Lafayette	488
	New Orleans	490
	Baton Rouge	492
Mississippi	Jackson	482
	Biloxi	484
North Carolina	Asheville	420
	Charlotte	422
	Greensboro	424
	Raleigh	426
	Wilmington	428
South Carolina	Greenville	430
	Florence	432
	Columbia	434
	Charleston	436
Tenneessee	Memphis	468
	Nashville	470
	Chattanooga	472
	Knoxville	474

2.1.1.3 Local Exchange Routing Guide (LERG)

2.1.1.4 What is the LERG

The LERG is the result of processing data obtained from the Routing Data Base System (RDBS). RDBS processes Local Exchange Company (LEC) Routing and Rate Center data to produce both

on-line inquiry and off-line reports for the administration of routing within the North American Numbering Plan (NANP), excluding Canada.

2.1.1.5 Description

The LERG contains information about the current network configuration and scheduled changes within the local exchange provider's networks. The LERG is primarily designed to be used for routing of interLATA calls by interexchange carriers. It includes the following sections:

- **North American Numbering Plan (NANP):**
  - A list of Routing codes such as Testboard and ECHO Canceller.
  - A list of Service codes such as 411 for Local Directory Assistance.
  - A description and assignment detail for Service Access Codes such as 500 and 900.
  - A list of NANP Universal Central Office Codes such as 959 for Plant Test.
  - A list of Carrier Identification Codes (CIC).
  - A list of Automatic Number Identification (ANI) Information Digits Codes:
- A list of Country Codes
- A list of 976 Like Codes.
- A list of Operator Service codes such as 141 for Route Desk.
- A list of Operating Company Numbers (OCNs) and Routing Contracts by OCN.
- Numbering Plan Area (NPA) Assignments.
- Local Access and Transport Area (LATA) Assignments.
- Destination Code (NPA/NXX) Assignments.
- Switching Entities.
- Rate Centers and Localities.
- Tandem Horning Arrangements (THA).
- Operator Service Access Tandem Codes (ATCs).

2.1.1.6 LERG Contents

The eight volumes of the LERG are organized in the following manner:

Volume	Reference No.	Description of Contents	Series
1	TR-EOP-000085	NYNEX	(100 - Series LATAs)
2	TR-EOP-000086	Bel l Atlantic	(200 - series LATAs)
3	TR-EOP-000087	Ameritech	(300 - series LATAs)
4	TR-EOP-000088	BellSouth	(400 - series LATAs)

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Volume	Reference No.	Description of Contents	Series
5	TR-EOP-000089	SWB	(500 - series LATAs)
6	TR-EOP-000090	U S West	(600 - series LATAs)
7	TR-EOP-000091	Pacific	(700 - series LATAs)
8	TR-EOP-000092	Offshore and International	(800 - series LATAs)
		Independents	(900 - series LATAs)

2.1.1.7 LERG Volume Format

Each of the eight **LERG** volumes contain sections 1,2, and 3.

Sections 4, 5, 6, and 7 also contain subsection numbers to indicate the appropriate volume number. For example, Subsection "4. Destination Code," Subsection 4.4 "BellSouth NXX LATAS, indicates that this information is located in Section 4 of Volume 1.

2.1.1.8 LERG Sectional Contents

The LERG Table of Contents includes the following sections and subsections that are contained in each volume:

- 1. Local Exchange Routing Guide
- 1.1 General
- 1.2 LERG Description
- 1.3 Glossary
- 1.5 Signaling System 7 (SS7) Network Code Assignment
- 1.6 Vertical Service Code Assignments
- 1.7 Carrier Identification Code Assignments
- 1.8 Automatic Numbering Identification II Digit Codes
- 1.9 800 and 900 NXX Codes Assignment/Routing Status and Definitions
- 1.10 Sac 500 NXX
- 1.11 Country Code Listings
- 1.12 —976 Like Codes
- 1.13 Ordering Information
- 1.14 RDBS On-Line Access
- 2 0 Routing Contacts and Operating Company Numbers

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- 2.1 Listing in Numerical Order
- 2.2 Listing in Alphabetical Order

- 3.0 NPA and LATA Assignments
- 3.1 Listing Numerically by NPA
- 3.2 Listing Alphabetically by NPA Name
- 3.3 Listing of LATAs Numerically with Region

2.1.1.9 How is the LERG Produced?

The LERG (Volumes 1 through 8) are produced quarterly in paper media and contains data presently active within the NANP, excluding Canada. The LERG also includes future changes planned at least up to and including two succeeding months.

The LERG can also be obtained in:

- Microfiche
- Data Tape.
- Bulk Data Transmission
- CD-ROM

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3. Subscription

3.1 Billing of PIC Change Charges

3.1.1 Introduction

3.1.1.1 Background

The Access Provider (AP) must bill subscription change charges to the Access Customers (ACs) under the conditions described below. The billing of these charges is mandated by the FCC's June 12, 1985, Allocation Order, the subsequent Order released on August 20, 1985, and the Order released on March 25, 1987, as a result of the Illinois Citizens Utility Board (CUB) Petition for Rule Making.

3.1.1.2 Conditions

The AP must bill the AC for subscription change charges under the following conditions:

- If an AC elects to discontinue Feature Group D (FGD) service in the converting end office prior to the conversion date or within two years after the introduction of FGD in the converting end office, the AC is obligated to contact, in writing, all end users or location providers who have selected or been allocated to the canceling AC. The AC must inform the end users or location providers of the cancellation and request the end user or location provider to select a new AC and state that the canceling AC will pay for the change charge.
- For a period of two years from the discontinuance of FGD service, the AP will bill a canceling AC for the Primary Interexchange Carrier (PIC) change charge for each end user or location provider that this AC currently has designated to it.
- If an AC wishes to change any of the criteria (as outlined in the FCC's June 12, 1985 Order) within a two-year period from the conversion date, it must notify its allocated customers and the AP of those changes 30 days before the changes are to take place. If the customer decides to change carriers, the AC must pay the change charges associated with that change.
- As a result of the FCC's Illinois CUB Order and FCC Order 91-398, CC Docket No 91-64 Erratrum released February 4, 1992, the AP will bill the AC for the PIC change charge when the AC is unable to provide proof of authorization as listed below in resolving end user or location provider disputes. This charge may include both the disputed and subsequent charges incurred to assign the end user's or location provider's line to the correct AC.

3.1.1.3 Conditions

- The customer's written authorization to submit the order that explains what occurs when a PIC is changed and confirmed:
  - The customer's billing name and address and each telephone number to be covered by the PIC change order.
  - The decision to change the PIC to the IXC; and

- The customer's electronic authorization, placed from the telephone number(s) on which the PIC is to be changed, to submit the order that confirms the information described.
- Documentation to support an appropriately qualified and independent third party and has obtained the customer's oral authorization to submit the PIC change order that confirms and includes appropriate verification data (e.g., the customer's date of birth or social security number).
- Copy of a postcard signed by the customer confirming the PIC change request.

3.1.1.4 Note

It should be noted that, all information presented and, in particular, any use of the term AP in this document applies to BellSouth. Since BellSouth supports the work and products of the Subscription and Customer Account Record Exchange (CARE) committees of the Ordering and Billing Forum (OBF), much information contained in this document comes directly from documentation previously distributed by Bellcore now distributed by ATIS.

3.1.2 Cancellation of FGD

3.1.2.1 End User/Location Provider Notification

If an AC elects to cancel FGD service, it is the responsibility of that AC to notify all subscribed end users or location providers with 30 days written notice.

The AC should contact the Equal Access Service Center in Birmingham, Alabama as soon as possible when this situation arises. The AP will make every effort to assist the AC in identifying its subscribers whenever possible.

In the event that all trunks are disconnected, end users or location providers will be routed to a recorded announcement until they choose a new long distance company.

3.1.2.2 Change Charge Billing to ACs

When the End User or location provider calls the AP Business Office to choose a new long distance company, and it is determined that the AC of record is no longer serving the subscriber's end office, a service order will be generated to bill the subscription change charge to the AC canceling FGD service.

3.1.3 End User/Location Provider Disputes

3.1.3.1 Change Charge Billing to ACs

If an end user or location provider contacts the AP and disputes the charge associated with a subscription change and wishes the PIC change to be investigated, the following steps will be taken:

- The AP Service Representative will investigate the end user's or location provider's complaint to determine if an AP error has been made.

- If no AP error is found, a service order will be issued to change the PIC. No change charge will be assessed to the end user or location provider.
- On a daily or weekly basis CARE will forward a Transaction Code Service Indicator (TCSI) 22-19 or the AP Service Representative will forward a notice of all end-user's or location-provider's complaints to that AC via the PIC Authorization Request List. With this notification, the AC is requested to provide written evidence that authorization to change the PIC was received by the AC from each subscriber. The exhibits at the end of this section provide examples of the cover letter and PIC Authorization Request List, an explanation of the request list follows the exhibits.

For an explanation of TCSI 22-19, please refer to the **"CARE Transaction Codes and Status Indicators"** section of this handbook.

- Minimum requirements for an agency authorization as stated in the Federal Communications Commission (FCC) Memorandum Opinion and Order released on June 12, 1985, in CC Docket No: 83-1145, Phase 1, Appendix B, Paragraph 10 are as follows:

"All ACs may seek customer commitments to use their services and designate them as their primary AC. All such commitments must be supported by a statement signed by the customer, which as a minimum, recognizes these conditions:

a. The customer designates the AC to act as the customer's agent for the presubscription process.

b. The customer understands that only one AC may be designated as the customer's primary AC for any one telephone number, and that selection of multiple carriers will invalidate all such selections.

c. The customer understands that any primary AC selection after the initial one will involve a charge to the customer.

d. The specific telephone number(s) for which the primary AC is designated must be listed.

- Any invalid agency authorization letters received by the AP in response to the PIC Authorization Request List will be returned to the AC. A cover letter entitled Authorization Received Unacceptable Letter (also shown in an exhibit at the end of this section) will be used to return the invalid authorization letters to the AC. The receipt of this documentation by the AC will indicate that the AC will be billed for the PIC change charges for those returned.
- If after 30 days from the mailing date of the letter, the AC has not provided the AP with a copy of the end user's or location provider's agency authorization, the AP Service Representative will issue an order billing the subscription change charge to the AC. This change may include both the disputed and subsequent charge incurred to assign the end user's or location provider's line to the correct AC. If the valid Letter of Authorization is provided by the AC within 30 days of the mailing date, then the charge will be billed to the end user or location provider.

3.1.3.2 Exhibit: Cover Letter for PIC Authorization Request List

To: (AC Name)
(AC Address)
(City, State Zip)

From: BellSouth
Address
City, State Zip

Claim #: _____

Attached is a list of subscribers who have notified (BellSouth) that authorization was not given by them for the subscription request received from your company and processed by BellSouth. Details of subscribers' requests are included on the attachment.

The Federal Communications Commission (FCC) Memorandum Opinion and Order of March 25, 1987, states:

> "if the AC submits a request, the customer disputes it and the AC is unable to produce a letter of agency, our prior order requiring that ACs accept responsibility for billing disputes arising from the implementation of its customer lists require that LECs assess the applicable change charge to the AC."

To comply with the Commission's order, BellSouth must request evidence that the attached subscribers authorized the subscription request that was submitted by your company; therefore, please provide a copy of each subscriber's signed letter of agency authorizing the request, to the address shown above. This evidence must be received no later than (date - 30 days from today) to avoid each listed subscriber's change charge being billed to your company.

If you have any questions, please contact your Equal Access Coordinator.

Sincerely,

Service Representative

Attachment

3.1.3.3 Exhibit: PIC Authorization Request List

BELLSOUTH PIC AUTHORIZATION REQUEST LIST Claim #: ___(1)						
Claim # Digit	Subscriber's Name	Telephone Number	Application Date	Processed Date	Batch # (if app)	Remarks
(2)	(3)	(4)	(5)	(6)	(7)	(8)

3.1.3.4 PIC Authorization Request List Explanation

Number	Field	Description
1	Claim #	This number is made up of the year, month, and week of the month (that is, 01, 02, etc.) the list is prepared.
2	Claim # Digit	This digit is the numerical sequence for each subscriber on the list (that is, 01, 02).
3	Subscriber's Name	Subscriber's name.
4	Telephone Number	Subscriber's telephone number.
5	Application Date	The PCA date from the disputed PIC entry on the subscriber's records.
6	Processed Date	The date the disputed PIC order was processed.
7	Batch Number	To be provided if applicable.
8	Remarks	To provide any pertinent information.

3.1.3.5 Change Charges Appear on CABS Bill

The exhibits in this section provide examples of Carrier Access Billing System (CABS) bills that identify subscription charges billed to an AC.

Questions concerning the appearance of subscription charges on the CABS bill should be directed to the appropriate ICSC listed below.

3.1.3.6 ICSC Addresses

Sprint and General ACs

Manager
Interexchange Customer Service Center (ICSC)
Room 317 SB
3196 Highway 280 South

Birmingham, AL 35202
Manager- AT&T and MCI
Interexchange Customer Service Center (ICSC)
Room D-60 5147
Peachtree Industrial Blvd.
Chamblee, GA 30341

3.1.3.7 Exhibit: CABS Bills

Bell South

BILL NO 615-CO 1-0001 659
INVOICE NO 615CO 10001-83320
BILL DATE DEC 07, 1990
PAGE 2

CARRIER X
P O BOX 200
ATLANTA GA 30357

FOR TELCO USE:

BILLING INQUIRIES CALL (615) 298-7400 ICSC OFC 0005

*** DETAIL OF OTHER CHARGES AND CREDITS ***

	AMOUNT
DEC,01 90 SO C9XFQ007	
TRANSFERRED END USER PIC CHANGE CHARGES	100.00

NET EFFECT OF SO C9XRQ007

PER MONTH	FRACTIONAL	ONE-TIME	BILLED AMOUNT
0.00	00.00	100.00	100.00

Bell South

BILL NO 803 CO 1-013 013
INVOICE NO CO 100 13013-86007
BILL DATE JAN 07, 1991
PAGE 5

XYZ COMPANY

*** DETAIL OF OTHER CHARGES AND CREDITS ***

INTERSTATE

RATE CATEGORY	QUANTITY	RATE	AMOUNT
PIC/MERGER CHARGES			
CHARGE FOR UNAUTHORIZED PIC CHANGES PER FCC ORDER	10	3.35	33.50

TOTAL CHARGE FOR UNAUTHORIZED PIC CHANGES PER FCC ORDER 33.50
TOTAL INTERSTATE OTHER CHARGES AND CREDITS 2,507.16

3.1.3.8 Exhibit: Authorization Received Unacceptable Letter

To: (AC Name)
(AC Address)
(City, State Zip)

From: BellSouth
Address
City, State Zip

Subject: Unauthorized PIC Change Inquiry

Subscriber's Name: _____
Subscriber's Telephone Number: (NPA—NXX—XXXX) _____

BellSouth appreciates your response to our recent request for a copy of your letter of authorization for each subscriber listed on the PIC Authorization Request List, substantiating each subscriber's PIC change.

The letter of authorization received for the above mentioned subscriber is not acceptable evidence of authorization and does not release you from responsibility for the PIC change charges resulting from unauthorized PIC changes.

The reason for unacceptability is _(reason_indicated_here, for __example,_name_mismatch)_____ .

If you have any questions, please contact your Equal Access Coordinator.

Sincerely,

Service Representative

3.2 Agreements and Letters

3.2.1 Introduction

3.2.1.1 General

This chapter contains descriptions and samples of various letters and agreements that the Access Customer (AC) must provide to the Access Provider (AP).

3.2.1.2 Blanket Agency Agreement Letters

3.2.1.3 Description

The Blanket Agency Agreement Letter allows the AC to act on behalf of its subscribers to place subscription orders.

In lieu of sending a copy of each individual customer's signed authorization, the AC is required to provide a Blanket Agency Agreement Letter to the AP. This letter will suffice for all end offices served by the AP. There is a separate letter for Residence and Business end users. Samples of these letters are provided in the Exhibits.

If the AC is providing equal access to the following customer base, an appropriate Blanket Agency Agreement Letter must be provided

Customer Base	Letter Required
· Residence/Business Only	Blanket Agency Agreement Letter for
	Residence/Business
· Residence/Business and	A copy of both Blanket Agency Agreement

If the appropriate Blanket Agency Agreement Letter is not on file, the Subscriber Order List/Tapes will be returned to the AC. If it is determined that an AC is placing subscription orders for subscribers without proper authorization, the AP will not process the orders until such proof of authorization is submitted.

In compliance with the FCC's March 25, 1987, Illinois Citizens Utility Board (CUB) Order, if an end user or location provider disputes a charge associated with a subscription change, the AC that initiated the alleged unauthorized change will be required to provide the AP with a copy of the end user's or location provider's letter of authorization.

3.2.1.4 Exhibit: Residence/Business Blanket Agency Agreement Letter

Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, Alabama 35203

Subject: Residence/Business Blanket Agency Agreement Letter

I am an official of ___(AC Name)_____(hereinafter referred to as Access Customer) and am authorized to commit my company to the conditions stated herein:

1. Access Customer will not submit any presubscription requests or inquiries under Blanket Agency Agreement procedures to BellSouth, (hereinafter referred to as the "Telephone Company") for which it does not have proper authorization from its customers. Such authorization shall fully comply with requirements set forth in the Federal Communications Commission Memorandum Opinion and Order in CC Docket No. 83-1145, Phase 1, Appendix B, paragraphs 10 and 11, released June 12, 1985, and Memorandum Opinion and Order in CC Docket No. 83-1145, Phase 1, paragraph 17, released November 14, 1985, CC Docket 82-0192 and any applicable orders and regulations of State Public Service Commissions.

2. In the event that a customer disputes action taken by the Telephone Company as a result of the above-mentioned service requests or inquiries, then the Access Customer will provide evidence of proper customer authorization and indemnify to the Telephone Company for any damages or losses resulting from said dispute.

3. In the event that a customer disputes billing which resulted from presubscription requests submitted to the Telephone Company by the Access Customer under these procedures, then the Access Customer will indemnify the Telephone Company for any damages or losses resulting from said dispute.

4. In the event that a customer disputes action taken by the Telephone Company as a result of a submission of the Access Customer's request or inquiry for disconnection or termination of a previously submitted presubscription request, then the Access Customer will indemnify the Telephone Company for any damages or losses resulting from said dispute.

5. This agreement shall continue in effect unless canceled by prior written notice and delivered to the other party at least thirty (30) days prior to the effective date of cancellation. Cancellation shall not release or limit any pending matters covered hereunder.
This _____ day of _____, 19___.

_____
Signature

_____
Name (Printed)

_____
Title

_____
Access Customer's Name

___-___-____
Preparer's Contact Number

3.2.2 Non-Published Numbers Letter For Business and Residence

3.2.2.1 Description

This letter is required prior to submitting orders via CARE to protect the privacy of customers with non-published telephone numbers as stated in the General Subscriber Services Tariff. If an AC is providing equal access to end users or location providers, the AC must submit this document to BellSouth.

The AC must submit a statement to the AP that will protect the privacy of customers with non-published telephone numbers in accordance with the requirements of the AP's General Subscriber Services Tariff. The Non-Published Numbers Letter fulfills that requirement.

If the AC is providing equal access to Residence or Business end users, a Non-Published Numbers Letter must be provided.

One signed statement will cover both the customer listings and the Primary Access Customer (PIC) Activity Reports.

Examples of Non-Published Numbers Letters are provided in the Exhibits that follow.

3.2.2.2 Exhibit: Non-Published Numbers Letter for Residence and Business

Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, Alabama 35203

Subject: Non-Published Numbers Letter for Residence and Business

I am an official of ___(Access Customer Name)_____ (hereinafter referred to as (Access Customer) and am authorized to commit my company to the conditions stated herein:

1. The Access Customer understands that in the course of providing long distance service to its customers, which are also subscribers of BellSouth, it will necessarily be provided with non-published telephone numbers of some of said subscribers. My Company will protect the privacy of customers with non-published telephone numbers as required by the General Subscriber Services Tariff and in no event will it allow such numbers or any customer information associated with them to be used for any other purpose than its provision of long distance service to those customers.

2. Either party may terminate this agreement upon thirty (30) days prior written notice by registered or certified mail, such notice to commence on date of mailing, provided that all rights and duties created by this agreement prior to such notice shall survive termination.

This _____ day of _____ , 19___.

_____
Signature

_____
Name (Printed)

_____
Title

_____
Access Customer's Name

_____ - _____ - _____
Preparer's Contact Number

Figure 2 Non-published Numbers Letter

3.2.3 PIC Activity Report Distribution Request

3.2.3.1 Description

To ensure that the PIC activity reports are forwarded to the appropriate location and in the desired format, Access must complete a Weekly Activity Report Distribution Request form as shown in the following Exhibit. Any time there is a change in the address or name of the person receiving the

reports, a revised Weekly Activity Report Distribution Request form should be submitted to the AP. This request form should be sent to the address shown on the form.

On a weekly basis, participating ACs will receive subscription activity reports from the AP. These reports will consist of all activity that has taken place during the previous week. The reports may be provided on paper or on magnetic tape. A daily report will be provided to those ACs using a data transfer method for PIC activity. ACs interested in exchanging customer data via one of the data transfer methods should contact the BellSouth CARE Project Manager at 205-977-0121. BellSouth will not accommodate an ongoing combination of paper or tape and transfer of PIC activity via data transfer except during the testing period.

There are currently no charges associated with these reports.

3.2.3.2 Exhibit: Weekly Activity Report Distribution Request

_____
(Date)

Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, Alabama 35203

Subject: Weekly Activity Report Distribution Request

I (Access Customer's Name) request that BellSouth provide weekly PIC Activity Reports in the following manner:

____ Paper ____ Mag tape
____ 6250 BPI
____ 1600 BPI

Reports should be sent to the following address:

_____
(Name of AC Contact)

_____
(AC Address)

_____

_____

ACNA _____
CIC _____

_____
(Signature of AC Representative)

_____
(Telephone Number of AC Representative)

NOTE: Any change in method of distribution such as name and address or change from paper to mag tape (or vice versa) will require up to 30 days for implementation.

3.2.4 AC Information Form

3.2.4.1 Description

ACs must complete the AC Information Form to provide the necessary additional information needed for activation in the CARE system.

002908

3.2.4.2 Exhibit: AC Information Form

_____
(Date)

To: Manager - Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, AL 35203

1. __(Access Customer's Name)__ requests that BellSouth read the information shown below to customers negotiating new services with BellSouth.

An (Access Customer's Name)

NOTE: This name should mirror the name of the AC's Certificate of Public convenience and Necessity granted by the appropriate state Utility Commission(s)

B. _____
(Telephone Number, 800 number preferred)

NOTE: This telephone number should allow customers to reach a customer services representative who can provide information about the AC's long distance service.

C.____((10 Characters or less) (AC Abbreviated Name)

NOTE: This abbreviated AC name will be printed on the customer's, generated after a change in long distance carrier.

2. ACNA_____ CIC_____

_____
(Signature of AC Representative)

_____
(Telephone Number of AC Representative)

3.2.5 Data Gathering Through CARE

3.2.5.1 Description

The Data Gathering Through Customer Account Record Exchange (CARE) service is available to Telecommunications Service Providers (TSPs) (i.e. Access Customers (ACs), resellers) who participate in Equal Access Subscription for the limited purposes of order entry, customer service, fraud prevention, and identification of customers who have moved from one location to another.

This offering allows the TSP to submit a CARE record at the Billing Telephone Number (BTN) level and receive all the Working Telephone Numbers (WTNs) and Terminal Numbers (TNs) associated with the BTN. No information will be furnished for residence accounts and/or lines or terminals marked as non-published or non-listed unless the ordering AC is the subscribed AC of record at the time of the request. In addition, no information will be provided for any subscriber account if the subscriber has specifically requested that information concerning the account be excluded from any information that may be provided to other parties. Billing transfer numbers will not be provided as part of this service.

ACs should submit requests for Data Gathering through CARE only for customers for whom the AC and Resellers has on file a valid Letter of Authorization allowing the AC and Resellers to make such a request.

The information provided will include:

- Billing Name and Address (BNA). The billing name and address provided for residence and business accounts is the billing name and address for the end user.
- Billing Telephone Number (BTN) On Public/Semi-Public accounts, this will be the same as the Working Telephone Number (WTN)
- Working Telephone Number (WTN)
- Terminal Number (TN)
- Customer Type Indicator (CTI)
  - R = Residence
  - B = Business
  - I = Institution Public
  - K = Coinless
  - W = WATS
- Non-Pub/Non-List Indicator (if applicable)
- Customer Identification Code (CIC).

The TSP orders Data Gathering through CARE via CARE Transaction Code 05 and Status Indicator 02. The AP information will be returned using Transaction Code 25 or 26 (described in the CARE document in this binder). The return responses to a Data Gathering through CARE request will be provided to the TSP as a part of the PIC Activity report.

A $.18 per Transaction Code will apply to all Transaction Code 25 and 26 responses except for Transaction Code/Status Indicators 26/08 and 26/70.

Charges for Data Gathering through CARE will be billed as "other" charges under the Miscellaneous Billing Account Number from the Carrier Access Billing System (CABS).

Prior to submitting requests for Data Gathering through CARE, the TSP must execute a Data Gathering through CARE Agreement as shown in the Exhibit that follows. The agreement should be sent to: Manager — Equal Access Service Center

Data Gathering through CARE
BellSouth 15th Floor
600 North 19th Street
Birmingham, AL 35203

Any requests submitted for Data Gathering through CARE prior to the receipt of the agreement will be rejected.

3.2.5.2 Exhibit: Data Gathering through CARE Agreement

This Agreement is entered into this ____ day of _____, 19___ between BellSouth, a Georgia corporation, and _____, a _____ corporation ("Access Customer");

WHEREAS, BellSouth offers equal access of Feature Group D service in various central offices in compliance with the terms of the Modified Final Judgment, Appendix B, paragraph A.1, as entered in United States v. Western Electric, Civil Action No. 82-0192; and

WHEREAS, the Access Customer wishes to purchase information concerning all the working telephone number(s) associated with a specified bill telephone number; and

WHEREAS, the provision of such information will benefit Access Customers and their customers by assisting Access Customers in the coordination of their customers' service; and

WHEREAS, BellSouth is willing to prepare and furnish such information subject to the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the respective agreements of the parties hereafter set forth, the parties agree as follows:

1. BellSouth agrees to furnish to the Access Customers all the working telephone numbers and terminal numbers associated with a BellSouth subscriber's Billing Telephone Number (BTN). The information provided shall include a listing of all lines for which the subscriber can specify a Preferred Access Customer (PAC). The provision of this information by BellSouth shall be called "Data Gathering through CARE." In order to receive said information as provided for in this Agreement, the Access Customer must provide to BellSouth the BTN and should provide to BellSouth the customer code. If the Access Customer does not provide to BellSouth the customer code, then BellSouth shall provide to the Access Customer the most current working telephone numbers and terminal numbers associated with the subscriber's BTN. In addition, the Access Customer must complete Attachment 2 to this Agreement indicating one or more of the Access Customer's Carrier Identification Codes (CICs)and authorizing BellSouth to use such CIC or CICs in rendering services to the Access Customer under this Agreement.

Figure 3 Exhibit: Data Gathering through CARE Agreement (Page 1)

2. The Access Customer understands and agrees that the Customer Account Record Exchange (CARE) interface will be used by the Access Customer to request Data Gathering through CARE service. The Access Customer understands and agrees that BellSouth shall respond to such requests through the CARE interface. Specific details concerning contents and other matters regarding Access Customer requests and BellSouth responses shall be provided in the CARE User Guide.

3. BellSouth shall not provide Data Gathering Service through CARE for BellSouth residence subscriber accounts and/or lines or terminals that are marked as non-published or non-listed unless the Access Customer is the Access Customer of record in BellSouth's files at the time of the request. BellSouth shall not provide Data Gathering through CARE for any subscriber account when the subscriber has specifically requested that information concerning its service be excluded from any information which BellSouth may provide to other parties. BellSouth shall not provide billing transfer numbers as a part of this service.

4. The Access Customer agrees that it will not request Data Gathering through CARE service for any subscriber information unless it has obtained and has on file a valid Letter of Authorization (LOA) from the subscriber allowing it to make such a request. The Access Customer agrees that information obtained pursuant to this Agreement shall be used only to assist it in processing PICs for subscriber lines. The Access Customer shall not use information obtained pursuant to this Agreement for any other purpose including, but not limited to, the marketing of its services of whatever type.

5. The Access Customer agrees that it will provide to BellSouth, upon demand, LOA(s) for any subscriber's account(s) for which it has submitted a request for Data Gathering through CARE. If the Access Customer refuses to provide such LOA(s) on demand, BellSouth shall have the right immediately to terminate this Agreement and shall have no duty to provide any further service governed by this Agreement. If the Access Customer is unable to provide valid LOA(s) for subscriber accounts for which it has requested information pursuant to this Agreement and it appears to BellSouth, in its sole judgment, that the Access Customer does not maintain a reasonable method of obtaining LOAs, BellSouth shall have the right to refuse to provide any further information pursuant to this Agreement until such time as the Access Customer can demonstrate that it is obtaining LOAs prior to submitting requests pursuant to this Agreement.

Figure 4 Exhibit: Data Gathering through CARE Agreement (Page 2)

6. Upon Access Customer's request and according to the terms specified in this Agreement, BellSouth shall furnish to the Access Customer the information described in paragraph number 1 above (the "Information"). In addition, BellSouth shall indicate whether the working telephone number(s) and terminal numbers are presubscribed to the Access Customer.

7. The Information must be requested separately for each BTN, according to the above terms, and shall be priced separately according to the terms below.

(a) In consideration of the Information received, the Access Customer shall pay to BellSouth specified charges for each working telephone number processed as set forth on Attachment 1 to this Agreement. Payment of the fees assessed pursuant to applicable charges shall be due upon receipt of an invoice from BellSouth to the Access Customer. Failure to pay the charge by the date specified on the bill shall constitute a breach of this Agreement.

(b) BellSouth may revise the price with respect to the Information to be furnished on thirty (30) days prior written notice to the Access Customer.

8. The Access Customer agrees not to publish any Information provided in connection with private or non-published subscriber service and agrees to use such Information only as provided in paragraph numbered 4 above.

9. Performance by BellSouth under this Agreement shall be excused in the event of strike, fire, riot, act of God, government requirements, civil or military authorities, statutes, regulations, court orders or any other cause beyond the reasonable control of BellSouth.

10. BellSouth grants to the Access Customer a non-exclusive right to request and use the Information provided by BellSouth hereunder. The Access Customer shall not permit anyone but its duly authorized employees to inspect or use the customer Information. The Access Customer may not assign this Agreement without the expressed written consent of BellSouth. The Access Customer may, subject to the same limitations in use and nondisclosure requirements applicable to Access Customer, subcontract to third parties functions which include use of information provided pursuant to this contract. Except as provided specifically herein, Access Customers shall not permit another person or entity to use any information provided by BellSouth. The Access Customer may not use such information to publish and distribute in any form lists of new or changed telephone subscribers. The Access Customer shall not reproduce in any way copies of Information furnished to it, other than as required internally

Figure 5 Exhibit: Data Gathering through CARE Agreement (Page 3)

11. Neither the Access Customer nor its employees, agents or representatives shall represent in any way to any person nor make any advertising claim that the Information provided pursuant to this Agreement was obtained from or sponsored or approved by BellSouth or that BellSouth is in any way affiliated with the Access Customer, or that BellSouth has any responsibility for the compilation, production, publication, or distribution of such Information. The Access Customer shall not advertise in any manner or form as may tend to cause or create confusion or identification with BellSouth; nor shall the Access Customer, its employees, representatives, or agents use any methods of advertisement, solicitation, order form, billing invoice, stationery, promotional material or any artifice or device which would tend to create the impression or imply that the Access Customer is or was associated with or sponsored by BellSouth.

12. The Access Customer hereby releases BellSouth from any liability for damages including, but not limited to, incidental and consequential damages due to errors or omissions or in any way connected to or arising out of errors or omissions in the provision of any Information supplied under this Agreement. If, pursuant to the Agreement, BellSouth provides Information to the Access Customer which does not correctly reflect the Information contained in BellSouth's records, BellSouth shall, after notification from the Access Customer, provide corrected Information at no additional charge.

13. The Access Customer shall indemnify, protect and hold harmless and, if required, defend BellSouth from and against any and all loss, liability, damages, attorney's fees and expense arising out of any demand, claim, suit or judgment for damages which may arise out of the Access Customer's improper use of the Information properly supplied under this Agree.

14. Nothing in this Agreement or elsewhere shall give the Access Customer any exclusive right to request or use the Information provided pursuant to this Agreement, and BellSouth shall be free at any time to furnish similar information to others under the same or different terms and conditions as BellSouth, in its sole discretion, may determine.

15. Nothing in this Agreement or elsewhere shall limit or prescribe in any way the format of the Information furnished to the Access Customer.

Figure 6 Exhibit: Data Gathering through CARE Agreement (Page 4)

16. Failure of BellSouth to enforce or insist upon compliance with any provisionment of this Agreement shall not constitute a waiver of its right to enforce future compliance with that provision or compliance with any other provision hereof.

17. All notices required to be sent to BellSouth under the terms of this Agreement should be addressed to Data Gathering through Manager - Equal Access Service Center, BellSouth, 15th Floor, 600 North 19th Street, Birmingham, Alabama 35203, or such other locations as may be designated in writing by BellSouth. All notices required to be sent to the Access Customer under the terms of this agreement shall be addressed to the Access Customer, or such other locations as may be designated in writing by the Access Customer.

18. This Agreement shall be governed by and interpreted according to the laws of the State of Georgia.

19. This Agreement represents the entire agreement between the parties superseding all previous understandings or writings on this subject.

20. Either party may terminate this Agreement on thirty (30) days' prior written notice by registered or certified mail, such notice to commence on date of mailing. If, however, the Access Customer shall breach any provision of this Agreement, BellSouth may cancel the Agreement forthwith and without such prior notice.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the day and year first above written.

BELLSOUTH
By: _____
Title: _____
Date: _____
By: _____
Title: _____
Date: _____

Figure 7 Exhibit: Data Gathering through CARE Agreement (Page 5)

3.2.5.3 Exhibit: Attachment 1 to Data Gathering through CARE

Attachment 1	
RATE OF PROVISION OF SERVICE:	
Service	Rate per transaction returned
Data Gathering through CARE	$.18
Provides for all the working telephone numbers and terminal numbers associated with BellSouth subscriber's Billing Telephone Number (BTN).	

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3.2.5.4 Exhibit: Attachment 2 to Data Gathering through CARE

Attachment 2

BellSouth is authorized to use the following CICs of the Access Customers in rendering services to the Access Custome Pursuant to the Data Gathering through CARE Agreeme:)etween the Access Customer and BellSouth.

_____

_____

_____

ACCESS CUSTOMER

By: _____

Title: _____

Date: _____

3.2.6 Equal Access Transaction Services (EATS)

3.2.6.1 Description

Equal Access Transaction Services (EATS) provide a non-mechanized interface for:

- Specified Due Dates for PIC changes.
- Customer Service Record (CSR) information
- CIC Verification
- Verification of pending service order that impact PIC orders.
- Resolution of PIC Discrepancies

EATS is available to ACs participating in Equal Access Subscription. The AC must execute and submit to the Telephone Company a blanket agency letter for submitting PIC orders.

EATS information shall not be used for marketing purposes.

3.2.6.2 Specified Due Date for PIC Change Service

A request from an AC to process and coordinate internally a due date for a PIC change order. The customer and the Telephone Company shall work cooperatively in establishing expedited due dates. Orders will be accepted either by working Telephone Number (WTN) or for all WTNs associated with a Billing Telephone Number (BTN).

It will be within the sole discretion of the Telephone Company to determine whether it can meet a requested expedited due date. If an expedited due date cannot be met within normal working hours, overtime charges shall apply.

3.2.6.3 Customer Service Record (CSR) Information Service

CSR information will be provided and/or verified for residence and business customers which the AC has obtained proper authorization.

CSR Information Service provides the following information to the requesting AC:

- Billing Name
- Billing Address
- Billing Telephone Number (BTN)
- Working Telephone Number (WTN)
- Terminal Numbers (TERs)
- Customer Type (Residence/business/coin)
- Customer Code

Carrier Identification Code (CIC) information is not provided as a part of CSR Service. However, the requesting AC can verify if the AC's CIC is shown on the CSR by requesting CIC verification.

3.2.6.4 CIC Verification

CIC Verification is available from the Equal Access Service Center (EASC) only through written or facsimile (FAX) requests submitted by the AC. Charges are applicable on a Billing Telephone Number (BTN) and Working Telephone Number (WTN) basis for each line verified.

3.2.6.5 Verification of Pending Service Orders that Impact PIC Orders Service

The status and/or verification of pending service orders which impact residence and business PIC orders can be requested. The AC must provide the service order numbers of the BTNs before verification can be provided. An estimated due date will be provided to the AC for the pending service order(s).

3.2.6.6 Resolution of PIC Discrepancy Service

The AC may request resolution of residence and business PIC discrepancies. The change is applicable per WTN verified. If the Telephone Company determines there is a discrepancy in the switch, the line information will be corrected and the inquiring AC will not be charged for the request on the WTN.

3.2.6.7 Rates and Changes (EATS)

	Nonrecurring Charges	
	Per BTN	**Per WTN**
Specified Due Date Service	$3.29	$0.21
Customer Service Record Information Service	$4.06	$0.36
CIC Verification	$2.91	$0.21
Verification of Pending Orders That impact PIC order Service	$4.53	$0.52
Resolution of PIC Discrepancies	$ N/A	$5.87
Note: For most current rates and charges, refer the BellSouth FCC No. 1 Tariff.		

3.2.7 On-Line Transfer Service

3.2.7.1 On-Line Transfer Service (OLT)

On-line Transfer Service is available to ACs to assist ACs and customers in establishing the end user's or location provider's account. If the preferred AC participates in OLT, the end user will have the option of being transferred directly to the preferred AC.

OLT may be ordered through a service agreement submitted to the Equal Access Service Center.

OLT must be ordered on a state basis where available.

The Telephone Company representative will make one attempt to transfer the end user to the preferred AC.

AC must comply with the guidelines outlined in Section 13.3.3(E) of the BellSouth FCC No. 1 Tariff.

3.2.7.2 Charge for OLT

Service Established Charge: $893.96

Per Month: $534.64

Note: For most current rates and charges, refer to the BellSouth FCC No. 1 Tariff.

3.2.8 Access Customer Pay PIC Change Charge

3.2.8.1 AC Requests to Pay PIC Change Charge

At the option of the AC, the non-recurring charge for a change in subscription may be billed to the AC, instead of the end user, when the change order is submitted to BellSouth via the Customer Account Record Exchange (CARE) interface.

The option for the AC to be billed the PIC change charge instead of the end user is not available for orders placed via the Residence/Business centers or the Equal Access Service Center.

3.2.9 Expedited PIC Switchback Service (EPSS)

3.2.9.1 EPSS Description

EPSS provides an expedited method of handling disputed PIC changes for end users. No investigation activities are performed by the Telephone company when an end user denies requesting a change in AC subscription which has occurred within the past 90 days and was submitted by the AC.

BellSouth immediately credits the end user the initial PIC change charge and expedites an order to return the end user to their former PIC. The PIC change charge on the expedited order is waived to the end user. No charges are billed to the end user for EPSS.

The initial PIC change charge will not be credited to the end user if it was originally paid by the AC.

The AC participating in EPSS will be billed the EPSS charge and appropriate PIC change charges.

- Original PIC change charge paid by the end user, and
- The PIC change charge to return the end user to their preferred AC.

EPSS option is available for all AC submitted orders. Not available for orders originally submitted to the Telephone Company by the end user.

The EPSS option in no way relieves the AC of the regulatory requirements for:

- Verifying all PIC orders generated by telemarketing prior to submitting those ordered, or
- Instituting steps to obtain LOAs on all PIC orders submitted.

The end user continues to have the option of initiating action to investigate an alleged unauthorized change in PIC. In this event, EPSS charges will not apply.

3.2.9.2 Expedited PIC Switchback Charges

Per Business or Residence Line or Trunk: $10.03

Note: For most current rates and changes, refer to the BellSouth FCC No. 1 Tariff.

3.2.10 Other Agreements and Letters

3.2.10.1 List of Agreements and Letters

Other agreements and letters that may be executed by the AC are as follows:

Customer List Agreements

- Residence/Business Central Office Customer Information Agreement
  a. First Addendum to Location Provider Information License
  b. Second Addendum to Location Provider Information License Agreement
- Customer List Request
  - Residence/Business, Public/Semi-Public (CL-1058)
  - Customer Change Activity Service (Ordering Form)
  - Screening Code Lists (SR-0145)
  - Service Order Activity Screening Code List (SR-0146)
  - Service Order Activity Screening Code Form (SR-0147)
- Non-Negotiation Request Letter
- Non-Quote Non-Negotiation Request Letter
- Quote, Negotiation Letter/Residence/Business
- Reroute Agreement
- Merger, Acquisition, Consolidation Agreement

Each of the above is discussed in detail, with an exhibit provided, in other chapters of this document.

3.2.11 BNA for ANI (For Access Customers)

3.2.11.1 Description

This offering allows the AC to request the Billing Name and Address (BNA) of an end user or location provider using an Automatic Number Identification (ANI) number. This service was developed to assist

ACs in rendering bills to casual users of their equal access service. The information provided will include:

- Billing name and street address of the subscriber (BNA)
- Billing Telephone Number (BTN)
- Working Telephone Number (WTN)
- Terminal Number (TN)
- Customer Type Indicator (CTI)
  - R = Residence
  - B = Business
  - I = Instution
  - K = Coinless
  - W = WATS
- Non-Published Indicator
- Customer Code

The AC orders BNA for ANI via Customer Account Record Exchange (CARE) Transaction Code 05 with a Status Indicator of 01. The AP information will be returned using Transaction Code 25 or 26 (described in the CARE document in this binder). The return responses to a BNA request will be provided to the AC as a part of the PIC Activity report.

A $.20 per TCSI 0501 charge will apply on all 0501s received, not on the transaction codes used to return the requested information. Charges for BNA for ANI will be billed as "other" charges under the Miscellaneous Billing Account Number from Carrier Access Billing System (CABS).

Prior to submitting requests for BNA for ANI, the AC must execute a Billing Name and Address for Automatic Number Identification Agreement.

3.2.11.2 Description

The AC should also submit an AC Information Sheet with the signed agreement. These documents should be sent to:
Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, AL 35203

Acceptance and processing of the requests will occur approximately 30 days after receipt of the signed agreement and Information Sheet. Any requests submitted for BNA for ANI prior to receipt of this agreement will be rejected. Samples of the agreement and the Information Sheet, which were revised June 14, 1992, are provided in the Exhibits that follow.

The AC must also have an Access Carrier Name Abbreviation (ACNA) and Carrier Identification Code (CIC) assigned by Telcordia.

3.3 Subscription Customer Listings

3.3.1 Introduction

3.3.1.1 Available Listings

This chapter contains information about customer listings available to the Access Customer (AC) from BellSouth.

Several types of listings are available.

- Billing Name and Address for ANI
- Customer Name and Address Listings (CNA)
- Customer Change Activity Service (CCAS)
- Daily
- Screening Code Lists
- Change Activity Register (CAR)
- Listed Name and Address (LNA)

3.3.2 BNA for Automatic Number Identification

3.3.2.1 Description

Billing Name and Address for Automatic Number Identification (BNA for ANI) service provides for end user or location provider billing name and address and associated information. It is available to telecommunications services providers such as an Enhanced Service Provider (ESP), Operator Service Provider (OSP), Access Customer (AC) and any other provider of telecommunications services.

The information provided will include:

- Billing name and street address of the subscriber (BNA)
- Billing Telephone Number (BTN)
- Working Telephone Number (WTN)
- Terminal Number (TN)
- Customer Type Indicator (CTI)
  - R = Residence
  - B = Business
  - I = Institution

- K = Coinless
- W = WATS

• Customer Code.

BNA for ANI is ordered via Customer Account Record Exchange (CARE) Transaction Code 05 with a Status Indicator of 01. The AP information will be returned using Transaction Code 25 or 26 (described in the CARE document in this binder). The return responses to a BNA request will be provided to the AC as a part of the PIC Activity report.

A charge per TC/SI 05/01 will apply on all 05/01s received, not on the transaction codes used to return the requested information.

Charges for BNA for ANI will be billed as "other" charges under the Miscellaneous Billing Account Number from Carrier Access Billing System (CABS).

Prior to submitting requests for BNA for ANI, the AC must execute a Billing Name and Address for Automatic Number Identification Agreement and information sheet. A sample of the agreement and the Information Sheet, are provided in the Exhibits that follow. The Agreements and forms should be sent to:

Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, AL 35203

3.3.2.2 Letter of Agreement

_____
Date

I am _____ for _____
(Title) (Name of Company)
which is one of the following:

_____ Access Customer (AC)
_____ Billing Agent for Telecommunications Service Providers
_____ Enhanced Service Provider (ESP)

_____ requests that BellSouth provide, via the CARE interface, Billing Name and Address (BNA) of an end user or location provider pursuant to BellSouth's approved tariff(s).

The following information must be provided in order for BNA service to be established:

Carrier Identification Code (CIC) _____

Access Carrier Name Abbreviation (ACNA) _____

CABS Miscellaneous Billing Account (C07)_____

Percentage of Interstate Usage (PIU)_____

BellSouth will assign a C07 account number if one does not exist.

If the telecommunications services provider does not have a CIC and ACNA, BellSouth will assign a billing code and obtain an ACNA from Bellcore.

I understand that acceptance and processing of requests for BNA will occur approximately 30 days after receipt of this letter.

_____
(AC/ESP/Billing Agent)

_____
(Signature)

_____
(Telephone Number)

_____
(Fax Number)

3.3.2.3 AC Information Sheet (Exhibit 1)

1. Name of Access Customer (up to 30 characters)

_____

2. Abbreviated name of Access Customer (up to 10 characters)

_____

3. ACNA _____ CIC _____

4. Vehicle for Record Exchange (please check appropriate choice)

☐ Paper ☐ Magnetic Tape (Specify BPI) ☐ 1650 BPI ☐ 6250 BPI ☐ Mechanized Feed

5. Contact Name, Address and Telephone Number

_____

_____

_____

_____

_____

6. Do you have an established account number (C07) in BellSouth?

☐ Yes ☐ No

If yes, please list complete C07 account number on line below:

_____

_____
(Signature of AC Representative)

_____
(Telephone Number of AC Representative)

3.3.3 Types of Listings Available — Customer Listings

3.3.3.1 Introduction

This chapter contains information about customer listings available to the Access Customer (AC) from BellSouth.

Customer lists are made available to ACs for the limited purposes of order entry, customer service, fraud prevention, and identification of customers who have moved from one location to another.

The following listings are available:

- Customer Name and Address Listings
- Customer Change Activity Service

Daily

- Screening Code Lists
- Change Activity Register (CAR)
- Listed Name and Address (LNA)

Customers wishing to purchase more than one Customer List Service must submit separate requests in writing to the Company by completing a customer list request for each customer list ordered.

The AC may deem it necessary to request BellSouth to resend the customer name and address information. Such a request, when not the result of a BellSouth error, will be subject to the same rates and charges as the original requests.

3.3.4 Types of Listings Available — Customer Name and Address (CNA) Service — Listed Name and Address (LNA)

3.3.4.1 Description

Customer Name and Address (CNA) Service is a list of current customer listings available for subscription.

CNA and Listed Name and Address (LNA) service database is updated monthly. Any request for CNA will reflect the same customers for a thirty-day (30) period.

Available for purchase by:

- RAO
- NPA/NXX
- CLLI
- Zip Code

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CNA Service is provided in Customer Account Record Exchange (CARE) format (see the CARE documentation in this binder) via:

- Paper Format
- Magnetic Tape

3.3.4.2 Listed Name and Address

Listed Name and Address (LNA)

List of current listings which are available for subscription in central offices which have converted to equal access.

3.3.5 Types of List Available

3.3.5.1 Ordering Options for CNA and LNA

Subscribed to Ordering AC

- Residence
- Business
- Residence and Business
- IntraLATA
- InterLATA
- Inter/IntraLATA

Not Subscribed to Ordering AC

- Residence
- Business
- Residence and Business
- IntraLATA
- InterLATA
- Inter/IntraLATA

Subscribed as NONE

- Residence
- Business
- Residence and Business
- IntraLATA

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- InterLATA
- Inter/IntraLATA

Subscribed to UNDECIDED

- Residence
- Business
- Residence and Business
- IntraLATA
- InterLATA
- In'er/IntraLATA

Universal (Combination of all Post Equal Access Lists)

- Residence
- Business
- Residence and Business
- IntraLATA
- InterLATA
- Inter/IntraLATA

Non-published and non-listed customer information will only be provided to the AC which furnished the subscribers long distance service.

Note: LATA jurisdiction is not an ordering position with LNA.

3.3.6 Types of Lists Available — Customer Change Activity Service (C AS) — Change Activity Register (CAR)

3.3.6.1 Description

CCAS is the provision of customer change activity on subscriber lines not subscribed on ordering AC via the Customer Account Record Exchange (CARE) interface.

The change activity (e.g., new connects, T and F orders, disconnects, number changes, name changes, record orders, etc.)will be provided on a daily basis.

Daily CCAS and Change Activity Register Service (CAR)

Daily CCAS and CAR will only be provided via: — Mechanized NDM CARE Interface

Daily CCAS and CAR must be ordered for an entire State.

3.3.6.2 Change Activity Register Service (CAR)

List of customer change activity on subscriber lines not subscribed to the ordering AC via the Customer Account Record Exchange (CARE) interface.

3.3.6.3 Ordering Options For Daily CCAS

Not Subscribed to Ordering AC

- Residence
- Business
- Residence and Business
- IntraLATA
- InterLATA
- Inter/IntraLATA

3.3.6.4 Ordering Options for CAR

Not Subscribed to Ordering AC

- Residence
- Business
- Residence and Business

3.3.7 Types of Lists Available — Customer Change Activity Service (CCAS) — Customer Name and Address (CNA)

3.3.7.1 Information Provided with CNA and Daily CCAS

The following information will be provided on the CNA, and Daily CCAS Listing in Customer Account Record Exchange (CARE) format (see the CARE documentation in this binder).

- Billing Name and Address (BNA). The name and address provided for residence and business accounts is the billing name and address for the end user.
- Billing Telephone Number (BTN)
- Working Telephone Number (WTN)
- Terminal Number (TN)
- Customer Type Indicator (CTI)
- R = Residence
- B = Business
- I = Institution Public

- K = Coinless
- W = Wide Area Telecommunication Service (WATS)
- Non-Published/Non-Listed Indicator (if applicable)
- Customer Source (AC-subscribed listings only)
- Customer code

This information will be provided via mailing labels, paper output, or magnetic tape. Magnetic tape output will be uniquely identified by a dataset name in the following format: J21361.AXXX001.ZZ

3.3.8 Types of Lists Available — Listed Name and Address (LNA) — Changed Activity Register (CAR)

The following information will be provided via CARE for CAR lists and via paper or tape for LNA lists.

- Listed Name and Address (as it appears within end user records)
- Listed City
- Listed State
- Zip Code
- Billing Telephone Number (BTN)
- Working Telephone Number (WTN)
- Terminal Number (if applicable)
- Customer Type Indicator
- Non-published/non-listed Indicator (BellSouth Listed Name and Address only - if subscribed to ordering IC)
- Customer Source (BellSouth Listed Name and Address only - if subscribed to ordering IC)
- Customer Code
- Foreign Language Indicator (FLI)
- Standard Industrial Code (SIC)
- PIC Freeze Indicator
- Jurisdictional Indicator

3.3.8.1 Information Provided with LNA and CNA

On the Universal customer list and the Not Subscribed to Ordering AC list, customers subscribed as NONE or UNDECIDED will be identified by the Transaction Code/Status Indicator (TC/SI) 24/70. TC/SI 24/70 will also be used on the Not Subscribed to Ordering AC listings to identify end users or location. Providers subscribed to an AC other than the ordering AC. End users or location providers subscribed to the ordering AC will be identified by existing TC/SIs as appropriate, that is, 24/07, 24/08, or 24/09.

3.3.8.2 Screening Code Lists

On the listing of customers subscribed as NONE, each customer record will contain TC/SI 24/72. On the listing of customers subscribed as UNDECIDED, each customer record will contain TC/SI 24/73.

74	Collect Only
82	Sent Paid and Collect Only
98	Coinless Public/Semi-Public Telephone (credit card, collect, bill to third, and special called.

The Automatic Number Identification (ANI) is the 10-digit telephone number. The 07 ANI prefix precedes the ANI for certain restricted lines, which include the Public/Semi-Public restricted telephones. The 07 is a flag to the AC's operator system to look up the telephone number in a translation or manual screening table to determine the appropriate billing options.

The Screening Code information is provided on either a comprehensive list or a service order activity form.

3.3.8.3 Comprehensive Screening Code List

The Comprehensive Screening Code List information pertains to Public/Semi-Public restricted telephone lines. This list will be provided by Revenue Accounting Office (RAO) only, and may be ordered as frequently as the AC wishes for the stated charge.

Two options are provided under the Comprehensive Screening Code List: All screening codes (with a prison indicator) within a RAO Prison only within a RAO.
• All screening codes (with a prison indicator) within a RAO Prison only within a RAO.

3.3.8.4 Service Order Activity Form

Service Order Activity Screening Code Form information pertains to changes in screening code information generated by an issued service order.

3.3.9 Contents of Lists

3.3.9.1 Comprehensive Screening Code Lists

The contents of the Comprehensive Screening Code Lists will include the following information for Public/Semi-Public restricted telephone lines:

- WTN — Working Telephone Number (NPA-NXX-XXXX)
- SC — Two Digit Screening Code

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- 1 — Prison Indicator
- RAO — Revenue Accounting Office.

These Screening Code Lists will be provided via paper output or magnetic tape in either 1600 BPI or 6250 BPI format. Magnetic tape output will be uniquely identified by Dataset Name DK03.PFE08C01.SCRCODE.TAPE, for BellSouth (West) and Dataset Name DK02.PFE08C01.SCRCODE.TAPE, for BellSouth (East). These names will also be displayed on the external tape labels.

The Comprehensive Screening Code List will include all NPA-XXXs in one or more specific RAOs or all NPA-XXXs in all five RAOs for BellSouth (West) or all seven RAOs for BellSouth (East), depending on the option selected.

3.3.9.2 Customer Name and Address List

DATASET	DK02.PFE08C01.SCRCODE.TAPE - BellSouth (East)
DATASET:	DK03.PFE08C01.SCRCODE.TAPE - BellSouth (West)
VOLSER:	(MARKED ON TAPE)
DENSITY:	1600 OR 6250 BPI
LABEL:	1, SL
LRECL:	80
BLKSIZE:	23200
RECFM:	FB

3.3.9.3 Comprehensive Screening Code Lists

Record Position	Field Length	Description
1-10	10	Telephone Number (Coin Station WTN=NPA-NXX-XXXX)
11-12	2	Screening Code

- continued -

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- continued -

13-15	3	Revenue Accounting Office (RAO) 035=Atlanta, GA 036=Charlotte, NC 044=Miami, FL 046=New Orleans, LA 047=Nashville, TN 048=Louisville, KY 054=Birmingham, AL 056=Jacksonville, FL 059=Jackson, MS 063 = Macon, GA 180=Ft. Lauderdale, FL 189=Columbia, SC
16	1	Prison Indicator (Prison=1)
17-80	64	Filler (blank)

3.3.9.4 Service Order Activity Screening Code Form

The contents of the Screening Code Form will include basic information for Public/Semi-Public restricted telephone lines. The information on the Service Order Activity Screening Code Form (SR-0147) is shown in the following Exhibit. An explanation of the form follows the Exhibit.

3.3.9.5 Exhibit: Service Order Activity Form

BELLSOUTH SERVICE ORDER ACTIVITY
SCREENING CODE FORM (SR-0147)

The following is required for the establishment of Selective Class of Call Screening Service.

RAO: _____(1)____ DATE ISSUED: _____(2)_

CUSTOMER NAME: _____(3)_____

CITY: _____(4)_____ STATE: __(5)__

ADDITION: ___(6) DELETION: _____

SCREENING CODE: _____(7)_____

TELEPHONE NUMBERS:

(___) _____ (8)

(___) _____ (___) _____

(___) _____ (___) _____

CHANGES:

A. SCREENING CODE: SAME ___ - OR - FROM _____ TO ____(9)

B. TELEPHONE #: SAME (___)_____(10)

FROM (___) _____ TO (___) _____

FROM (___) _____ TO (___) _____

FROM (___) _____ TO (___) _____

SCREENING CODE EFFECTIVE DATE: _____(11)____

TRUE BILLING NUMBER (FX SERVICE): _____(12)___

FOR BELLSOUTH USE ONLY: _____

SHOULD YOU HAVE ANY QUESTIONS, PLEASE CALL: _____

Name _____

Figure 8 BellSouth Service Order Activity Screening Code Form (SR-0147)

3.3.9.6 Service Order Activity Form Explanation

Field No.	Field Title	Description
1	RAO	Revenue Accounting Office
2	Date Issued	Date the form was issued
3	Customer Name	Customer's Account Name
4	City	Customer's City
5	State	Customer's State
6	Addition or Deletion	Indicates whether this is an addition or a deletion
7	Screen Code	Screening Code
8	Telephone Numbers	Appropriate Telephone Numbers
9	Screening Code	Same or From-To
10	Telephone Number	Same or From-To
11	Effective Date	Effective Date of the Screening Code
12	True Billing Numbers	FX Service

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3.3.9.7 Exhibit: Customer List Request (CL-1058)

Exhibit: Customer List Request (CL-1058)

BellSouth Customer Information Request (CL-1058)

Request Number _____
(BellSouth Internal Use)

Date:_____

To: Manager - Equal Access Service Center
BellSouth
Suite 910
950 North 22nd Street
Birmingham, AL 35203

(A) CNA _____ CCAS _____ *CAR _____ *LNA _____

(B) BellSouth CABS Billing Number: 205 (C01) _____

Billing Address: (To Establish CABS account) Attention:_____
_____
_____
City:_____ST:____ ZIP____

(C) Carrier ACNA/CIC ACNA: _____ CIC: _____

(D) Carrier Name: _____

(E) Shipping Name: _____

Shipping Address: _____
_____
_____

(F) Type Selection Requested (Check one)
(1) ___ Entire BellSouth**
(2) ___ (RAO) RAO(s)_____
(3) ___ (CLLI) CLLI(s) _____
(4) ___ (NXX) NPA/NXX(s) _____
(5) ___ (ZIP3) ZIP CODE(s) - 3 DIGITS_____
(6) ___ (ZIP5) ZIP CODE(s) - 5 DIGITS_____

***LNA AND CAR TARIFF EFFECTIVE AUGUST 1995 IN KENTUCKY AND FLORIDA**
****DAILY CCAS NOT AVAILABLE IN NORTH CAROLINA**

Figure 9 BellSouth Customer Information Request (CL-1058)

3.3.9.8 Exhibit: Customer List Request (CL-1058)

Exhibit: Customer List Request (CL-1058)

(G) Type of List:
Subscriber Base:
_____(PIC) Subscribed to Ordering AC*
_____(LPIC) Subscribed to Ordering AC**
_____(NPIC) Not Subscribed to Ordering AC
_____(UNDC) Subscribed as "Undecided"**
_____(NONE) Subscribed as "NONE"**
_____**(All) Universal***
(All of the above)

Customer Base:
____(RES) Residence
____(BUS) Business
____(RBS) Residence/Business
____(PUB) Public/Semi-Public
____(ALL) Res/Bus/Pub/Semi-Pub

(H) Type of Format:
Output Sequence:
____ (NXX) NPA/NXX Order
____(ZIP) Zip Code Order

Output Medium:
____(LIST) Print-out
____(T1600) Mag Tape - 1600 BPI
____(T6250) Mag Tape - 6250 BPI
____(CTAPE) Ctape
____(GLTN) Labels - (1.4"X4" Gummed with TNs)
____(GLNT) Labels - (1.4"x 4" Gummed no TNs)
____(CLTN) Labels - ("Cheshire" with TNs)
____(CLNT) Labels - ("Cheshire" no TNs)

***Not Available on CCAS or CAR**
****Available only on CAR and LNA**

(I) Carrier Contact Name
_____

Telephone Number:
(_____) _____-_____

(J) Special Instructions_____
_____

_____
_____

(K) **Required for CNA & LNA: (Snapshot of Database taken the last Friday of Each Month** -Previous month data available only)
Request snapshot taken during the month of _____Year_____
Circle One:
(Jan) (Feb) (Mar) (Apr) (May) (June) (July) (Aug) (Sep) (Oct) (Nov) (Dec)

(L) Required for CCAS and CAR: (Snapshot of Database taken the last Friday of Each Month - Previous 3 month data available)
Circle One:
(Jan) (Feb) (Mar) (Apr) (May) (June) (July) (Aug) (Sep) (Oct) (Nov) (Dec)

(M) Associated CIC Codes to be related to the Primary CIC shown in (C) above.
_____
_____

Figure 10 CL — 1058 (CNA / CCAS)

3.3.9.9 Exhibit: Daily CCAS or CAR Ordering Form (CNA / CCAS)

Exhibit: Daily CCAS Ordering Form

BellSouth CABS Billing Number _____
(An Account will be established if one does not already exist.)
Access Customer Name:_____
Billing Address:_____
_____
City: _____ST _____ ZIP_____
ATTENTION:_____
Telephone :_____
Carrier ACNA/CIC: ACNA _____ CIC _____

TYPE OF SELECTION REQUESTED:

_____ ALL BELLSOUTH	_____ KENTUCKY
_____ SOUTH CAROLINA	_____ TENNESSEE
_____ NORTH CAROLINA*	_____ ALABAMA
_____ GEORGIA	_____ MISSISSIPPI
_____ FLORIDA	_____ LOUISIANA

** DAILY CCAS IS NOT AVAILABLE IN NORTH CAROLINA*

CUSTOMER BASE REQUESTED:

_____ RESIDENCE	_____ RES/PUBLIC
_____ BUSINESS	_____ BUS/PUBLIC
_____ RES/BUS	_____ ALL
_____ PUBLIC	(BUS/RES/PUB)

CICs ON WHICH AC DOES NOT WISH TO RECEIVE CUSTOMER INFORMATION:
PRIMARY CIC: _____ ASSOCIATED CICs: _____
_____
_____
_____
_____

TRANSMISSION OF DAILY CCAS SHOULD BEGIN ON:_____
(BellSouth requires five working days from receipt of order to establish service.)

_____
Access Customer Name

_____
Signature of AC Representative

_____
Telephone Number

Figure 11 CCAS Ordering Form

3.3.9.10 Exhibit: CCAS Letter of Agreement

_____DATE

Manager - Equal Access Service Center
BellSouth
Suite 910
950 North 22nd Street
Birmingham, AL 35203

I am _____ for _____
(Name/Title) (AC Name)
and am authorized to execute this letter of agreement on behalf of
_____. _____ will
(AC Name) (AC Name)
participate in BellSouth Daily Customer Change Activity Service (CCAS).

_____ understands that Daily CCAS is
(AC Name)
offered pursuant to terms and conditions set forth in BellSouth's F.C.C. tariffs. _____ has a blanket agency letter currently on file with BellSouth or, if not, has attached one hereto. The attached Daily CCAS Ordering Form must also be completed and attached to establish Daily CCAS.

_____
(Access Customer Name)

_____
(Signature of AC Representative)

_____
(Telephone Number)

Figure 12 CCAS Letter of Agreement

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BellSouth Carrier Instructions for the Completion of the Customer List Request CNA and CCAS

(A) Indicate type list requested:

- CNA - Customer Name and Address'
- CCAS - Customer Change Activity Service

(B) BellSouth CABS Billing Number (C01) - This space must be used to provide a valid C01 CABS Billing Number when the AC has an active CABS account in BellSouth. If no account, provide address to establish account for billing.

(C) Carrier ACNA/CIC - Carrier's Alpha Access Carrier Name Abbreviation/Three digit numeric Carrier Identification Code. List only one ACNA/CIC per request form.

(D) Carrier Name - The full name of the Carrier ordering the list.

(E) Shipping Name/Address - Name/Address to which the list is to be sent.

(F) Type of Section Requested - If different selection options are desired, separate CL-1058 forms must be submitted. Enter the descriptive data for one of the following options listed below

(1) Entire BellSouth	Two alpha characters (Example: BST)
(2) RAO(s)	Tow (2) alpha characters (This option will generate a list of all NAP/NXXs working AL, AT on the RAO.) (Example: AL, AT)

RAO Location	Abbreviation
Birmingham, AL	AL
Louisville, KY	KY
Ft. Lauderdale, FL	SE
New Orleans, LA	LA
Jacksonville, FL	NF
Jackson, MS	MS
Miami, FL	SI
Columbia, SC	SC

RAO Location	Abbreviation
Atlanta, GA	AT
Charlotte, NC	NC*
Macon, GA	OS
Nashville, TN	TN

*Except Daily CCAS

- (3) CLLI
  - Eleven (11 character CLLI code
  - Example: NWORLAMMADSO
- (4) NPA/NXX(s)
  - Six (6) digit NPANXX codes
  - Example: 205321, 205988
- (5) Zip Code-5–Digits
  - First three (3) digits of the ZIP, those which are common to all ZIP codes desired
  - Example: 352
- (6) Zip Code 5–Digits
  - Five (5) digits of ZIP code(s)
  - 35201, 35205

(G) Complete for CNA- Indicate what type of information is desired by placing an "x" in the space next to subscriber base desired, and another next to the customer base desired, jurisdiction type, format type and output medium.

(H) Complete for CCAS — Indicate what type of information is desired by placing an "x" in the space next to subscriber base desired, the customer base desired, jurisdiction type, format type and output medium.

(I) Carrier contact and telephone number — enter the name and telephone number of carrier's contact person.

(J) Enter the telephone number for the contact person.

(K) Special Instructions — provide any special instructions concerning the processing of this request.

(L) For CCAS and CNA, list month/year of snapshot date requested. Circle month.

General Comments:

The request will be processed to include only those options listed on From CL-1058. BellSouth will not generate a list for any information not specifically provided by the AC.

BellSouth Carrier Instructions for the Completion of the Customer List Request LNA and CAR

(A) Indicate type list requested:

- CNA - Customer Name and Address'
- CCAS - Customer Change Activity Service

(B) BellSouth CABS Billing Number (C01) - This space must be used to provide a valid C01 CABS Billing Number when the AC has an active CABS account in BellSouth. If no account, provide address to establish account for billing.

(C) Carrier ACNA/CIC - Carrier's Alpha Access Carrier Name Abbreviation / Three digit numeric Carrier Identification Code. List only one ACNA/CIC per request form.

(D) Carrier Name - The full name of the Carrier ordering the list.

(E) Shipping Name/Address - Name/Address to which the list is to be sent.

(F) Type of Section Requested - If different selection options are desired, separate CL-1058 forms must be submitted. Enter the descriptive data for one of the following options listed below:

Type Selection	Valid Data
Entire BellSouth	Two alpha characters (Example: BST)
RAO(s)	Two (2) alpha characters (This option will generate a list of all NPA/NXXs working on the RAO. (Example: AL, AT)

RAO Location	Abbreviation
Birmingham, AL	AL
Ft. Lauderdale, FL	SE
Jacksonville, FL	

RAO Location	Abbreviation
Miami, FL	SF
Atlanta, GA	AT
Macon, GA	OS
Louisville, KY	KY
New Orleans, LA	LA
Jackson, MS	MS
Columbia, SC	SC
Charlotte, NC	NC*
Nashville, TN	TN

- (3) CLLI
  - Eleven (11) character CLLI code
  - NWORLAMMADSO
- (4) NPA/NXX(s)
  - Six (6) digit NPANXX codes
  - 205321, 205988
- (5) Zip Code-3–Digits
  - 352
  -
  - Five (5) digits of ZIP code(s)
  - 35201, 35205
- (6) Zip Code 5–Digits
  - Five (5) digits of ZIP code(s)
  - 35201, 35205

(G) Complete for LNA — indicate what type of information is desired by placing an "x" in the space next to subscriber base desired, the customer bass desired, PIC Freeze Indicator, Type Format and output medium.

(H) Complete for CAR — indicate what type of information is desired by placing an "x" in the space next to subscription type, PIC Freeze Indicator, Activity and output medium.

(I) Carrier contact and telephone number — enter the name and telephone number of carrier's contact person.

(J) Enter the telephone number for the contact person.

(K) Special Instructions — provide any special instructions concerning the processing of this request.

(L) For LNA and CAR, list month/year of snapshot date requested.

General Comments:

The request will be processed to include only those options listed on Form CL-1058. BellSouth will not generate a list for any information not specifically provided by the AC.

3.3.9.11 Comprehensive Screening Code List

Orders for the Comprehensive Screening Code Lists will be processed as requests are received on the Screening Code List Request (Form SR-0145) provided in the following Exhibits. Instructions for completing the form follow each Exhibit. All requests should be directed to the address indicated on Form SR-0145.

3.3.9.12 Exhibit: Comprehensive Screening Code List Request (SR)145)

Date:_____(1)

To: Manager - Equal Access Service Center (2)
BellSouth
15th Floor
600 North 19th Street Street
Birmingham, AL 35203

CARRIER ACNA/CIC: _____/_____ (3)
CARRIER NAME: _____ (4)
SHIPPING NAME/ADDRESS: _____ (5)
_____
_____
_____

COMPREHENSIVE SC LIST OPTION: CHECK BELOW THE DESIRED OPTION. (ONLY ONE OPTION PER REQUEST FORM MAY BE ORDERED.)

(6) OPTIONS (Check One Only)

- ☐ All Screening Codes (with prison indicator)
- ☐ Prisons Only

RAOs

- ☐ 035 Atlanta
- ☐ 036 Charlotte
- ☐ 044 Miami
- ☐ 046 Louisiana
- ☐ 047 Tennessee
- ☐ 048 Kentucky
- ☐ 054 Alabama
- ☐ 056 Jacksonville
- ☐ 059 Mississippi
- ☐ 063 Macon
- ☐ 180 Ft. Lauderdale
- ☐ 189 Columbia

(7) TYPE OF FORMAT:

- ☐ PAPER PRINTOUT
- ☐ 6250 BPI MAG TAPE
- ☐ 1600 BPI MAG TAPE

CARRIER CONTACT: _____
TELEPHONE NUMBER: _____(8)
SPECIAL INSTRUCTIONS: _____(9)
_____
BILLING NAME/ADDRESS: _____(10)
_____

BELOW FOR BELLSOUTH USE ONLY

Bill to _____RAO Billing Account Number:

- ☐ COMPREHENSIVE SC LIST
- ☐ ALL SCREENING CODES
- ☐ Prisons Only
- ☐ ONGOING SC LIST
- ☐ ALL SCREENING CODES
- ☐ Prisons Only

Total Charges $_____

Figure 13 SR0145

3.3.9.13 Comprehensive Screening code List Request Instructions

Field No.	Field Title	Description
1	Date	Date of request for list.
2	Carrier/ACNA/ CIC	Carrier's alpha Access Carrier Name Abbreviation/3-digit numeric Carrier Identification Code. List only one ACNA/ CIC per request form.
3	Carrier Name	The full name of the Carrier ordering the list.
4	Shipping Name/ Address	Name/Address to which the list is to be sent.

- continued -

- continued -

Field No.	Field Title	Description
5.	Type of selection Requested	If different selection options are desired, separate CL-1058 forms must be submitted. Enter the descriptive data for one of the following options: (A) Entire RAO, (B) CLLIs, (C) NPA/NXXs, (D) 3-digit ZIP Codes, or (E) 5-digit ZIP codes. If additional sheets are required, place an "X" in the appropriate space and attach the sheet(s). See chart below. **Type / Selection / Valid Data / Example** A — Entire RAO — Two (2) alpha character RAO abbreviation (see list below) — AL, AT **RAO Location — Abbreviation** Birmingham, AL — AL Atlanta, GA — AT Louisville, KY — KY New Orleans, LA — LA Jackson, MS — MS Charlotte, NC — NC Jacksonville, FL — NF Macon, GA — OS Columbia, SC — SC Fort Lauderdale, FL — SE Miami, FL — SF Nashville, TN — TN B — CLLI — 11-character CLLI code — NWORLAMMADS C — NPA/NXX — 6-digit NPA/NXX codes — 205321, 205988 D — ZIP Code - 3 digits — First three digits of the ZIP, those which are common to all ZIP codes desired — 352 E — ZIP Code - 5 digits — Five digits of the ZIP code(s) — 35201, 35205
6.	Type of List	Indicate what type of information is desired by plcing an "X" in the space next to subscriber base desired, and another next to the customer base desired.

- continued -

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- continued -

Field No.	Field Title	Description
7	Type of Format	Indicate in what sequence (order) the list is desired by placing an "X" in the space next to it. Indicate in what format the list is desired by placing an "X" in the space next to the output medium desired. When ordering labels, be sure to check the correct box to indicate whether or not telephone numbers (TNs) are requested on the labels.
8	Carrier Contact and Telephone Number	Enter the name and telephone number of the Carrier's contact person.
9	BellSouth CABS Billing Number(C07)	This space should be used to provide a valid C07 CABS Billing Number when the AC has an active CABS account in BellSouth.
10	Special Instructions	Provide any special instructions concerning the processing of this request. This space should also be used to provide a billing address when the AC does not have an active CABS account in BellSouth. (See Notes below)

3.3.9.14 Notes

The request will be processed to include only those options listed on Form CL-1058. BellSouth will not generate a list for any information not specifically provided by the AC.

If the AC does not have an active CABs account in BellSouth, a billing address must be provided with the list request. **FAILURE TO PROVIDE A BILLING ADDRESS MAY CAUSE A DELAY IN PROCESSING THE REQUEST.**

Customer lists ordered will reflect the same customers for a 30 day period.

3.3.9.15 Service Order Activity Screening Code Form

Orders for the Service Order Activity Screening Code Form should be submitted on Form SR-0146, provided in the Exhibits that follow. All requests should be directed to the appropriate address indicated on Form SR-0146.

3.3.9.16 Exhibit: Service Order Activity Screening Code Form (SR-0146)

_____
(DATE)

To: Manager – Equal Access Service Center
BellSouth, 15th Floor
600 North 19th Street Birmingham, AL 35203

_____ New Request
_____ Change Request
____ Cancel Request

_____ requests that BellSouth
(Access Customer Name)
provide daily Service Order Activity Screening Code (SC) Forms for Public/Semi-Public restricted telephone lines.

Forms will be sent only to the following address:

_____ (Name of AC Contact)
_____ (AC Name)
_____ (AC Address)
_____ (AC Address)
_____ (Facsimile Number)

AC's Access Customer Name Abbreviation (ACNA) _____

AC's Carrier Identification Code (CIC) _____

_____
(Signature of AC Representative)

_____
(Printed Name)

_____
(Telephone Number of AC Representative)

Note: Any change in method of distribution such as name and address will require up to 30 days for implementation.

3.3.9.17 Charges

Customer List	Service Establishment	Charges	Per Record
CNA	Charge Per Requests:	$500.00	$.04
CCAS - DAILY	Charge Per Requests	N/A	$.09

- continued -

- continued -

Customer List	Service Establishment	Charges	Per Record
BNA	Charge Per Transaction	$N/A	$.21
SCREENING CODE	Charge Per RAO:	$330.00	$N/A
LNA	Charge Per Request	$N/A	$.062
CAR	Charge Per Request	$N/A	$.062

3.3.10 Ordering Customer Lists

3.3.10.1 CNA List, LNA List, and Monthly CCAS

Orders for CNA List, LNA List, Daily CCAS and CAR will be processed by the EASC when received on the Customer List Request Form (CL-058) provided in the following Exhibit. Instructions for completing the form follow the Exhibit.

Normal AP processing of requests for customer listings will take 10 to 12 work days.

3.3.10.2 Daily CCAS and CAR

Requests for Daily CCAS and CAR will be processed by the EASC when a CCAS and CAR Letter of Agreement and Daily CCAS and CAR Ordering Form provided in the following Exhibits are received.

3.3.11 Customer List Agreements

Two signed originals should be forwarded to the following address.
Manager – Equal Access Service Center
BellSouth
15th Floor
600 North 19th Street
Birmingham, AL 35203

The agreements will be signed by the appropriate person and a copy will be returned to the AC.

3.3.11.1 Agreement for Residence / Business Listings

An AC will be required to execute a Central Office Customer Information Agreement prior to receiving customer listings for residence/business. A sample of this agreement is provided in the Exhibit that follows.

3.3.11.2 Exhibit: Central Office Customer Information Agreement

This Agreement is entered into this ____ day of _____, 19___ between BellSouth and Telegraph Company (hereinafter jointly referred to as the "Telephone Company"), and _____, a _____ corporation ("Access Customer");

WHEREAS, the Telephone Company offers equal access or Feature Group D service in various central offices, and will offer equal access or Feature Group D service in those central offices listed in the official six month notification of end office conversions, all of the foregoing in compliance with the terms of the Modified Final Judgment, Appendix B, paragraph A.1, as entered in **United States v. Western Electric**, Civil Action No. 82-0192; and

WHEREAS, on December 7, 1983, the District Court for the District of Columbia entered an opinion in **United States v. Western Electric**, Civil Action No. 82-0192 directing the former Bell Operating Companies, **inter alia,** to make available to interexchange carriers lists of non-presubscribed customers within specified limitations for the purpose of assisting the interexchange carriers in their marketing campaigns; and

WHEREAS, the provision of post-equal access conversion end office customer lists of Access Customer's own presubscribed customers will assist the Access Customer in the provision of interexchange services; and

WHEREAS, the provision of post-equal access conversion end office lists of customers not presubscribed to the Access Customer will benefit the Access Customer by assisting in the marketing of interexchange services; and

WHEREAS, the Telephone Company is willing to prepare and furnish such nonpresubscribed customer listings and presubscribed customer listings subject to the terms and conditions set forth in this Agreement; and

WHEREAS, the Access Customer wishes to secure the right to use the information contained in such non-presubscribed and presubscribed customer listings as an aid in its efforts to advise the customers listed therein of the availability of its service in end offices with equal access capabilities and in order to better provide services to its customers;

NOW, THEREFORE, in consideration of the foregoing premises and the respective agreements of the parties hereafter set forth, the parties agree as follows:

Figure 14 Central Office Customer Information Agreement (Page 1)

1. DEFINITIONS

The following definitions shall apply to the services to be provided by the Telephone Company to the Access Customer pursuant to this Agreement:

(1) "Preconversion/Non-Presubscribed Customer Listing Service" shall mean the provision of current customer listings with respect to the Telephone Company's subscribers in central offices listed in the official six month notification of end office conversions to equal access.

(2) "Post Equal Access Presubscribed Customer Listing Service" shall mean the provision of current customer listings with respect to the Telephone Company's subscriber lines presubscribed to the Access Customers in central offices which have converted to equal access or Feature Group D service.

(3) "Post Equal Access Customer Listing Service" shall mean the provision of current customer listings with respect to the Telephone Company's subscriber lines not presubscribed to the Access Customer and available for presubscription in central offices which have been converted to equal access or Feature Group D service.

(4) "Services" shall refer collectively to the services defined in subsections 1 (a), (b), and (c) above.

2. INFORMATION PROVIDED

The Telephone Company agrees to furnish to the Access Customer the Services defined in Section 1 above. The furnished customer information shall show only the billing name and street address of the subscriber, the business/residence classification, the billing telephone number, working telephone number and terminal number. In addition, the following conditions shall apply to each specific Service:

(1) For Preconversion/Non-Presubscribed Customer Listing Service, the Telephone Company will make available only the subscriber name and mailing address in connection with private and non-published subscriber service. NPA/NXX information will only be provided to identify specific end offices.

(2) For Post Equal Access Presubscribed Customer Listing Service, the Telephone Company may decline to make available information pertaining to any subscriber requesting that such information not be provided under this or similar agreements.

(3) For Post Equal Access Customer Listing Service, the Telephone Company will not make available any information pertaining to subscribers of nonpublished numbers. Further, the Telephone Company may decline to make available information pertaining to any subscriber requesting that such information not be provided under this or similar agreements.

Figure 15 Central Office Customer Information Agreement (Page 2)

3. SCOPE OF AGREEMENT

The scope of this Agreement shall be as follows with respect to each type of Service:

(1) For Preconversion/Non-Presubscribed Customer Listing Service, this Agreement shall cover only the central offices listed in the official six month notification of end office conversions. During the life of this Agreement, additions, changes and discontinuance's of central office listings may occur. The forecasting information provided by the Telephone Company to the Access Customer includes additions, changes and discontinuance of central office listings.

(2) For Post Equal Access Presubscribed Customer Listing Service and Post Equal Access Customer Listing Service, this agreement shall cover only the central offices which have been converted to provide equal access or Feature Group D service. Customer information for specific end offices will be available under this Agreement at any time after conversion to equal access.

4. REQUEST FOR SERVICE

Upon execution of this Agreement and following receipt by the Telephone Company of a written request by the Access Customer, according to the terms specified in Section 15 below, the Telephone Company shall deliver or make available to the Access Customer the following:

(1) For Preconversion/Non-Presubscribed Customer Listing Service, a customer listing current as of the end of the last month prior to the date of receipt of the written request for such listing. Upon further request, the Telephone Company shall make available to the Access Customer any additional customer listings, incorporating or reflecting those new, changed or discontinued listings which have become effective since the furnishing of the last customer listing.

(2) For Post Equal Access Presubscribed Customer Listing Service, a listing of the Access Customer's presubscribed customers current as of the end of the last month prior to the date of receipt of the written request for such listing.

(3) For Post Equal Access Customer Listing Service, a customer listing current as of the end of the last month prior to the date of receipt of the written request for such listing.

Each such customer listing must be requested separately, according to the above terms, and shall be priced separately according to the terms of Section 5 below.

Figure 16 Central Office Customer Information Agreement (Page 3)

5. CHARGES AND PAYMENTS

(A) In consideration of the customer information received, the Access Customer shall pay to the Telephone Company the following for each Service:

(1) For Preconversion/Non-Presubscribed Customer Listing Service,(i) a service fee for the assembly and transmission of the listing, and (ii) the specified charges for each customer record processed. Payment of the fees assessed pursuant to applicable charges shall be due upon receipt of the customer listing by the Access Customer. Failure to pay fees by the date specified on the bill shall constitute a breach of this Agreement.

(2) For Post Equal Access Presubscribed Customer Listing Service and Post Equal Access Customer Listing Service, (i) a service fee for the assembly and transmission of the listing, and (ii) the specified charges for each customer record processed. Payment of the fees assessed pursuant to applicable charges shall be due upon receipt of the customer listing by the Access Customer. Failure to pay fees by the date specified on the bill shall constitute a breach of this Agreement.

(3) For all Services hereunder, the Telephone Company may revise the price with respect to customer information to be furnished, on thirty (30) days' prior written notice by registered or certified mail. For Preconversion/ Non—Presubscribed Customer Listing Service, the Access Customer may, within ten (10) days of receipt of such notice, terminate this Agreement effective with the date of such proposed price revision. Written notice of such termination shall be furnished to the Telephone Company by registered or certified mail. For Post Equal Access Presubscribed Customer Listing Service and Post Equal Access Customer Listing Service, within ten (10) days of receipt of such notice the Access Customer may, effective with the date of such proposed price revision, cancel any outstanding orders for customer lists which would be subject to the price change. Written notice of such cancellation shall be furnished to the Telephone Company by registered or certified mail.

6. RESTRICTIONS ON USE OF CUSTOMER INFORMATION

The Telephone Company grants to the Access Customer a non-exclusive right to request and use the customer information provided by the Telephone Company hereunder. In addition:

(1) With respect to Preconversion/Non-Presubscribed Customer Listing Service, the Access Customer shall utilize the customer listing (including new, changed or discontinued listings) only in furtherance of its marketing efforts connected with presubscription.

(2) With respect to Post Equal Access Presubscribed Customer Listing Service, the Access Customer agrees not to publish any information provided in connection with private or non-published subscriber service and to use such information only with regard to its provision of interexchange service to such customers.

Figure 17 Central Office Customer Information Agreement (Page 4)

(3) With respect to Post Equal Access Customer Listing Service, the Access Customer shall utilize the customer listings obtained pursuant to this Agreement only for the purpose of marketing interexchange telecommunications services. Further, the Access Customer shall not permit anyone but its duly authorized employees to inspect or use the customer information. The Access Customer may subcontract to third parties marketing and interexchange service functions which include use of customer lists provided pursuant to this Agreement, provided, however, that the subcontractor agrees in writing to the same limitations in use and nondisclosure requirements applicable to the Access Customer. Except as provided specifically herein, the Access Customer shall not permit another person or entity to use any information provided by the Telephone Company. The Access Customer may not use such information to publish and distribute in any form lists of new or changed telephone subscribers. The Access Customer shall not reproduce in any way copies of customer listings furnished to it, other than as required internally for the completion of its marketing of its interexchange services.

7. FORCE MAJEURE

Performance by the Telephone Company under this Agreement shall be excused in the event of strike, fire, riot, act of God, government requirements, civil or military authorities, statutes, regulations, court orders or any other cause beyond the reasonable control of the Telephone Company.

8. ASSIGNMENT

The Access Customer may not assign this contract without the expressed written consent of the Telephone Company.

9. REMEDIES

The Access Customer expressly agrees that the compilation of the information furnished hereunder is confidential and/or presents original efforts by the Telephone Company, that such information is unique, valuable and special to the Telephone Company, and disclosure thereof except as provided by this Agreement may cause irreparable injury to the Telephone Company. Accordingly, it is expressly acknowledged and agreed by the Access Customer that the remedy at law for any breach of the covenants contained this section may be inadequate, and it recognition thereof, it is agreed that the Telephone Company shall, in addition thereto, be entitled to injunctive relief, without bond, upon the finding by a court of competent jurisdiction of a breach of any of the provisions of this section by the Access Customer, which relief shall be in addition to, and not in derogation of, any

Figure 18 Central Office Customer Information Agreement (Page 5)

other remedies which may be available to the Telephone Company as a result of any such breach. This provision shall not be construed as limiting any appropriate remedies, including injunctive relief, with respect to any breach by the Access Customer of any other provision of this Agreement. In addition, with respect to Post Equal Access Customer Listing Service, the Telephone Company shall have the right to audit the operations, procedures and systems of the Access Customer, upon reasonable notice and at reasonable times, to the extent necessary to ensure compliance with the provisions of Section 6 above.

10. RELATIONSHIP OF THE PARTIES

Neither the Access Customer nor its employees, agents or representatives shall represent in any way to any person nor make any advertising claim that its customer information was obtained from or sponsored or approved by the Telephone Company or that the Telephone Company is in any way affiliated with the Access Customer, or that the Telephone Company has any responsibility for the compilation, production, publication, or distribution of such information. The Access Customer shall not advertise in any manner as may tend to cause or create confusion or identification with the Telephone Company; nor shall the Access Customer, its employees, representatives, or agents use any methods of advertisement, solicitation, order form, billing invoice, stationery, promotional material or any artifice or device which would tend to create the impression or imply that the Access Customer was associated with or sponsored by the Telephone Company.

11. IDENTIFICATION

(a) The Access Customer shall indemnify, protect and hold harmless and, if required, defend the Telephone Company from and against any and all loss, liability, damages, attorney's fees and expense arising out of any demand, claim, suit or judgment for damages which may arise out of the Access Customer's use of the information supplied under this Agreement.

(b) The Access Customer hereby releases the Telephone Company from any liability for damages including, but not limited to, incidental and consequential damages due to errors or omissions or in any way connected to or arising out of errors or omissions in the customer listings.

Figure 19 Central Office Customer Information Agreement (Page 6)

12. NON-EXCLUSIVITY

Nothing in this Agreement or elsewhere shall give the Access Customer any exclusive right to request or use the information provided pursuant to this Agreement, and the Telephone Company shall be free at any time to furnish similar information to others under the same or different terms and conditions as the Telephone Company, in its sole discretion, may determine.

13. FORMAT, CONTENT, AND SCOPE

Nothing in this Agreement or elsewhere shall limit or prescribe in any way the format of the customer information furnished to the Access Customer. Furthermore, the Telephone Company reserves the right to provide the Access Customer with additional customer information which shall be subject to the terms and conditions of this Agreement upon giving the Access Customer thirty (30) days written notice of its intent to do so.

14. WAIVER OF RIGHTS

Failure of the Telephone Company to enforce or insist upon compliance with any provision of this Agreement shall not constitute a waiver of its right to enforce future compliance with that provision or compliance with any other provision hereof.

15. NOTICES

All notices required to be sent to the Telephone Company under the terms of this Agreement should be addressed to Manager – Equal Access Service Center, BellSouth, 21st Floor, 600 N. 19th Street, Birmingham, AL 35203, or such other locations as may be designated in writing by the Telephone Company. All notices required to be sent to the Access Customer under the terms of this agreement shall be addressed to the Access Customer at _____ or such other locations as may be designated in writing from time to time by the Access Customer.

16. CHOICE OF LAW

This Agreement shall be governed by and interpreted according to the laws of the State of Alabama.

Figure 20 Central Office Customer Information Agreement (Page 7)

17. TERMINATION

(a) Either party may terminate this Agreement on thirty (30) days' prior written notice by registered or certified mail, such notice to commence on date of mailing. If, however, the Access Customer shall breach any provision of this Agreement, the Telephone Company may cancel the Agreement forthwith and without such prior notice.

(B) With respect to Preconversion/Non-Presubscribed Customer Listing Service, this Agreement shall continue until such time as the Telephone Company has completed all scheduled central office conversions to equal access capability, unless sooner terminated pursuant to Section 17 (a) above.

18. ENTIRE AGREEMENT

(a) This Agreement represents the entire agreement between the parties, superseding all previous understandings or writings on this subject.

(b) This Agreement may be executed in counterparts by the parties. A copy of the Agreement together with signature pages from each party shall be deemed an original and complete executed Agreement, and shall be deemed effective the date signed by the last signing party.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the day and year first above written.

_____ (Access Customer Name)	BellSouth
By: _____ (Signature)	By: _____ (Signature)
By: _____ (Name Printed)	By: _____ (Name Printed)
Title: _____	Title: _____
Date: _____	Date: _____

Figure 21 Central Office Customer Information Agreement (Page 8)

3.3.11.3 Agreement for Public/Semi-Public Listings

An AC will be required to execute a Location Provider Information License Agreement prior to receiving a customer listing for Public/Semi-Public location providers. Samples of this agreement are provided in the Exhibits that follow.

3.3.11.4 Exhibit: Location Provider Information License Agreement

This Agreement is entered into this ____ day of _____, 19___ between BellSouth (hereinafter jointly referred to as the "Telephone Company"), and _____ a _____ corporation ("Access Customer");

WHEREAS, the Telephone Company will provide for premises owner (location providers) presubscription of Public/Semi-Public telephones in a manner conforming with that delineated in Appendix B to In the Matter of Investigation of Access and Divestiture Related Tariffs, 1 F.C.C. 2d 911, 927-34, in compliance with the terms of the opinion of the United States District Court for the District of Columbia, as entered in United States v. Western Electric, Civil Action No. 82-0192 on October 14, 1988; and

WHEREAS, the provision of Location Provider information to an Access Customer will assist the Access Customer in the marketing and provision of interexchange services to Location Providers for the Telephone Company Public/Semi-Public telephones;

WHEREAS, the Telephone Company is willing to prepare, furnish and license the use of such Location Provider information to an Access Customer subject to the terms and conditions setforth in this Agreement; and

WHEREAS, the Access Customer wishes to purchase the right to use the Location Provider information in order to better provide interexchange services to Location Providers;

NOW, THEREFORE, in consideration of the foregoing premises and the respective agreements of the parties hereafter set forth, the parties agree as follows:

1. The Telephone Company agrees to furnish to the Access Customer Location Provider information which shall show only billing name and address; working Public/Semi-Public telephone number; customer type indicator; city, state, and zip code; and billing transfer number.

2. This Agreement shall cover all central offices converted to equal access by the date it is executed by both parties. Additionally, it shall cover the central offices listed in the Telephone Company's official six (6) month notification of end office conversions.

Figure 22 Location Provider Information License Agreement (Page 1)

3. Upon execution of this Agreement and following receipt by the Telephone Company of a written request by the Access Customer, according to the terms specified in Section 4 below, the Telephone Company shall deliver or make available to the Access Customer a Location Provider List within twelve (12) working days of the receipt of the written request for such listing, provided that the Telephone Company shall not be required by this Agreement to make such lists available prior to November 21, 1988. For lists ordered for offices converting after March 31, 1989, updated information will be available; lists ordered pursuant to this contract after that date will reflect the same Location Providers for a thirty (30) day period. Upon request, pursuant to this contract, the Telephone Company shall make available to the Access Customer any additional Location Provider lists incorporating or reflecting those new, changed or discontinued listings of Location Providers which have become effective since the furnishing of the last customer list.
Each list of Location Providers must be requested separately, according to the above terms, and shall be priced separately according to the terms of Section 4(a) below.

4. (a) In consideration of the Location Provider information received, the Access Customer shall pay to the Telephone Company the following:
   (i) a service fee for the assembly and transmission of the list; and
   (ii) the specified charges for each Premises Provider record processed Payment of the fees assessed pursuant to applicable charges shall be due upon receipt of the Premises Provider list by the Access Customer. Failure to pay bills duly rendered within two (2) weeks after notice of delinquency mailed to the Access Customer shall constitute a breach of this Agreement.

   (b) For the Services hereunder, the Telephone Company may revise the price with respect to the information to be furnished, on thirty (30) days prior written notice by registered or certified mail. The Access Customer may, within ten (10) days of receipt of such notice, terminate this Agreement effective with the date of such proposed price revision. Written notice of such termination shall be furnished to the Telephone Company by registered or certified mail.

5. The Access Customer agrees that with respect to all Location Provider information received pursuant to this Agreement, the Access Customer shall utilize the information only in furtherance of its marketing efforts connected with the presubscription of the Telephone Company's Public/Semi-Public telephones.

Figure 23 Location Provider Information License Agreement (Page 2)

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6 . Performance by the Telephone Company under this Agreement shall be excused in the event of strike, fire, riot, act of God, government requirements, civil or military authorities, statutes, regulations, court orders or any other cause beyond the reasonable control of the Telephone Company.

7. The Access Customer may not assign this contract without the express written consent of the Telephone Company.

8. The Telephone Company grants to the Access Customer a non-exclusive right to request and use the Location Provider information provided by the Telephone Company hereunder. In addition:

(a) With respect to the Location Provider information, the Access Customer shall not permit anyone but its duly authorized employees to inspect or use the Location Provider List at any time prior to its destruction or return as herein provided. The Access Customer shall have no right to subcontract or to permit any person to use any information extracted from the Location Provider lists provided by the Telephone Company without the express written consent of the Telephone Company. However, such consent shall not be unreasonably withheld by the Telephone Company. The Access Customer may not use such information to publish and distribute in any form lists of existing, new or changed Location Providers. The Access Customer shall not reproduce in any way copies of Location Provider Lists furnished, other than as required internally for the completion of its marketing of interexchange service to the Location Providers listed, and shall return or certify destruction of all such lists and authorized copies to the Telephone Company when they are no longer needed following completion of the Access Customer's marketing campaign within the specific central office area. Upon termination of this Agreement, the Access Customer shall return or certify destruction of all Premises Provider lists and authorized copies furnished to it.

Figure 24 Location Provider Information License Agreement (Page 3)

9. The Access Customer expressly agrees that the compilation of the information furnished hereunder is confidential and/or presents original efforts by the Telephone Company, that such information is unique, valuable and special to the Telephone Company, and that disclosure thereof except as provided by this Agreement may cause irreparable injury to the Telephone Company. Accordingly, it is expressly acknowledged and agreed by the Access Customer that the remedy at law for any breach of the covenants contained in this section may be inadequate, and in recognition thereof, it is agreed that the Telephone Company shall, in addition thereto, be entitled to injunctive relief, without bond, upon the finding by a court of competent jurisdiction of a breach of any of the provisions of this section by the Access Customer, which relief shall be in addition to, and not in derogation of, any other remedies which may be available to the Telephone Company as a result of any such breach. This provision shall not be construed as limiting any appropriate remedies, including injunctive relief, with respect to any breach by the Access Customer of any other provision of this Agreement. In addition, the Telephone Company shall have the right to audit the operations, procedures and systems of the Access Customer, upon reasonable notice and at reasonable times, to the extent necessary to ensure compliance with the provisions of Section 9 above.

10. Neither the Access Customer nor its employees, agents or representatives shall represent in any way to any person nor make any advertising claim that its Location Provider information was obtained from or sponsored or approved by the Telephone Company or that the Telephone Company is in any way affiliated with the Access Customer, or that the Telephone Company has any responsibility for the compilation, production, publication, or distribution of such information. The Access Customer shall not advertise in any manner or form as may tend to cause or create confusion or identification with the Telephone Company; nor shall the Access Customer, its employees, representatives, or agents use any methods of advertisement, solicitation, order form, billing invoice, stationary, promotional material or any artifice or device which would tend to create the impression or imply that the Access Customer was associated with or sponsored by the Telephone Company. the Telephone Company from any liability for damages including, but not limited to, incidental and consequential damages due to errors or omissions or in any way connected to or arising out of errors or omissions in the Location Provider listings.

Figure 25 Location Provider Information License Agreement (Page 4)

11. The Access Customer hereby releases the Telephone Company from any liability for damages including, but not limited to, incidental and consequential damages due to errors or omissions or in any way connection to or arising out of errors or omissions in the Location Provider listings.

12. The Access Customer shall indemnify, protect and hold harmless and, if required, defend the Telephone Company from and against any and all loss liability, damages, attorney's fees and expense arising out of any demand, claim, suit or judgment for damages which may arise with respect to the Access Customer's improper use of the information properly supplied under this Agreement; and

13. Nothing in this Agreement or elsewhere shall give the Access Customer any exclusive right to request or use the information provided pursuant to this Agreement, and the Telephone Company shall be free at any time to furnish similar information to others under the same or different terms and conditions as the Telephone Company, in its sole discretion, may determine.

14. Nothing in this Agreement or elsewhere shall limit or prescribe in any way the format, content and scope of the Location Provider information furnished to the Access Customer.

15. Failure of the Telephone Company to enforce or insist upon compliance with any provision of this Agreement shall not constitute a waiver of its right to enforce future compliance with that provision or compliance with any other provision hereof.

16. All notices required to be sent to the Telephone Company under the terms of this Agreement should be addressed to Manager – Equal Access Service Center, BellSouth, 21st Floor, 600 N. 19th Street, Birmingham, AL 35203, or such other locations as may be designated in writing by the Telephone Company. All notices required to be sent to the Access Customer under the terms of this Agreement shall be addressed to the Access Customer, _____, or such other locations as may be designated in writing by the Access Customer.

17. This Agreement shall be governed by and interpreted according to the laws of the State of Alabama.

18. This Agreement represents the entire agreement between the parties, superseding all previous understandings or writing on this subject.

Figure 26 Location Provider Information License Agreement (Page 5)

(a) Either party may terminate this Agreement on thirty (30) days' prior written notice by registered or certified mail, such notice to commence on date of mailing. If, however, the Access Customer shall breach any provision of this Agreement, the Telephone Company may cancel the Agreement forthwith and without such prior notice.

(b) This Agreement shall continue until such time as the Telephone Company has completed Location Provider presubscription of Public/Semi-Public telephones, unless sooner terminated pursuant to Section 19(a) above.

19. This Agreement may be executed in counterparts by the parties. A copy of the Agreement together with signature pages from each party shall be deemed an original and complete executed Agreement, and shall be deemed effective the date signed by the last signing party.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the day and year first above written.

BellSouth
Signature: _____
Name (Printed): _____
Title: _____
Date: _____

_____
(Access Customer Name)
Signature: _____
Name (Printed): _____
Title: _____
Date: _____

Figure 27 Location Provider Information License Agreement (Page 6)

3.3.11.5 Agreement for Screening Code Information

In order to receive screening code information an AC will be required to execute a Location Provider Information License Agreement (shown above), plus a First Addendum To Location Provider Information License Agreement and a Second Addendum to Location Provider Information License Agreement. Samples of the Addenda are provided in the Exhibits that follow

3.3.11.6 Exhibit: First Addendum To Location Provider Information License Agreement

This First Addendum to the Location Provider Information License Agreement ("Agreement") between BellSouth (hereinafter jointly referred to as the "Telephone Company"), a Georgia Corporation, and _____ a _____ corporation ("Access Customer") is entered into this ___ day of _____, 19__ .

1. Paragraph 1 of the Agreement is hereby deleted in its entirety and replaced with the following:
   - The Telephone Company agrees to furnish to the Access Customer the following Location Provider information in two separate, optional reports:

a. Location Provider information which shall show billing name and address; working Public/Sem - Public telephone number; customer type indicator; city, state and zip code; and billing transfer number; and

b. Location Provider information which shall show the working telephone number; customer code; and daily average interLATA minutes of use for each Public/Semi-Public telephone account. Such information will be summed by NPA/NXX for total line numbers and total minutes of use. Other provisions to the contrary in this Agreement notwithstanding, the information described in this subparagraph shall be provided on a one-time basis as follows: For End Offices converted to equal access prior to March 31, 1989, the information will be provided at an RAO level and will be available on or after November 21, 1988 until April 1, 1989. Information in the report will not be updated. For those End Offices converting to equal access after March 31, 1989, the information will be available at a CLLI level and will be available 180 days prior to conversion. The data will be a snapshot of the average usage up to the time of the request and will not be updated.

2. In all other respects the Agreement shall remain unchanged and in full force and effect.

3. This addendum shall be effective as of the date first stated above.

4. The parties hereto acknowledge that they have read this Addendum, understand it and agree to be bound by its terms and conditions. They further agree that the Agreement together with this Addendum constitute the entire agreement between the parties hereto with respect to the subject matter hereto.

Figure 28 First Addendum To Location Provider Information License Agreement (Page 1)

IN WITNESS WHEREOF, the parties hereto have executed this Addendum by their duly authorized representatives in one or more counterparts, each of which shall constitute an original, on the dates set forth below.

BellSouth

Signature: _____

Name (Printed): _____

Title: _____

Date: _____

_____
(Access Customer Name)

Signature: _____

Name (Printed): _____

Title: _____

Date: _____

Figure 29 First Addendum To Location Provider Information License Agreement (Page 2)

3.3.11.7 Exhibit: Second Addendum To Location Provider Information License Agreement

This Second Addendum to the Location Provider Information License Agreement ("Agreement") between BellSouth (hereinafter jointly referred to as the "Telephone Company"), and _____ a _____ corporation ("Interexchange") is entered into this ____ day of _____ 19__ .

1. Paragraph 1 of the Agreement is hereby renumbered as Paragraph 1A of the Agreement.

2. Paragra 'B is hereby inserted following Paragraph 1A of the Agreement as follc

1B. The phone Company agrees to furnish to the Access Customer the following Location Provider information in separate, optional reports:

a. Location Provider information which shall show the restricted working Public/Semi-Public telephone number and its associated screening code; and

b. Location Provider information which shall show the daily updates to the restricted working Public/Semi-Public telephone number and its associated screening code.

3. Paragraph 4(a) of the Agreement is hereby deleted in its entirety and replaced with the following:

4(a) In consideration of the Location Provider information received, the Access Customer shall pay to the Telephone Company the following:

(i) a service fee for the assembly and transmission of the list, and

(ii) with respect to the Location Provider information described in Section 1A(a), the specified charges for each Location Provider record processed. Payment of the fees assessed pursuant to applicable charges shall be due upon receipt of the Location Provider information by the Access Customer. Failure to pay bills duly rendered within two (2) weeks after notice of delinquency mailed to the Access Customer shall constitute a breach of this Agreement.

4 Subparagraph 19(b) of the Agreement is hereby deleted in its entirety and replaced with the following:

(b) This Agreement shall continue until such time as the Telephone Company has completed Location Provider presubscription of Public/Semi-Public telephones, unless sooner terminated pursuant to Section 19(a) above, and thereafter may be terminated by either party upon thirty (30) days written notice to the other party.

5. In all other respects the Agreement shall remain unchanged and in full force and effect.

6. This Addendum shall be effective as of the date first stated above.

Figure 30 Second Addendum To Location Provider Information License Agreement (Page 1)

7. The parties hereto acknowledge that they have read this Addendum, understand it and agree to be bound by its terms and conditions. They further agree that the Agreement together with the First Addendum and this Second Addendum constitute the entire agreement between the parties hereto with respect to the subject matter hereto.

In WITNESS WHEREOF, the parties hereto have executed this Addendum by their duly authorized representatives in one or more counterparts, each of which shall constitute an original, on the dates set forth below.

BellSouth
Signature: _____
Name (Printed): _____
Title: _____
Date: _____

_____
(Access Customer Name)
Signature: _____
Name (Printed): _____
Title: _____
Date: _____

Figure 31 Second Addendum To Location Provider Information License Agreement (Page 2)

3.3.11.8 ICSC Mailing Addresses

- **SPRINT and General ACs**
- Room 208N
- 3196 Highway 280 South
- Birmingham, AL 35202

- **AT&T and MCI**
- Room D-60
- 5147 Peachtree Industrial Blvd.
- Atlanta, GA 30341

- **Equal Access Service Center**
- 15th Floor
- 600 North 19th Street
- Birmingham, AL 35203

3.4 Access Customer Inquiry Procedures

3.4.1 Introduction

3.4.1.1 General

All Access Customers (ACs) who have submitted Blanket Agency Agreement Letters are authorized to make subscription inquiries on behalf of their customers (end users and/or location providers).

These inquiries are made through the Exchange Company's Business Office serving the customer's telephone number (a list of these offices is contained in this chapter). Procedures have been established in each Exchange Company to assist ACs when such an inquiry is made.

3.4.1.2 Restrictions

Information regarding subscribed customers will be discussed with an AC only after the Service Representative has determined that the AC making the inquiry is the AC of record.

Any request for information regarding toll usage will not be honored, since this information is considered proprietary.

It should be noted that many customers who have made an AC selection do not make toll calls of any nature; therefore, zero usage does not indicate an error. Customer contact by the AC is recommended to address this situation.

3.4.2 Guidelines

3.4.2.1 Checklist

Whenever an end user or location provider calls an AC to report a problem with the service, the AC should determine if the problem is related to subscription.

Information should be verified with the customer by using the following checklist:

- 1. The customer is unable to reach dial tone.
  - Yes _____
  - No_____
  - If the customer cannot reach dial tone, it is a service problem and should be referred to the appropriate AP repair number.
- 2. The customer has been "cut-off" in the middle of a call, was unable to hear on the phone, or reached a wrong number.
  - Yes _____
  - No _____
- 3. The customer attempted to use a service not provided by the AC.

- Yes _____
- No _____

- 4. The customer dialed 10XXX.
  - Yes _____
  - No _____
- 5. The customer dialed "O+" for an operator assisted call, the AC has no operators.
  - Yes _____
  - No _____

Note: If the customer has not made an attempt to reach the 700 number, you should instruct the customer to do so.

3.4.2.2 Contact Procedure

If NO has been checked in all of the above situations, the AC may call the Equal Access Service Center (EASC) to determine if the customer has been subscribed correctly.

The AC personnel should identify the company name (that is, MCI®, AT&T-COM, SPRINT®, etc.), advise the Service Representative of the telephone number of the customer, and ask if the customer is subscribed to that AC. If so, the Representative will advise the AC personnel that this is correct.

If the customer is subscribed to a different AC, the AC may ask the application date of the request. The Representative will provide the application date, but is not permitted to provide the name of the other AC.

When making any inquiry to the EASC, the AC will be requested to provide the following information:

- The name, address, and telephone number of the subscriber.
- The date the order was submitted.
- The "actual service date" from the Subscriber Order List or the date of AP acceptance.
- How the order was submitted: mechanized interface or Subscriber Order List.
- The nature of the problem, as defined by the customer.
- The Weekly Activity Report supplied to the AC by the AP should be verified to determine that this customer has not moved or disconnected service.

3.4.3 Inquiries

3.4.3.1 Individual Inquiries

There may be instances when a customer indicates to the subscribing AC that bills are being received from another AC. The AC should first establish that these bills are for 1+ calls only and that they do not include 10XXX, collect, credit card, or third number billed calls. The customer should also be asked to verify that these calls were not appropriately billed by the AP (intraLATA calls).

If there is reason to believe the customer is subscribed incorrectly, the AC may verify that the customer is connected correctly in the switch by calling the EASC. The Service Representative will take the necessary information to investigate the inquiry and will make every attempt to assist the AC immediately; however, situations may occur where inquiries will require more time for investigation. In these situations, a one business day commitment to investigate the request will be given to the AC. In this instance, it will be necessary for the AC to give a name and contact number to the Representative.

The Representative will advise that the customer is connected correctly in the switch, and no error has been made, or that it has been determined that an error has been made and has been corrected. If the AP has made the error, the correction will be made at no charge to the end user.

NOTE: No "error" was made by the AP if the order was correctly input from a Subscriber Order List submitted by another AC.

If an AC claims an order has been submitted incorrectly by another AC, the AC may have the error corrected, provided the customer is on the line with the AC. In any instance of dispute, it is always beneficial to use a three-way conversation between the AP, the AC, and the customer.

ACs should not attempt to sign up new customers using these procedures.

3.4.3.2 List Inquiries

It is recommended that ACs handle inquiries on an individual basis via telephone with the EASC.

Alternatively, the AC may mail a list of problems to the EASC for investigation.

The following time intervals have been established to facilitate a quick turnaround time from receipt of list:

Lists Containing	# Business Days to Handle
1-20 Lines	1 Day
21-40 Lines	2 Days
41-60 Lines	3 Days
61-80 Lines	4 Days
81-100 Lines	5 Days

For lists containing over 100 lines, add one (1) day for each additional 20 lines.

This interval will be established for information received by telephone as well as information received on lists. Information provided on lists should be the same information provided when making verbal contact.

If for any reason the above intervals cannot be met, the AP will call the AC and negotiate a time suitable for processing.

3.4.4 Escalation of Inquiries

3.4.4.1 Procedures

The following is the normal AP escalation procedure:

1. If the Service Representative has not satisfactorily handled the inquiry, ask for the Supervisor.
2. If the Supervisor has not satisfactorily handled the inquiry, ask for the Manager.
3. If the Manager has not satisfactorily handled the inquiry, ask for the Operations Manager or the District Manager.

3.4.5 Error Prevention

3.4.5.1 Helpful Hints

To eliminate both AC and customer confusion, the following information is offered:

- Because many customers rarely or never make toll calls, a lack of toll calls does not indicate that a customer is subscribed incorrectly.
- Information on non-published numbers will be provided only to the AC of record.
- All AC personnel who deal with the Equal Access Service Center (EASC) should be familiar with the procedures discussed in this document.

3.4.6 Business / Residence Customer Service Centers

3.4.6.1 Telephone Numbers

Table Y Telephone Numbers

STATE	Type of Customer	Call From	Telephone Number
ALABAMA	All Residence Customers	Inside state	557-6500
		Outside State (Call Collect)	800-753-3320
	Business Customers	Inside State	557-6000

- continued -

Table Y Telephone Numbers (continued)

STATE	Type of Customer	Call From	Telephone Number
		Outside state (Call Collect)	800-285-4410
FLORIDA (NORTH)	Business	Inside Jacksonville RAO Area	780-2800
	Residence	Inside Jacksonville RAO Area	780-2355
	Residence	Outside Jacksonville RAO Area or Outside Florida	800-753-2909
	Business	Outside Jacksonville RAO Area or Outside Florida	800-753-0115
FLORIDA (SOUTH)	Business	Inside Miami RAO Area	780-2800
	Residence	Inside Miami RAO Area	780-2355
	Residence	Outside Miami RAO Area or Outside Florida	800-753-0710
	Business	Outside Miami RAO Area or Outside Florida	800-753-8172
FLORIDA (SOUTHEAST)	Business	Inside Ft. Lauderdale RAO Area	780-2800
	Residence	Inside Ft. Lauderdale RAO Area	780-2355
	Residence	Outside Ft. Lauderdale RAO Area or Outside Florida	800-753-0710
	Business	Outside Ft. Lauderdale RAO Area or Outside Florida	800-753-8172
GEORGIA	Business	Inside Georgia	780-2800
	Residence	Inside Georgia	780-2355
	Business	Outside Georgia	800-356-3093
	Residence	Outside Georgia	800-356-3094
KENTUCKY	All Residence Customers	Inside State	557-6500
		Outside state	800-477-4459

- continued -

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Table Y Telephone Numbers (continued)

STATE	Type of Customer	Call From	Telephone Number
	All Business Customers	Inside state	557-6000
		Outside state	800-947-8398
LOUISIANA	All Residence Customers	Inside state	557-6500
		Outside state	800-832-0679
	Business Customers		
	Baton Rouge	Inside state	557-6060
	New Orleans	Inside state	557-6000
	Shreveport	Inside state	557-6030
		Outside state	800-238-5501
MISSISSIPPI	All Residence Customers	Inside state	557-6500
		Outside state	800-625-6146
	All Business Customers	Inside state	557-6000
		Outside state	800-622-0644
NORTH CAROLINA	Business	Inside 704 Area Code	780-2800
	Residence	Inside 704 Area Code	780-2355
	Business	Outside North Carolina or from the 919 Area Code	800-919-2800
	Residence	Outside North Carolina or from the 919 Area Code	800-767-2355
SOUTH CAROLINA	Business	Inside South Carolina	780-2800
	Residence	Inside South Carolina	780-2355
	Business	Outside South Carolina	800-237-2802
	Residence	Ouside South Carolina	800-336-0014

- continued -

Table Y Telephone Numbers (continued)

STATE	Type of Customer	Call From	Telephone Number
TENNESSEE	All Residence Customers	Inside state	557-6500
		Outside state	800-753-0223
	Business Customers		
	Memphis	Inside state	557-6060
	(901) Area Code	Outside state	800-766-9115
	Nashville	Inside state	557-6000
		Outside state	800-766-9115
	Knoxville	Inside state	557-6030
		Outside state	800-766-9115

4. CARE (Customer Account Record Exchange)

4.1 CARE (Customer Account Record Exchange)

Click here to view CARE (Customer Account Record Exchange)

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5. Access Glossary

5.1 Introduction

This book contains commonly used terms and acronyms, and their definitions associated with access services.

5.2 Terms

Acceptance (Cooperative) Tests	Acceptance tests are non-chargeable tests that are performed during the installation process, by the Access Provider (AP) in cooperation with, and at the request of, the Access Customer (AP).
Access Code	Denotes a uniform five or seven digit code assigned by the Access Provider (AP) to an individual customer. The five digit code has the form 10XXX and the seven digit code has the form 950-XXXX.
Access Customer (Carrier) Name Abbreviation (ACNA)	The Access Customer (Carrier) Name Abbreviation (ACNA) identifies the COMMON LANGUAGE®[1] code of the AC interLATA facility terminal location to which the bill is rendered. This code is assigned and provided by the AP prior to the submission of an Access Service Request (ASR).
Access Customer (AC) or Inter-exchange Common Carrier	An Access Customer (AC) or Interexchange Common Carrier is an individual, partnership, association, joint-stock company, trust, government entity or corporation engaged for hire in intrastate and/or interstate communication by wire or radio, between two ore more exchanges.
Access Provider (AP)	An Access Provider (AP) is a telephone company, generally regulated by a state regulatory body, that provides local (intraLATA) telecommunications services.

1 ® COMMON LANGUAGE is a registered trademark, and CLEI, CLLI, CLFI and CLCI are trademarks of Telcordia.

Access Customer (AC)	Denotes an individual, partnership, association, corporation, or governmental agency or any other entity which subscribes to the services offered under the Access Service Tariff to provide interexchange telecommunications services for its own use or for the use of its customers (end users.)
Access Customer Terminal Location (ACTL)	The Access Customer Terminal Location (ACTL) identifies the COMMON LANGUAGE Location Identification (CLLI) code for the interexchange carrier interLATA facility terminal location. The CLLI is assigned by the e ge company.
Access Minutes	The term access refers to using exchange facilities to calculate chargeable access usage. On the originating end of an interstate or foreign call, usage is measured from the time the originating end-user's call is delivered by the AP, and acknowledged as received by the AC's facilities connected with the originating exchange. On the terminating end of an interstate or foreign call, usage is measured from the time the call is received by the end-user in the terminating exchange. Usage timing at both the originating and terminating end of an interstate or foreign call ends when the calling or called party disconnects, whichever comes first. (The times are measured by the receipt of a signal known as answer/ disconnect supervision.)
Access Service	Access Service is a telephone-company provided communication path between an AC and an end user or telephone company to an AC in the same LATA. Access services are provided as special access service or switched access service.
Access Services Coordinator (ASC)	The Access Services Coordinator (ASC) is the local AP that serves as the coordinator and single point-of-contact for an access service, when two or more local AP jointly provide that access service.
Access Service Group (ASG)	The Access Service Group (ASG) identifies the personnel assigned to a particular circuit or group of circuits.

Access Service Request (ASR)	The Access Service Request (ASR) is a form ACs use to request an ICSC to provide special access or switched access services, as specified in the various Access Services Tariffs.
Access Tandem (AT)	Denotes an AP switching entity designated by the AP for the purpose of originating and terminating traffic to end offices identified as subtending that access tandem. It is represented by 11 character CLLI code.
Access Tandem Network	Access Tandem Network refers to the network of trunk groups for originating and/or terminating switched-access traffic between a single access tandem and telephone company subtending end offices.
Access Window	An Access Window is a period of time allocated to each Access Customer for system access.
Agent	An agent has an agreement with a customer that empowers the agent to act for the customer in providing and maintaining that customer's service.
Answer / Disconnect Supervision	Denotes the transmission of the switch trunk equipment supervisory signal (off-hook or on-hook) to the AC Point of Termination as an indication that the called party has answered or disconnection.
Application Date (APP)	The application date is the date on the which the AC provides the Interexchange Customer Service Center (ICSC) with a firm order (FO) and sufficient information to proceed with the provision of facilities and/or terminations. This includes an agreement between the AC and the ICSC regarding provisioning control dates (See CDLRD, FDLRD and DD) and the receipt of a valid written agency authorization, when applicable.
Attenuation Distortion	Attenuation distortion is the difference in loss at specified frequencies relative to the loss at 1004 Hz, unless otherwise specified.
Automatic Number Identification (ANI)	Automatic Number Identification (ANI) is the identification of a calling station by a switch, rather than an operator. The primary use of this equipment is to identify the telephone number of the line initiating a call to send this information to the message accounting apparatus.

Balance (100 Type) Test Line	A balance (100 Type) test line is an end office arrangement that provides for balance and noise testing.
Bell Operating Company (BOC)	Bell Operating Company is a name still used to refer collectively to one of the 22 operating companies of AT&T prior to divestiture. Since divestiture, the name continues to be used in many formal and informal arenas.
Billing Account Number (BAN)	A Billing Account Number (BAN) identifies the billing account to which the recurring and non-recurring charges for requested services is billed.
Blanket Agency Agreement	A blanket agency agreement is a letter that allows the Access Customer to act on behalf of its subscribers to place access orders.
Business Day (BD)	The term business day refers to the hours of the day during which a company is open for business. In the business community, these are generally Monday through Friday, 8:00 or 9:00 AM to 5:00 or 6:00 PM, respectively, with an hour for lunch, resulting in a 40 hour work week. However, company business day hours may vary based on company policy, union contract and location.
Busy Hour Minutes of Capacity (BHMC)	Denotes the average of the highest time consistent hour of usage during the highest twenty consecutive day period during a calendar year.
Call- Out	Call out is non-connecting overtime that occurs when a telephone company employee is called to work at a time not consecutive with the employees scheduled tour. A call out is subject to a minimum charge of three hours for interstate access services. Charges for call outs associated with intrastate access services may vary by state.
Carrier or Common Carrier	Denotes any individual, partnership, association, joint stock company, trust or corporation engaged for hire in interstate, intrastate or foreign communication by wire or radio.
Carrier Access Billing System (CABS)	The Carrier Access Billing System (CABS) is the mechanized system used in BellSouth to provide records and billing of access service.

Carrier Identified Code (CIC)	A Carrier Identification Code (CIC) is a unique three-digit access identification code that is assigned to an AC for use with Feature Group B and/or Feature Group D switched access service.
CCS (Hundred Call Seconds)	CCS refers to a hundred-call seconds. This is a standard unit of traffic load that is equal to 100 seconds of usage or capacity of a group of services (for example, trunks).
Cellular Carriers	A cellular carrier is a common carrier who is licensed by the FCC to provide cellular services.
Central Office (CO)	Denotes a local AP switching system where telephone exchange service customer station loops are terminated for purposes of interconnection to each other and to trunks.
Central Office Prefix (NXX)	Denotes the first three digits (NXX) of the seven digit telephone number assigned to an end user's-Telephone Exchange Service when dialed on a local basis.
Centralized Automatio Reporting On Trunk Testing (CAROT)	The term centralized automatic reporting on trunk testing (CAROT) refers to testing that includes the capacity for measuring operational and transmission parameters.
Centralized Repair Service Answering Bureau (CRSAB)	The Centralized Repair Service Answering Bureau (CRSAB) is the point of contact for customers to report telephone service trouble, including non-design access service (for example, WATS).
Change Charge	A change charge is the rate billed for a request to change an end user service from one Access Customer (AC) to another AC, or to a Predesignated Interexchange Carrier (PIP) of none
Change Activity Register Service (CAR)	List of customer change activity on subscriber lines not subscribed to the ordering AC via the Customer Account Record Exchange (CARE) interface.
Channel (s)	Denotes an electrical or photonic, in the case of fiber optic based transmission systems, communications path between two or more points of termination.

Channelize	Channelize is the process of multiplexing or demultiplexing wider bandwidth or higher speed channels into narrower bandwidth or lower speed channels.
Channel Service Unit (CSU)	A channel service unit (CSU) is equipment that performs one or more of the following functions: –Termination of a digital facility. –Regeneration of digital signals – Detection and/or correction of signal format errors and remote loop back.
C-Message Noise	C-message noise refers to the frequency weighted average noise within an idle voice channel. The frequency weighting, called C-message, is used to simulate the frequency characteristic of the 500 type telephone set and the hearing of the average subscriber.
C-Notched Noise	C-Notched Noise is the C-message frequency weighted noise on a voice channel with a holding tone that is removed at the measuring end through a notch (narrow band) filter.
Circuit Administration Center (CAC)	Denotes the AP organization which may have responsibility for developing Message Trunk forecasts, issuing Message Trunk orders and Network Routing orders to maintain Network service.
Circuit Provision Center (CPC)	Denotes the AP organization which may have responsibility for the assignment of interoffice facilities and equipment, circuit design, and the preparation and distribution of work order documents for special services, message trunks and carrier systems.
Coin Station	A coin station is a location that provides company equipment in a public or semi-public place where customers can originate telephone communications and pay the applicable charges by inserting coins into the equipment.
Common Language (R)	Is a series of codes that identifies a universal language for the telecommunications industry that is designed to identify things and places uniquely in a standardized and consistent code.

COMMON LANGUAGE Circuit Identification (CLCI ™)

CLCI™ is the COMMON LANGUAGE Circuit Identification code that is used as the naming system for access services.

COMMON LANGUAGE Equipment Identification (CLEI ™)

CLEI is the COMMON LANGUAGE Equipment Identification code that identifies individual equipment parts and system configurations. Telephone companies use CLEI codes for inventory, ordering, and tracking of these parts.

COMMON LANGUAGE Location Identification CLLI ™)

CLLI is the COMMON LANGUAGE code that identifies individual locations of physical plant. A CLLI is composed of 11 alphanumeric characters, which serve as a substitute for a street address and room number of an access customer or local exchange company location.

CLLI Format	
Character Position	Description
1 - 4	Place Abbreviation
5-6	State Abbreviation
7-8	Building Identification
9-11	Specific Equipment Identification

Common Line

A common line is a line, trunk, pay telephone line, or other facility provided under the General Subscriber Service Tariff.

COMMON Presentation Manager (CPM)

COMMON PRESENTATION MANAGER (CPM) is a software package which offer a character or graphical use interface via electronic communications.

Confirming Design Layout Report (CDLR)

The confirming Design Layout Report (CDLR) is a report sent by the AC engineering office to the AP engineering control office. The report either confirms the AC's acceptance of the design forwarded by the AP via the DLR, or requests specific changes in the design.

Confirming Design Layout Report Date (CDLRD)

Confirming Design Layout Report Date (CDLRD) is the date by which the AP should receive the CDLR.

CONNECT: Direct

CONNECT: Direct (Formerly Network Data Mover (NDM) is a software package used for the transmission of data.

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Control Office	A control office is an AP office that has been designated for installation and maintenance on a given access service furnished to an AC (for example, the Special Service Center and Switching Control Center). A control office is an office, testboard, or technical control facility that establishes, maintains, and rearranges circuits, trunks, and lines.
Critical Dates	The term critical dates refers to specific provisioning control dates in the life of an order generated to monitor progress once the due date has been determined.
Customer(s)	A customer is any individual, partnership, association, joint-stock company, trust, corporation, or entity that subscribes to the service offered under the access tariff.
Customer's Agent	A customer agent's is empowered to act for the customer on some or all customer service matters. A customer's written agency authorization specifies the degree of responsibility.
Customer Carrier Name Abbreviation (CCNA)	The Customer Carrier Name Abbreviation (CCNA) identifies the COMMON LANGUAGE Code for the customer submitting the Access Service Request, and receiving the Firm Order Confirmation.
Customer Code	A customer code is a unique three-digit numeric code assigned to each account.
Customer Provided Equipment (CPE)	Customer Provided Equipment (CPE) identifies the customer equipment and communications equipment, provided by the customer, that are connected at the customer's premises to telecommunications service.
Customer Record Information System	The Customer Record Information System (CRIS) is a mechanized system that is used by the Business Service Center to handle end user billing.
Customer Type Indicator (CTI)	The customer type indicator (CTI) identifies a general category of customer (for example, residence, Business, COIN(TM)).
Data Transmission (107 Type) Test Line	The data transmission (107 type) test line is a signal source connection that produces signals for one way testing of data and voice transmission parameters.

Decibel (dB)	A decibel (dB) is a unit that expresses relative difference in power, usually between acoustic or electric signals, equal to ten times the common logarithm of the ratio of two signal powers.
Decibel Reference Noise C-Message Weighting (dBrnC)	The term decibel reference noise C-message weighting refers to noise power measurements with C-message weighting in decibels relative to a reference 1000 Hz tone of 90 dB below 1 milliwatt.
Decibel Reference Noise C-Message Referenced to 0 (dBrn0)	The term decibel reference noise C-message referenced to 0 refers to noise power in "decibel reference noise C-message weighting" measured at a zero transmission level point.
Dedicated Network Access Link (DNAL)	The dedicated network access link (DNAL) provides a dedicated data channel between the customer termination and a designated central office which contains the specific features required by the customer.
Design Layout Report (DLR)	Denotes a report containing technical and administrative information that describes the Access Service provided by the AP. The technical information is needed by the AC to design the overall service and includes such items as cable makeup (gauge, loading, facility interfaces, etc. The DLR is sent to the designated AC representative by the AP.
Design Layout Report Date (DLRD)	The Design Layout Report Date (DLRD) is the date by which the final Design Layout Report must be forwarded to the designated access customer representative.
Desired Due Date (DDD)	Identifies the AC's desired due date (DDD) for a requested service. The actual due date may differ from that desired because of factors such as the availability of facilities and the quantity, complexity, and impact on local service of the involved circuits.
Detail Billing	The term detail billing refers to listing each customer chargeable message and/or rate element that is due on the company prepared bill.
Direct-Trunked Transport (DTT)	Denotes the VG, DS-1 or DS-3 transmission path, or portion thereof, between the SWC/HUB and the end office/access tandem/HUB>

Dual-Tone Multi-frequency Address Signaling	Dual tone multifrequency address signaling is an optional feature of Switched Access FGA that is used when FGA is used in the terminating direction (from the point of termination with the customer to the local exchange end office).
Due Date (DD)	Due date is the date assigned by the Access Provider to complete an access customer's request for access service.
Echo Control	Echo control is the control of reflected signals in a telephone transmission path.
Echo Path Loss	Echo path loss (EPL) refers to the measure of reflected signal at a 4-wire point of termination without regard to the send and receive transmission level points.
Echo Return Loss	Echo return loss (ERL) refers to a frequency weighted measure of return loss over the middle of the voiceband (approximately 500 to 2500 Hz), where talker echo is most annoying.
Effective 2-Wire	Effective 2-wire is a condition that allows the simultaneous transmission in both directions over a channel. However, it is not possible to ensure independent information transmission in both directions. Effective 2-wire channels may be terminated with 2-wire or 4-wire interfaces.
Effective 4-Wire	Effective 4-wire is a condition that allows the simultaneous transmission of information in both directions over a channel. Effective implementation of 4-wire transmission is at the discretion of the AP (physical, time-domain and frequency-domain separation or echo cancellation techniques). Effective 4-wire channels may be terminated with a 2-wire interface at the end user premises or central office, but not at the access customer point of interface. However, when terminated, 2-wire simultaneous independent transmission cannot be support.
End Office (EO)	Denotes a local AP central office switching entity serving end user customers. It is represented by an 11 character CLLI code.

End Office Switch	An end office switch is a local AP switching system where telephone exchange service customer-station loops are terminated for interconnection to trunks.
End User	Denotes any individual, partnership, association, corporation, governmental agency or any other entity which subscribes to interstate/intrastate service(s) provided by an AC or uses the services of the AC when the AC provides interstate/intrastate service(s) for its own use. (C.O. CENTREX service is considered an end user.)
Entrance Facility (EF)	Denotes the VG, DS-1 or DS-3 transmission path, or portion thereof, between the POP and its serving wire center.
Entry Switch	First Point of Switching.
Envelope Delay Distortion (EDD)	Envelop Delay Distortion is the measure of the linearity of the phrase versus frequency of a channel.
Equal Access	The Modification of Final Judgment (MFJ) divested AT&T and the Bell Operating Companies (BOCs). The BOCs were required to provide all end users "equal access," also referred to as "1+dialing through any Access Customer (AC) of their choice. The BOC's SWCs at the time of divestiture were not capable of recognizing any 1+dialing pattern as other than AT&T. The MFJ required that each BOC have a minimum of one SWC equipped with that capability on or before September 1, 1984.
Equal Access Service Center	An Equal Access Service Center is the primary point of contact for PIC related carrier requests in BellSouth.
Equal-Level Echo-Path Loss (ELEPL)	Equal Level Echo Path Loss is the measure of Echo Path Loss (EPL) at a 4-wire interface, which is connected by the difference between the send and receive transmission Level Path (TPL). (ELEPL = EPL - TLP [send] + TLP [receive]).

Exchange	An exchange is a unit, generally smaller than a local access or transport area, established by the telephone company to administer communications service in an area, such as a city, town or village. An exchange consists of one or more central offices and the associated facilities used to furnish communications service within that area. One or more designated exchanges comprise a given local access and transport area.
Exchange Carrier (EC)	Change to Access Provider (AP). Refer to Access Provider.
Expected Measured Loss (EML)	The term expected measured loss refers to a calculated loss that specifies the end-to-end 1004-Hz loss on a terminated test connection between two readily accessible manual- or remote-test points. It is the sum of the inserted connection loss and test access loss including any test pads.
Feature Group FGx	A feature group (FGx) is an arrangement (there are four different arrangements FGA, FGB, FGC, and FGD) in which the telephone company provides Switched Access Service.
Feature Group D (FGD) Signaling	FGD signaling is the signaling system that is used by equal-access end offices to transmit originating information and address digits to the customer's premises. System features may include overlap outpulsing, call-type identification, identification of the ten-digit telephone number of the calling party, and acknowledgment-wink supervisory signals.
Federal Communication Commission (FCC)	The Federal Communications Commission (FCC) is the federal agency empowered by law to regulate all interstate and foreign radio and wire communications services originating in the United States.
Field Identifier	Field identifiers (FIDs) are the two- to four-character codes that are used on service orders to convey specific instructions. Field identifiers may or may not have associated data. Company billing systems use selected field identifiers to gene[illegible]on-recurring charges.

File Transfer System (FTS)	A file transfer system (FTS) is a protocol that lets users transfer files between computers, regardless of manufacturer. Standards were developed by the International Standards Organization (ISO).
First Point-of-Switching	First point-of-switching is the first AP location at which switching occurs on the terminating path of a call proceeding from the AC terminal location to the terminating end office. At the same time, the last AP location at which switching occurs on the originating path of a call proceeding from the originating-end office to the AC terminal location.
Foreign Exchange (FX)	Foreign Exchange (FX) service is used to place and receive calls from a specific exchange other than the serving wire center of the customer's premises without a toll charge.
Frame Relay Service	Frame Relay Service is a high performance, packet mode, public data communications service which enables local area network (LAN) type connectivity among multiple distributed customer locations over a wide area. Data are relayed from the source to the desired destination by means of "virtual connections, that is through a fixed path established through the network. It may be offered providing a Permanent Virtual Connection (PVCs) implemented over dedicated digital access circuits.
Frequency Shift	A frequency shift is a change in the frequency of a tone as it is transmitted over a channel.
Grand-fathered	Grandfathered is a term that means that an item no longer applies to new installations.
High Capacity Service (HC)	High Capacity Service (HC) is a channel for the transmission of nominal 64.0 Kbps or 1.544, 3.52, 6.312, or 44.736 Mbps Isochronous serial data. The actual bit rate is a function of the channel interface selected by the customer.
Host Office	A host office is an electronic switching system that provides call-processing capabilities for one or more remote-switching modules or remote-switching systems.

HUB	Denotes an AP building/location designated for multiplexing and/or bridging capabilities. An AP building with end office(s) and/or access tandem)s) may also be a multiplexing HUB for the purposes of terminating switched access services into switching entities in that wire center building
Hundred Call Seconds (CCS)	Denotes a hundred call seconds, which is a standard unit of traffic load that is equal to 100 seconds of usage or capacity of a group of service (e.g. trunks).
Immediate Balance	The term immediate balance refers to the method of expressing echo return loss and signaling return loss at a 4-wire interface, without including the gains and/or losses of the 4-wire portion of the transmission path, including the hybrid, in the specification.
Impulse Noise	Impulse noise is any momentary occurrence of channel noise over a specified leave threshold. It is evaluated by counting the number of occurrences that exceeds the threshold.
Independent Company (ICO)	An independent company is any local AP that is not a local Bell Operating Company.
Individual Case Basis (ICB)	An individual case basis (ICB) is when applicable regulations, rates and charges for an offering are developed based on the circumstances in each case, and under the provisions of the Access Service Tariff.
Inserted - Connection Loss (ICL)	The term inserted-connection loss refers to the 1004 Hz power difference (in dBs) between the maximum power available at the originating end and the actual power reaching the terminating end through the inserted connection.
Installation and Maintenance Center (IMCP)	The Installation and Maintenance Center is an administrative center that coordinates the activities associated with installing, repairing, and maintaining exchange services and non-design special access services.
Inter-exchange (Carrier) Customer Service Center (ICSC)	The Interexchange (Carrier) Customer Service Center is an access service negotiation work group that handles the access service needs of access customers.

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Inter-modulation Distortion	The term intermodulation distortion refers to the measurement of channel nonlinearity. It is measured using 4 tones, and evaluating the ratios (in dBs) of the transmitted composite 4-tone signal power to the second order products of the tones (R2) and the third order products of the tones (R3).
Interstate Communications	The term interstate communications refers to both interstate and foreign communications, and includes any communications subject to FCC oversight as provided under the Communication Act of 1934, as amended, and the FCC's Rules and Regulations.
Interstate Customer(s)	An interstate customer is any individual, partnership, association, corporation, governmental agency, or any other entity that subscribes to the services offered under the Access Service Tariff to provide interstate telecommunications services for its own use or for the use of its customers (end users).
Interstate and Foreign Communications	Denotes any communications subject to FCC oversight, as provided under the Communications Act of 1934, as amended, and the F.C.C.'s Rules and Regulations.
Intrastate Communications	The term intrastate communications refers to any communications within a state that is subject to a state regulatory commission, as provided by the laws of the state involved.
Isolation	Isolation is the process of identifying the failed circuit element.
Line Side Connection	Denotes a connection of a transmission path to the line side of a local exchange switching system.
Listed Name and Address (LNA)	List of current customer listings which are available for subscriptions in central offices which have converted to equal access.
Local Access and Transport Area (LATA)	Local Access and Transport Area (LATA) refers to a geographical area established by the AP for the provision and administration of communication service. A LATA encompasses designated exchanges that are grouped to serve common, social, economic, and other purposes.

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Local Calling Area (LCA)	Local Calling Area (LCA) refers to a geographical area, as defined in the company's General Subscriber Service Tariff, in which an end user (telephone exchange service subscriber) can complete a call without incurring toll charges.
Local Exchange Carrier (LEC)	A Local Exchange Carrier (LEC) is any telephone company (Bell or Independent) engaged in the business of furnishing exchange services and access services in a franchised territory.
Local Exchange Routing Guide (LERG)	The Local Exchange Routing Guide (LERG) is the result of processing data obtained to produce both online inquiry ad offline inquiry and offline reports for the administration of routing within the North American Numbering Plan (NAPA) (excluding Canada).
Local Tandem Switch	A local tandem switch is a local company switching unit that switches local or access telephone-communications to and from an end office switch.
Local Transport	Denotes the transport requirement for lines/trunks from the AC POP location to the end office/access tandem. The transport may be either direct-trunked or tandem-switched.
Loop Around Test Line	A loop around test line is an arrangement that uses a company central office to make certain two-way transmission tests on a manual basis. This arrangement has two central office terminations, each reached by separate telephone numbers, and does not require any specific customer premises equipment. Test arrangement equipment is at the discretion of the customer.
Loss Deviation	Loss deviation is the variation of the actual loss from the designed value.
Miliwatt (102 Type) Test Line	Miliwatt (102) Type) test line is an arrangement in an end office that provides a 1004 Hz tone at 0 dBm) for one-way transmission measurements towards the customer premises from the company end office.

Minimum Monthly Usage Charge (MMUC)	The MMUC indicates the minimum monthly usage charge for types of traffic ordered by the customer. This charge applies to the total busy-hour minutes of capacity provided to an AC and designed to ensure recovery of investment/expense for the capacity of quantity ordered by an AC. MMUC applies only when the monthly usage of the ordered facility falls below the MMUC charge level.
Mobile- Telephone Switching Office	The mobile-telephone switching office (MTSO) is a wireless switching system used to terminate mobile stations for interconnection with each other, and with trunks interconnecting to the public switched network.
Network Administration Center (NAC)	The Network Administration Center (NAC) is the AP organization responsible for administering switching machines, validating usage date, maintaining central office directory numbers and/or line equipment central-office translation, coordinating machine-growth jobs, and monitoring service and outage. (Includes line/ number assignments and arrangements/load balance requests.)
Network Channel Code (NC)	The Network Channel Code (NC) identifies access services performance-parameter specifications and other transmission options that the APs offer via the Access Tariffs. The NC code's primary use is an ordering code to describe channels offered via the Access Service tariffs, and is not intended for use as circuit identification.
Network Channel Interface (NCI) Code	The Network Channel Interface (NCI) code identifies the access services electrical interfaces that the APs are expected to offer via the Access Service tariffs. The NCI code identifies the electrical interfaces on all channels ordered via access service. The NCI code applies to Switched Access, Special Access Services, and WATs access lines.

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Network Control Signaling	The term Network Control Signaling, refers to transmitting telecommunications signals that perform functions such as supervision (control, status, and charge signals), address signaling (for example, dialing), calling and called number identifications, rate of flow, service-selection error control and audible-tone signaling (call progress signals indicating re-order or busy conditions, altering, coin denominations, coin collect and coin-return tones) to control the operations of switching machines in the telecommunications system.
Network Interface (NI)	The Network Interface (NI) is the point at the end-user's premises at which the AP's access service responsibility ends.
Non- synchronous Test Line	Nonsynchronous test line refers to an arrangement in step-by-step end offices that provides operational tests. These tests, while not as complete as those provided by the synchronous test lines, can be made more rapidly.
Ordering and Billing Forum (OBF)	The Ordering and Billing Forum (OBF) is an intercompany forum, coordinated by ATIS, set up to resolve problems and develop new interfaces between access providers and local exchange providers.
Originating Direction	The term originating direction refers to the use of access service for the beginning of a call from the end user premises to the AC's premises.
Other Labor	The term other labor refers to requests for work other than: overtime installation, additional acceptance testing, nonscheduled testing, overtime repair or standby time. This work is billable.
Overlap Pulsing	The term overlap pulsing refers to the feature of a FGD service that permits initiation of pulsing to the customer's premises before the calling subscriber dialing on the originating call.
Percent of Interstate Usage (PIU)	The Percent of Interstate Usage (PIU) is the customer's estimate of the amount of traffic on a given service that will be interstate from end to end.
Percent Interstate Routed (PIR)	Percent interstate routed (PIR) identifies the portion of a service or facility that is assigned interstate/IntraLATA as displayed on the Customer Service Record.

Phase Jitter	Phase Jitters are unwanted phrase variations of a signal.
Point of Presence (POP)	The point of presence is the physical location within which the point of termination occurs, and the AC obtains exchange access.
Point of Termination (POT)	A point of termination (POT) is the demarcation location within a customer designated premises at which the company's service access responsibility ends.
Public Service Commission (PSC)	The Public Service Commission (PSC) is a regulatory body at the state level.
Purchase Order Number (PON)	The purchase order number (PON) is the unique requisition number that authorizes the issuance of a request for/or supplement to, a request for service.
Radio Common Carriers (RCC)	Radio Common Carriers (RCC) are carriers that are regulated under Part 22 of the FCC's Rules and Regulations.
Remote Switching Modules and/or Remote Switching Systems	Remote switching modules and/or remote switching systems are small, remotely controlled electronic end office switches with call processing capabilities from an ESS(R) type host office. The RSM/RSS cannot accommodate direct trunks to an AC.
Return Loss	Return loss is a measure of the similarity between the two impedances at the junction of the two transmission paths. The higher the return loss, the higher the similarity.
Revenue Accounting Office (RAO)	A revenue accounting office (RAO) is the BellSouth location that maintains files and issues and distributes bills.
Secondary Channel	Secondary channel is the offering of a companion digital transmission capability over the same physical facility as the primary channel, but at a lower bit rate. The customer must provide terminal equipment required to support secondary channel capability.
Serving Wire Center (SWC)	A serving wire center (SWC) is the wire center from which the customer designated premises would normally obtain dial tone.

Seven Digit Manual Test Line	A seven digit manual test line is an arrangement that allows the customer to select balance, milliwatt, and synchronous test lines by dialing a seven-digit number over the associated access connection.
Short Circuit Test Line	A short circuit test line is an end office arrangement that uses a capacitor of at least four microfarads to provide an AC short-circuit trunk/line termination.
Signal System 7 (SS7)	An internationally standardized general purpose common channel signaling system.
Signal to C-Notched Noise Ratio	The signal to C-notched noise ratio is the ratio in a test signal dB to the corresponding C-notched noise.
Singing Return Loss (SRL)	The term singing return loss (SRL) refers to the frequency weighted measure of return loss at the edges of the voiceband (200 to 500 Hz and 2500 to 3200 Hz), where singing (instability) problems are most likely to occur.
Special Access Services (SPA)	Special Access Services provide a transmission path to connect AC designated premises, either directly or through a telephone company HUB where bridging or multiplexing functions are performed.
Special Service Center (SSC)	A Special Service Center (SSC) is an AP control office on a given facility and/or termination furnished for an AC. The SSC is responsible for installing and repairing interoffice designed FGA, and special access services, including those terminated in AP CENTREX Services.
Subtending End Office of An Access Tandem	Subtending end office of an access tandem is an end office that has final trunk group routing through that tandem.
Switched Access Service (SAS)	Switched Access Service is a telephone company provided switched electrical communications path between an AC POT and a telephone company switch.
Switching Control Center (SCC)	A Switching Control Center (SCC) is an AP control office on a given facility and/or termination furnished for an AC. The SCC is responsible for the installation and repair of FGB, FGC, and FGD Access Services.

Synchronous Test Line	A synchronous test line is an end office arrangement office that performs marginal operational tests of supervisory and ring tripping functions.
Tandem Switched Transport (TST)	Denotes the VG, DS-1 or DS-3 transmission path or portion thereof, between the SWC/HUB and the access tandem/HUB. Not all APs allow the AC to designate the level at which the TST will be provisioned.
Terminating Direction	The term terminating direction refers to the use of access service to complete calls from an AC premise to an end user's premises.
Traditional Signaling	The term traditional signaling refers tot he Intermachine Signaling System that has traditionally been used to transmit the call number's address digits from the originating end office to the switching machine that terminates the call.
Transmission Measuring (105 Type) Test Line/Respond	The term refers to an end office arrangement that provides for responder end access and permits two-way loss and noise measurements on trunks from a near end office.
Transmission Path	A transmission path is an electrical path capable of transmitting signals within the range of the service offering. For example, a voice grade transmission path can transmit voice frequencies within the approximate range of 300 to 3000 HZ. A transmission path is composed of physical or derived facilities consisting of any form of plant configuration typically used in the telecommunications industry.
Trunk (TK)	A trunk is a communications path that connects two switching systems in a network used to establish an end to end connection.
Trunk Group	The term trunk side connection refers to the transmission path connection to the trunk side of a local exchange switching system.
Uniform Service Order Code (USOC)	A uniform service order code is a three or five character alphanumeric code that identifies a specific item of service or equipment. USOCs are used in the company billing system to generate recurring rates and nonrecurring charges.

V and H Coordinates Method	The V and H coordinates method is a method of computing airline miles between two points. It uses an established formula that is based on the vertical (V) and horizontal (H) coordinates of the two points.
Via Office	Using Network Management Controls, a via office is the office that is used to temporarily reroute traffic, originally destined for a congested route, in an attempt to complete as many calls as possible.
Wide Area Telecommunications Service (WATS)	Wide Area Telecommunications Service (WATS) includes the following Services: · **OutWATS** — Dedicated access line for outgoing calls only. · **Intrastate Out WATS** — This line provides a customer with access to the entire state within which the end user's business is located. · **IntraLATA OutWATS** — This line provides access only to the LATA within which the end user's business is located. · **800 Service** - Dedicated access line for incoming calls only. · **Intrastate 800 Service** — This line provides toll free calling to customers within the state in which the 800 service line is physically located. The end user at who's premises the line is located is the party responsible for the bill.
WATS Access Line (WAL)	A WATS Access Line (WAL) is a special access service that provides a connection between an end user's premises and a telephone company switch capable of performing the necessary screening functions for 800 service. A WAL is provided for use at the closed end of such services. WALs may be furnished to provide for both originating and terminating WATS service.
WATS Service Office (WSO)	A WATS Service Office (WSO) is a serving wire center that performs switching, screening, and/or recording functions related to the close end of WATS or WATS-like service.
Wire Center	A Wire Center is a building that houses one or more central offices, used for the provision of telephone exchange services.

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ATTACHMENT 3

NETWORK INTERCONNECTION

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NETWORK INTERCONNECTION

1. GENERAL

1.1 The Parties shall provide interconnection with each other's networks for the transmission and routing of telephone exchange service (local) and exchange access (intraLATA toll and switched access) on the following terms:

2. DEFINITIONS: (FOR THE PURPOSE OF THIS ATTACHMENT)

2.1 For purposes of this attachment only, the following terms shall have the definitions set forth below:

2.1.1 **Call Termination** has the meaning set forth for "termination" in 47CFR § 51.701(d).

2.1.2 **Call Transport** has the meaning set forth for "transport" in 47 CFR § 51.701(c).

2.1.3 **Call Transport and Termination** is used collectively to mean the switching and transport functions from the Interconnection Point to the last point of switching.

2.1.4 **Common (Shared) Transport** is defined as the transport of the originating Party's traffic by the terminating Party over the terminating Party's common (shared) facilities between (1) the terminating Party's tandem switch and end office switch, (2) between the terminating Party's tandem switches, and/or (3) between the terminating Party's host and remote end office switches. All switches referred herein must be entered into the Local Exchange Routing Guide ("LERG").

2.1.5 **Dedicated Interoffice Facility** is defined as a switch transport facility between a Party's Serving Wire Center and the first point of switching on the other Party's common (shared) network.

2.1.6 **End Office Switching** is defined as the function that establishes a communications path between the trunk side and line side of the End Office switch.

2.1.7 **Fiber Meet** is an interconnection arrangement whereby the Parties physically interconnect their networks via an optical fiber interface at which one Party's facilities, provisioning, and maintenance responsibility begins and the other Party's responsibility ends.

2.1.8 **Interconnection Point ("IP")** is the physical telecommunications equipment interface that performs the interconnection function for BellSouth and <<customer_name>>.

2.1.9 **Local Channel** is defined as a switched transport facility between a Party's Interconnection Point and it's the IP's Serving Wire Center.

2.1.10 **Local Traffic** is as defined in Section 5 of this Attachment.

2.1.11 **Serving Wire Center** is defined as the wire center owned by one Party from which the other Party would normally obtain dial tone for its IP.

2.1.12 **Tandem Switching** is defined as the function that establishes a communications path between two switching offices through a third switching office through the provision of trunk side to trunk side switching.

2.1.13 **Transit Traffic** is traffic originating on <<customer_name>>'s network that is switched and/or transported by BellSouth and delivered to a third party's network, or traffic originating on a third Party's network that is switched and/or transported by BellSouth and delivered to <<customer_name>>'s network.

3. NETWORK INTERCONNECTION

3.1 This Attachment pertains only to the provision of network interconnection where <<customer_name>> owns and provides its switch(es).

3.2 Network interconnection may be provided by the Parties at any technically feasible point within BellSouth's network. Requests to BellSouth for interconnection at points other than as set forth in this Attachment may be made through the Bona Fide Request/New Business Request process set out in this Agreement.

3.2.1 Each Party is responsible for providing, engineering and maintaining the network on its side of the IP. The IP must be located within BellSouth's serving territory in the LATA in which local traffic is originating. The IP determines the point at which the originating Party shall pay the terminating Party for the Call Transport and Termination of that traffic.

3.2.1.1 When first establishing the interconnection arrangement in each LATA, the location of the IP shall be established by mutual agreement of the Parties. In selecting the IP, both Parties will act in good faith and select the point which is most efficient for both Parties. If the Parties are unable to agree on the location of the IP, each Party will designate the Inform its originated traffic. Additional IP(s) in a particular LATA may be established by mutual agreement of the Parties. If the Parties are unable to agree to additional IPs, each Party will designate the IP for its originated traffic. When the Parties agree to utilize two-way interconnection trunk groups for the exchange of Local Traffic, the Parties must agree to the location of the IP(s).

3.3 **Interconnection via Dedicated Facilities**

3.3.1 **Local Channel Facilities.** As part of network interconnection, the originating Party may obtain Local Channel facilities from the terminating Party. The portion of Local Channel facilities utilized for Local Traffic shall be determined based upon the application of the Percent Local Facility (PLF) Factor. The charges applied to the portion of the Local Channel used for Local Traffic as determined by the PLF are as set forth in Exhibit A to this Attachment.

3.3.2 **Dedicated Interoffice Facilities.** As a part of network interconnection, the originating Party may obtain Dedicated Interoffice Facilities. The portion of Dedicated Interoffice Facilities utilized for Local Traffic shall be determined based upon the application of the Percent Local Facility (PLF) Factor. The charges applied to the portion of the Dedicated Interoffice Facility used for Local Traffic as determined by the PLF are as set forth in Exhibit A to this Attachment.

3.4 **Fiber Meet**

3.4.1 If <<customer_name>> elects to interconnect with BellSouth pursuant to a Fiber Meet, <<customer_name>> and BellSouth shall jointly engineer, operate and maintain a Synchronous Optical Network ("SONET") transmission system by which they shall interconnect their transmission and routing of Local Traffic via a Local Channel at either the DS1 or DS3 level. The Parties shall work jointly to determine the specific transmission system. However, <<customer_name>>'s SONET transmission system must be compatible with BellSouth's equipment, and the Data Communications Channel (DCC) must be turned off.

3.4.2 Each Party, at its own expense, shall procure, install and maintain the agreed upon SONET transmission system in its network .

3.4.3 The Parties shall agree to a Fiber Meet point between the BellSouth Serving Wire Center and the <<customer_name>> Serving Wire Center. The Parties shall deliver their fiber optic facilities to the Fiber Meet point with sufficient spare length to reach the fusion splice point for the Fiber Meet Point. BellSouth shall, at its own expense, provide and maintain the fusion splice point for the Fiber Meet. A building type Common Language Location Identification ("CLLI") code will be established for each Fiber Meet point. All orders for interconnection facilities from the Fiber Meet point shall indicate the Fiber Meet point as the originating point for the facility .

3.4.4 Upon verbal request by <<customer_name>>, BellSouth shall allow <<customer_name>> access to the fusion splice point for the Fiber Meet point for maintenance purposes on <<customer_name>>'s side of the Fiber Meet point.

3.4.5 Neither Party shall charge the other for it's the Local Channel portion of the Fiber Meet facility used exclusively for Local Traffic . All the appropriate charges will apply. Charges for switched and special access services shall be billed in accordance with the applicable access service tariff.

4. INTERCONNECTION TRUNK GROUP ARCHITECTURES

4.1 BellSouth and <<customer_name>> shall establish interconnecting trunk groups and trunk group configurations between networks, including the use of one-way or two-way trunks in accordance with the following provisions set forth in this Agreement. For trunking purposes, traffic will be routed based on the digits dialed by the originating end user and in accordance with the LERG.

4.2 <<customer_name>> shall establish an interconnection trunk group(s) to at least one BellSouth access tandem within the LATA for the delivery of <<customer_name>>'s originated Local Traffic and for the receipt and delivery of Transit Traffic. To the extent <<customer_name>> desires to de. Local Traffic and/or Transit Traffic BellSouth access tandems within th TA, other than the tandems(s) to which <<customer_name>> has establishe interconnection trunk groups , <<customer_name>> shall order M ple Tandem Access, as described in this Attachment, to such other BellSouth access tandems.

4.2.1 Notwithstanding the forgoing, <<customer_name>> shall establish an interconnection trunk group(s) to all BellSouth access and local tandems in the LATA where <<customer_name>> has homed (i.e. assigned) its NPA/NXXs. <<customer_name>> shall home its NPA/NXXs on the BellSouth tandems that serve the exchange rate center areas to which the NPA/NXXs are assigned. The specified exchange rate center assigned to each BellSouth tandem is defined in the LERG. <<customer_name>> shall enter its NPA/NXX access and/or local tandem homing arrangements into the LERG.

4.3 Switched access traffic will be delivered to and from Interexchange Carriers (IXCs) based on <<customer_name>>'s NXX access tandem homing arrangement as specified by <<customer_name>> in the LERG.

4.4 Any <<customer_name>> interconnection request that (1) deviates from the interconnection trunk group architectures as described in this Agreement, (2) affects traffic delivered to <<customer_name>> from a BellSouth switch, and (3) requires special BellSouth switch translations and other network modifications will require <<customer_name>> to submit a Bona Fide Request/New Business Request (BFR/NBR) via the BFR/NBR Process as set forth in this Agreement.

4.5 Recurring and non-recurring rates associated with interconnecting trunk groups between BellSouth and <<customer_name>> are set forth in Exhibit A. To the extent a rate associated with the interconnecting trunk group is not set forth in Exhibit A, it shall be as set forth in the appropriate BellSouth tariff for switched access services.

4.6 For two-way trunk groups that ca only both Parties' Local Traffic , the Parties shall be compensated at 50% of the nonrecurring and recurring rates for dedicated

trunks and facilities . <<customer_name>> shall be responsible for ordering and paying for any two-way trunks carrying Transit Traffic.

4.7 All trunk groups will be provisioned as Signaling System 7 (SS7) capable where technically feasible. If SS7 is not technically feasible multi-frequency (MF) protocol signaling shall be used.

4.8 In cases where <<customer_name>> is also an IXC, the IXC's Feature Group D (FG D) trunk group(s) must remain separate from the local interconnection trunk group(s).

4.9 Each Party shall order interconnection trunks and trunk group, including trunk and trunk group augmentations via the ASR process. A Firm Order Confirmation (FOC) shall be returned to the ordering Party, after receipt of a valid, error free ASR, within the timeframes set forth in Attachment 9 to this Agreement. Notwithstanding the foregoing, blocking situations and projects shall be managed through BellSouth's Local Interconnection Switching Center (LISC) Project Management Group and <<customer_name>>'s equivalent trunking group, and FOCs for such orders shall be returned in the timeframes applicable to the project. A project is defined as (1) a new trunk group or (2) a request for more than 96 trunks on a single or multiple group(s) in a given BellSouth local calling area.

4.10 **Interconnection Trunk Groups for Exchange of Local Traffic and Transit Traffic**

4.10.1 Upon mutual agreement of the Parties in a joint planning meeting, the Parties' shall exchange Local Traffic on two-way interconnection trunk group(s) with the quantity of trunks being mutually determined and the provisioning being jointly coordinated. Furthermore, the Parties shall agree upon the IP(s) for two-way interconnection trunk groups transporting both Parties Local Traffic . <<customer_name>> shall order such two-way trunks via the Access Service Request (ASR) process. . BellSouth will use the Trunk Group Service Request (TGSR) to request changes in trunking. Furthermore, the Parties shall jointly review trunk performance and forecasts on a periodic basis. The Parties use of two-way interconnection trunk groups for the transport of Local Traffic between the Parties does not preclude either Party from establishing additional one-way interconnection trunks for the delivery of its originated Local Traffic to the other Party.

4.10.2 **BellSouth Access Tandem Interconnection**

4.10.2.1 BellSouth access tandem interconnection at a single access tandem provides access to those end offices subtending that access tandem ("Intratandem Access"). Access tandem interconnection is available for any of the following access tandem architectures

4.10.2.2 **Basic Architecture**

4.10.2.2.1 In the basic architecture, <<customer_name>>'s originating Local Traffic and originating and terminating Transit Traffic is transported on a single two-way trunk group between <<customer_name>> and BellSouth access tandem(s) within a LATA to provide Intratandem Access. This trunk group carries Transit Traffic between <<customer_name>> and Independent Companies, Interexchange Carriers, other CLECs, CMRS providers that have a Meet Point Billing arrangement with BellSouth, and other network providers with which <<customer_name>> desires to exchange traffic. This trunk group also carries <<customer_name>> originated Transit Traffic transiting a single BellSouth access tandem destined to third party tandems such as an Independent Company tandem or other CLEC tandem. BellSouth originated Local Traffic is transported on a separate single one-way trunk group terminating to <<customer_name>>. Other trunk groups for operator services, directory assistance, emergency services and intercept must be established if service is requested. The LERG contains current routing and tandem serving arrangements. The basic Architecture is illustrated in Exhibit B.

4.10.2.3 **One-Way Trunk Group Architecture**

4.10.2.3.1 In one-way trunk group architecture, the Parties interconnect using three separate trunk groups. A one-way trunk group provides Intratandem Access for <<customer_name>>-originated Local Traffic destined for BellSouth end-users. A second one-way trunk group carries BellSouth-originated Local Traffic destined for <<customer_name>> end-users. A two-way trunk group provides Intratandem Access for <<customer_name>>'s originating and terminating Transit Traffic. This trunk group carries Transit Traffic between <<customer_name>> and Independent Companies, Interexchange Carriers, other CLECs, CMRS providers that have a Meet Point Billing arrangement with BellSouth, and other network providers with which <<customer_name>> desires to exchange traffic. This trunk group also carries <<customer_name>> originated Transit Traffic transiting a single BellSouth access tandem destined to third party tandems such as an Independent Company tandem or other CLEC tandem. BellSouth originated Local Traffic is transported on a separate single one-way trunk group terminating to <<customer_name>>. Other trunk groups for operator services, directory assistance, emergency services and intercept must be established if service is requested. The LERG contains current routing and tandem serving arrangements. The one-way trunk group architecture is illustrated in Exhibit C.

4.10.2.4 **Two-Way Trunk Group Architecture**

4.10.2.4.1 Upon agreement of the Parties as set forth in Section 4.10.1 above, the two-way trunk group Architecture establishes one two-way trunk group to provide Intratandem Access for the exchange of Local Traffic between <<customer_name>> and BellSouth. In addition, a separate two-way transit trunk

group must be established for <<customer_name>>'s originating and terminating Transit Traffic. This trunk group carries Transit Traffic between <<customer_name>> and Independent Companies, Interexchange Carriers, other CLECs, CMRS providers that have a Meet Point Billing arrangement with BellSouth, and other network providers with which <<customer_name>> desires to exchange traffic. This trunk group also carries <<customer_name>> originated Transit Traffic transiting a single BellSouth access tandem destined to third party tandems such as an Independent Company tandem or other CLEC tandem. BellSouth originated Local Traffic is transported on a separate single one-way trunk group terminating to <<customer_name>>. Other trunk groups for operator services, directory assistance, emergency services and intercept must be established if service is requested. The LERG contains current routing and tandem serving arrangements. The two-way trunk group architecture is illustrated in Exhibit D.

4.10.2.5 **Supergroup Architecture**

4.10.2.5.1 Upon agreement of the Parties as set forth in Section 4.10.1 above, the Parties may establish a supergroup architecture. In the supergroup architecture, the Parties' Local Traffic and <<customer_name>>'s Transit Traffic are exchanged on a single two-way trunk group between <<customer_name>> and BellSouth to provide Intratandem Access to <<customer_name>>. This trunk group carries Transit Traffic between <<customer_name>> and Independent Companies, Interexchange Carriers, other CLECs, CMRS providers that have a Meet Point Billing arrangement with BellSouth, and other network providers with which <<customer_name>> desires to exchange traffic. This trunk group also carries <<customer_name>> originated Transit Traffic transiting a single BellSouth access tandem destined to third party tandems such as an Independent Company tandem or other CLEC tandem. BellSouth originated Local Traffic is transported on a separate single one-way trunk group terminating to <<customer_name>>. Other trunk groups for operator services, directory assistance, emergency services and intercept must be established if service is requested. The LERG contains current routing and tandem serving arrangements. The supergroup architecture is illustrated in Exhibit D..

4.10.3 **Multiple Tandem Access Interconnection**

4.10.3.1 Where <<customer_name>> does not choose access tandem interconnection at every BellSouth access tandem within a LATA, <<customer_name>> may utilize BellSouth multiple tandem access interconnection (MTA). To utilize MTA <<customer_name>> must establish an interconnection trunk group(s) at a BellSouth access tandem through multiple BellSouth access tandems within the LATA as required. BellSouth will route <<customer_name>>'s originated Local Traffic for LATA wide transport and termination. <<customer_name>> must also establish an interconnection trunk group(s) at all BellSouth access tandems where <<customer_name>> NXXs are homed as described in Section 4.2.1 above. If

<<customer_name>> does not have NXXs homed at any particular BellSouth access tandem within a LATA and elects not to establish an interconnection trunk group(s) at such BellSouth access tandem, <<customer_name>> can order MTA in each BellSouth access tandem within the LATA where it does have an interconnection trunk group(s) and BellSouth will terminate <<customer_name>>'s Local Traffic to end-users served through those BellSouth access tandems where <<customer_name>> does not have an interconnection trunk group(s). MTA shall be provisioned in accordance with BellSouth's Ordering Guidelines.

4.10.3.2 <<customer_name>> may also utilize MTA to route its originated Transit Traffic; provided, however, that MTA may not be utilized to route switched access traffic that transits the BellSouth network to an Interexchange Carrier (IXC). Switched access traffic originated by or terminated to <<customer_name>> will be delivered to and from IXCs based on <<customer_name>>'s NXX access tandem homing arrangement as specified by <<customer_name>> in the LERG.

4.10.3.3 Compensation for MTA shall be at the applicable tandem switching and transport charges specified in Exhibit A to this Attachment and shall be billed in addition to any Call Transport and Termination charges.

4.10.3.4 To the extent <<customer_name>> does not purchase MTA in a LATA served by multiple access tandems, <<customer_name>> must establish an interconnection trunk group(s) to every access tandem in the LATA to serve the entire LATA. To the extent <<customer_name>> routes its traffic in such a way that utilizes BellSouth's MTA service without properly ordering MTA service, <<customer_name>> agrees to pay BellSouth the associated transport and termination charges.

4.10.4 **Local Tandem Interconnection**

4.10.4.1 Local Tandem Interconnection arrangement allows <<customer_name>> to establish an interconnection trunk group(s) at BellSouth local tandems for: (1) the delivery of <<customer_name>>-originated Local Traffic transported and terminated by BellSouth to BellSouth end offices within the local calling area as defined in BellSouth's General Subscriber Services Tariff (GSST), section A3 served by those BellSouth local tandems, and (2) for local Transit Traffic transported by BellSouth for third party network providers who have also established an interconnection trunk group(s) at those BellSouth local tandems.

4.10.4.2 When a specified local calling area is served by more than one BellSouth local tandem, <<customer_name>> must designate a "home" local tandem for each of its assigned NPA/NXXs and establish trunk connections to such local tandems. Additionally, <<customer_name>> may choose to establish an interconnection trunk group(s) at the BellSouth local tandems where it has no codes homing but is not required to do so. <<customer_name>> may deliver Local Traffic to a

"home" BellSouth local tandem that is destined for other BellSouth or third party network provider end offices subtending other BellSouth local tandems in the same local calling area where <<customer_name>> does not choose to establish an interconnection trunk group(s). It is <<customer_name>>'s responsibility to enter its own NPA/NXX local tandem homing arrangements into the LERG either directly or via a vendor in order for other third party network providers to determine appropriate traffic routing to <<customer_name>>'s codes. Likewise, <<customer_name>> shall obtain its routing information from the LERG.

4.10.4.3 Notwithstanding establishing an interconnection trunk group(s) to BellSouth's local tandems, <<customer_name>> must also establish an interconnection trunk group(s) to BellSouth access tandems within the LATA on which <<customer_name>> has NPA/NXXs homed for the delivery of Interexchange Carrier Switched Access (SWA) and toll traffic, and traffic to Type 2A CMRS connections located at the access tandems. BellSouth shall not switch SWA traffic through more than one BellSouth access tandem. SWA, Type 2A CMRS or toll traffic routed to the local tandem in error will not be backhauled to the BellSouth access tandem for completion. (Type 2A CMRS interconnection is defined in BellSouth's A35 General Subscriber Services Tariff).

4.10.4.4 BellSouth's provisioning of local tandem interconnection assumes that <<customer_name>> has executed the necessary Local Interconnection Agreements with the other third party network providers subtending those local tandems as required by the Act.

4.10.5 **Direct End Office-to-End Office Interconnection**

4.10.5.1 Direct End Office-to-End Office one-way or two-way interconnection trunk groups allow for the delivery of a Party's originating local or intraLATA toll traffic to the terminating Party on a direct end office-to-end office basis.

4.10.5.2 The Parties shall utilize direct end office-to-end office trunk groups under the following conditions:

4.10.5.2.1 (1) Tandem Exhaust - If a tandem through which the Parties are interconnected is unable to, or is forecasted to be unable to support additional traffic loads for any period of time, the Parties will mutually agree on an end office trunking plan that will alleviate the tandem capacity shortage and ensure completion of traffic between <<customer_name>> and BellSouth's subscribers.

4.10.5.2.2 (2) Traffic Volume –To the extent either Party has the capability to measure the amount of traffic between a <<customer_name>> switching center and a BellSouth end office, either Party shall install and retain direct end office trunking sufficient to handle actual or reasonably forecasted traffic volumes, whichever is greater, between a <<customer_name>> switching center and a BellSouth end office where the traffic exceeds or is forecasted to exceed a single DS1 of traffic

per month. Either Party will install additional capacity between such points when overflow traffic between <<customer_name>>'s switching center and BellSouth's end office exceeds or is forecasted to exceed a single DS1 of traffic per month. In the case of one way trunking, additional trunking shall only be required by the Party whose trunking has achieved the preceding usage threshold.

4.10.5.2.3 (3) Mutual Agreement - The Parties may install direct end office trunking upon mutual agreement in the absence of conditions (1) or (2) above, and agreement will not unreasonably be withheld.

4.10.6 **Transit Traffic Trunk Group**

4.10.6.1 Transit Traffic trunks can either be two-way trunks or two one-way trunks ordered by <<customer_name>> to deliver and receive local and intraLATA toll Transit Traffic from third parties, such as Independent Companies and other CLECs, via BellSouth access tandems (or BellSouth local tandems for Local Traffic), and Switched Access traffic to and from Interexchange Carriers via BellSouth access tandems pursuant to the Transit Traffic section of this Attachment. Establishing Transit Traffic trunks at BellSouth access and local tandems provides intratandem access to the third parties also interconnected at those tandems.

4.10.6.2 **Toll Free Traffic**

4.10.6.2.1 If <<customer_name>> chooses BellSouth to handle Toll Free database queries from its switches, all <<customer_name>> originating Toll Free traffic will be routed over the Transit Traffic Trunk Group.

4.10.6.2.2 All originating Toll Free Service (Toll Free) calls for which <<customer_name>> requests that BellSouth perform the Service Switching Point ("SSP") function (i.e., perform the database query) shall be delivered using GR-394 format over the Transit Traffic Trunk Group. Carrier Code "0110" and Circuit Code (to be determined for each LATA) shall be used for all such calls.

4.10.6.2.3 <<customer_name>> may handle its own Toll Free database queries from its switch. If so, <<customer_name>> will determine the nature (local/intraLATA/interLATA) of the Toll Free call based on the response from the database. If the query determines that the call is a BellSouth local or intraLATA Toll Free number, <<customer_name>> will route the post-query local or IntraLATA converted ten-digit local number to BellSouth over the local or intraLATA trunk group. If the query determines that the call is a third party (ICO or other CLEC) local or intraLATA Toll Free number, <<customer_name>> will route the post-query local or intraLATA convert[illegible] digit local number to BellSouth over the Transit Traffic Trunk Group. In such case, <<customer_name>> is to provide a Toll Free billing record when appropriate. If the query reveals the call is an interLATA Toll Free number, <<customer_name>> will route the post-query interLATA call (Toll Free number)

directly from its switch for carriers interconnected with its network or over the Transit Traffic Trunk Group to carriers not directly connected to its network but are connected to BellSouth's access tandem. Calls will be routed to BellSouth over the local/intraLATA and Transit Traffic Trunk Groups within the LATA in which the calls originate.

4.10.6.2.4 All post-query Toll Free Service (Toll Free) calls for which <<customer_name>> performs the SSP function, if delivered to BellSouth, shall be delivered using GR-394 format for calls destined to IXCs, and GR-317 format for calls destined to end offices that directly subtend the BellSouth access tandem.

5. NETWORK DESIGN AND MANAGEMENT FOR INTERCONNECTION

5.1 Network Management and Changes. Both Parties will work cooperatively with each other to install and maintain the most effective and reliable interconnected telecommunications networks, including but not limited to, the exchange of toll-free maintenance contact numbers and escalation procedures. Both Parties agree to provide public notice of changes in the information necessary for the transmission and routing of services using its local exchange facilities or networks, as well as of any other changes that would affect the interoperability of those facilities and networks.

5.2 Interconnection Technical Standards. The interconnection of all networks will be based upon accepted industry/national guidelines for transmission standards and traffic blocking criteria. Interconnecting facilities shall conform, at a minimum, to the telecommunications industry standard of DS-1 pursuant to Bellcore Standard No. TR-NWT-00499. Signal transfer point, Signaling System 7 ("SS7") connectivity is required at each interconnection point. BellSouth will provide out-of-band signaling using Common Channel Signaling Access Capability where technically and economically feasible, in accordance with the technical specifications set forth in the BellSouth Guidelines to Technical Publication, TR-TSV-000905. Facilities of each Party shall provide the necessary on-hook, off-hook answer and disconnect supervision and shall hand off calling number ID (Calling Party Number) when technically feasible.

5.3 Quality of Interconnection. The local interconnection for the transmission and routing of telephone exchange service and exchange access that each Party provides to each other will be at least equal in quality to what it provides to itself and any subsidiary or affiliate, where technically feasible, or to any other Party to which each Party provides local interconnection.

5.4 Network Management Controls. Both Parties will work cooperatively with each other to apply sound network management principles by invoking appropriate network management controls (e.g., call gapping) to alleviate or prevent network congestion.

5.5 Common Channel Signaling. Both Parties will provide LEC-to-LEC Common Channel Signaling ("CCS") to each other, where available, in conjunction with all traffic in order to enable full interoperability of CLASS features and functions except for call return. All CCS signaling parameters will be provided, including automatic number identification ("ANI"), originating line information ("OLI") calling company category, charge number, etc. All privacy indicators will be honored, and each Party will cooperate with each other on the exchange of Transactional Capabilities Application Part ("TCAP") messages to facilitate full interoperability of CCS-based features between the respective networks. Neither Party shall alter the CCS parameters, or be a party to altering such parameters, or knowingly pass CCS parameters that have been altered in order to circumvent appropriate interconnection charges.

5.6 Signaling Call Information. BellSouth and <<customer_name>> will send and receive 10 digits for Local Traffic. Additionally, BellSouth and <<customer_name>> will exchange the proper call information, i.e. originated call company number and destination call company number, CIC, and OZZ, including all proper translations for routing between networks and any information necessary for billing.

5.7 **Forecasting for Trunk Provisioning**

5.7.1 Within six (6) months after execution of this agreement, <<customer_name>> shall provide an initial interconnection trunk group forecast for each LATA that it shall provide service within BellSouth's region. Upon receipt of <<customer_name>>'s forecast, the Parties shall schedule and participate in a joint planning meeting to develop a joint interconnection trunk group forecast. Each forecast provided under this Section shall be deemed "Confidential Information" under the General Terms and Conditions of this Agreement.

5.7.1.1 At a minimum, the forecast shall include the projected quantity of Transit Trunks, <<customer_name>>-to-BellSouth one-way trunks ("<<customer_name>> Trunks"), BellSouth-to-<<customer_name>> one-way trunks ("Reciprocal Trunks") and/or two-way interconnection trunks, if the Parties have agreed to interconnect using two-way trunking to transport the Parties' local and intraLATA toll. The quantities shall be projected for a minimum of six months in advance and shall include the current year plus next two years total forecasted quantities. Considering <<customer_name>>'s provided forecast, the Parties shall mutually develop Reciprocal Trunk and/or two-way interconnection trunk forecast quantities for the time periods listed and to be included within the initial forecast.

5.7.1.2 Additionally all forecasts shall include, at a minimum, Access Tandem Terminal Location ("ACTL"), trunk group type (local/intraLATA toll, Transit, Operator Services, 911, etc.), A location/Z location (CLLI codes for <<customer_name>> location and BellSouth location where the trunks shall terminate), interface type (e.g., DS1), Direction of Signaling, Trunk Group Number, if known, (commonly

referred to as the 2-6 code) and forecasted trunks in service each year (cumulative).

5.7.2 Each Party shall exercise its best efforts to provide the quantity of interconnection trunks mutually forecasted. However, the provision of the forecasted quantity of interconnection trunks is subject to trunk terminations and facility capacity existing at the time the trunk order is submitted. Furthermore, the receipt and development of trunk forecasts does not imply any liability for failure to perform if capacity (trunk terminations or facilities) is not available for use at the forecasted time.

5.7.3 The submitting and development of interconnection trunk forecasts shall not replace the ordering process in place for local interconnection trunks.

5.7.4 Once initial interconnection trunk forecasts have been developed, <<customer_name>> shall continue to provide interconnection trunk forecasts on a semiannual basis or at otherwise mutually agreeable intervals. <<customer_name>> shall use its best efforts to make the forecasts as accurate as possible based on reasonable engineering criteria. Interconnection trunk forecasts shall be updated and provided to BellSouth on an as needed basis, but no less frequently than semiannually and no more frequently than monthly. Upon receipt of <<customer_name>>'s forecast, including forecast updates, the Parties shall confer to mutually develop BellSouth Reciprocal Trunk and/or two-way interconnection trunk forecasted quantities for the listed time periods within such subsequent forecasts.

5.8 **Trunk Utilization**

5.8.1 BellSouth and <<customer_name>> shall monitor traffic on each interconnection trunk group that is installed pursuant to the initial interconnection trunk requirements and subsequent forecasts. At any time after the end of a calendar quarter, based on a review of the capacity utilization during such quarter for installed reciprocal trunk groups and/or two-way interconnection trunk groups, subject to the provisions of the section following, BellSouth may disconnect any non-utilized or under-utilized reciprocal trunk(s) and <<customer_name>> shall refund to BellSouth any associated trunk and facility charges paid by BellSouth. BellSouth may request <<customer_name>> to disconnect any under-utilized two-way interconnection trunk(s), if BellSouth has determined that the trunk group is not being utilized at eighty-five percent (85%) of the time consistent busy hour utilization level, provided that the Parties have not otherwise agreed. <<customer_name>> shall comply with all such requests, subject to Section 3.8.1.1 below. Under-utilized trunks are defined as the trunks being utilized at less than 85% as a result of a time consistent busy hour utilization.

5.8.1.1 BellSouth's LISC will notify the <<customer_name>> of any under-utilized reciprocal trunk groups and the number of trunks that BellSouth wishes to

disconnect. BellSouth will provide supporting information either by email or facsimile to the designated <<customer_name>> interface. <<customer_name>> will provide concurrence with the disconnection in seven (7) business days or will provide specific information supporting why the trunks should not be disconnected. Such supporting information should include expected Local Number Ported (LNP) and traffic volumes and the timeframes within which <<customer_name>> expects to need such trunks. BellSouth's LISC Project Manager and Circuit Capacity Manager will discuss the information with <<customer_name>> to determine if agreement can be reached on the number of trunks to be removed. If no agreement can be reached, BellSouth will issue disconnect orders to <<customer_name>>. The due date of these orders will be four weeks after <<customer_name>> was first notified in writing of the underutilization of the trunk groups.

5.8.1.2 <<customer_name>> monitors all direct trunks from <<customer_name>> to BellSouth. If <<customer_name>> wishes to disconnect any such trunks, <<customer_name>> shall issue an ASR to do so.

5.8.2 To the extent that any interconnection trunk group is utilized at a time-consistent busy hour of eighty-five percent (85%) or greater, the Parties shall negotiate in good faith for the installation of augmented facilities.

6. LOCAL DIALING PARITY

6.1 BellSouth and <<customer_name>> shall provide local and toll dialing parity to each other with no unreasonable dialing delays. Dialing parity shall be provided for all originating telecommunications services that require dialing to route a call. BellSouth and <<customer_name>> shall permit similarly situated telephone exchange service end users to dial the same number of digits to make a local telephone call notwithstanding the identity of the end user's or the called party's telecommunications service provider.

7. INTERCONNECTION COMPENSATION

7.1 Compensation for Call Transportation and Termination for Local Traffic

7.1.1 For reciprocal compensation between the Parties pursuant to this Attachment, Local Traffic is defined as any circuit switched call that is originated by an end user of one Party and terminated to an end user of the other Party within a given LATA on that other Party's network, except for those calls that are originated or terminated through switched access arrangements as established by the ruling regulatory body.

7.1.1.1 Additionally, Local Traffic includes any cross boundary, voice-to-voice intrastate, interLATA or interstate, interLATA calls established as a local call by the ruling regulatory body.

7.1.2 ISP-bound Traffic is defined as calls to an information service provider or Internet service provider ("ISP") that are dialed by using a local dialing pattern (7 or 10 digits) by a calling party in one exchange or local calling area to an ISP server or modem in the same exchange or local calling area. ISP-bound Traffic is not considered Local Traffic subject to reciprocal compensation, but instead is information traffic subject to interstate access.

7.1.3 Neither Party shall pay compensation to the other Party for the transportation and termination of Local Traffic or ISP-bound Traffic.

7.1.4 The elemental rates set forth in Exhibit A of this Attachment shall apply for Transit Traffic as described in Sections 7.9 and 7.9.1 below.

7.1.5 Neither Party shall represent Switched Access Traffic as Local Traffic or ISP-bound Traffic for purposes of payment of reciprocal compensation.

7.1.6 If <<customer_name>> assigns NPA/NXXs to specific BellSouth rate centers within the LATA and assigns numbers from those NPA/NXXs to <<customer_name>> end users physically located outside of that LATA, BellSouth traffic originating from within the LATA where the NPA/NXXs are assigned and delivered to a <<customer_name>> customer physically located outside of such LATA, shall not be deemed Local Traffic, and no compensation from BellSouth to <<customer_name>> shall be due therefor. Further, <<customer_name>> agrees to identify such interLATA traffic to BellSouth and to compensate BellSouth for originating and transporting such interLATA traffic to <<customer_name>> at BellSouth's switched access tariff rates.

7.2 If <<customer_name>> does not identify such interLATA traffic to BellSouth, to the best of BellSouth's ability BellSouth will determine which whole <<customer_name>> NPA/NXXs on which to charge the applicable rates for originating network access service as reflected in BellSouth's Access Service Tariff. BellSouth shall make appropriate billing adjustments if <<customer_name>> can provide sufficient information for BellSouth to determine whether or not said traffic is Local Traffic.

7.3 **Percent Local Use.** Each Party shall report to the other a Percent Local Usage ("PLU"). The application of the PLU will determine the amount of local minutes to be billed to the other Party. For purposes of developing the PLU, each Party shall consider every local call and every long distance call, excluding Transit Traffic. Each Party shall update its PLU on the first of January, April, July and October of the year and shall send it to the other Party to be received no later than 30 calendar days after the first of each such month based on local usage for the past three months ending the last day of December, March, June and September, respectively. Requirements associated with PLU calculation and reporting shall be as set forth in BellSouth's Jurisdictional Factors Reporting Guide, as it is amended from time to time. Notwithstanding the foregoing, where the

terminating Party has message recording technology that identifies the jurisdiction of traffic terminated as defined in this Agreement, such information, in lieu of the PLU factor, shall at the terminating Party's option be utilized to determine the appropriate local usage compensation to be paid.

7.4 **Percent Local Facility.** Each Party shall report to the other a Percent Local Facility ("PLF"). The application of the PLF will determine the portion of switched dedicated transport to be billed per the local jurisdiction rates. The PLF shall be applied to Multiplexing, Local Channel and Interoffice Channel Switched Dedicated Transport utilized in the provision of local interconnection trunks. Each Party shall update its PLF on the first of January, April, July and October of the year and shall send it to the other Party to be received no later than 30 calendar days after the first of each such month to be effective the first bill period the following month, respectively. Requirements associated with PLU and PLF calculation and reporting shall be as set forth in BellSouth's Jurisdictional Factors Reporting Guide, as it is amended from time to time.

7.5 **Percent Interstate Usage.** Each Party shall report to the other the projected Percent Interstate Usage ("PIU"). All jurisdictional report requirements, rules and regulations for Interexchange Carriers specified in BellSouth's Intrastate Access Services Tariff will apply to <<customer_name>>. After interstate and intrastate traffic percentages have been determined by use of PIU procedures, the PLU and PLF factors will be used for application and billing of local interconnection. Each Party shall update its PIUs on the first of January, April, July and October of the year and shall send it to the other Party to be received no later than 30 calendar days after the first of each such month, for all services showing the percentages of use (PIUs, PLU, and PLF) for the past three months ending the last day of December, March, June and September. Notwithstanding the foregoing, where the terminating Party has message recording technology that identifies the jurisdiction of traffic terminated as defined in this Agreement, such information, in lieu of the PIU and PLU factors, shall at the terminating Party's option be utilized to determine the appropriate local usage compensation to be paid.

7.6 **Audits.** On thirty (30) days written notice, each Party must provide the other the ability and opportunity to conduct an annual audit to ensure the proper billing of traffic. BellSouth and <<customer_name>> shall retain records of call detail for a minimum of nine months from which a PLU, PLF and/or PIU can be ascertained. The audit shall be accomplished during normal business hours at an office designated by the Party being audited. Audit requests shall not be submitted more frequently than one (1) time per calendar year. Audits shall be performed by a mutually acceptable independent auditory paid for by the Party requesting the audit. The PLU and/or PIU shall be adjusted based upon the audit results and shall apply to the usage for the quarter the audit was completed, to the usage for the quarter prior to the completion of the audit, and to the usage for the two quarters following the completion of the audit. If, as a result of an audit, either Party is found to have overstated the PLU and/or PIU by twenty percentage points

(20%) or more, that Party shall reimburse the auditing Party for the cost of the audit.

7.7 **Compensation for 8XX Traffic**

7.7.1 Compensation for 8XX Traffic. Each Party shall compensate the other pursuant to the appropriate switched access charges, including the database query charge as set forth in the BellSouth intrastate or interstate switched access tariffs.

7.7.2 Records for 8XX Billing. Each Party will provide to the other the appropriate records necessary for billing intraLATA 8XX customers. The records provided will be in a standard EMI format.

7.7.3 8XX Access Screening. BellSouth's provision of 8XX TFD to <<customer_name>> requires interconnection from <<customer_name>> to BellSouth 8XX SCP. Such interconnections shall be established pursuant to BellSouth's Common Channel Signaling Interconnection Guidelines and Bellcore's CCS Network Interface Specification document, TR-TSV-000905. <<customer_name>> shall establish CCS7 interconnection at the BellSouth Local Signal Transfer Points serving the BellSouth 8XX SCPs that <<customer_name>> desires to query. The terms and conditions for 8XX TFD are set out in BellSouth's Intrastate Access Services Tariff as amended.

7.8 **Mutual Provision of Switched Access Service**

7.8.1 Switched Access Traffic. Switched Access Traffic is described in the BellSouth Access Tariff. Additionally, any Public Switched Telephone Network interexchange telecommunications traffic, regardless of transport protocol method, where the originating and terminating points, end-to-end points, are in different LATAs, or are in the same LATA and the Parties' Switched Access services are used for the origination or termination of the call, shall be considered Switched Access Traffic. Irrespective of transport protocol method used, a call which originates in one LATA and terminates in another LATA (i.e., the end-to-end points of the call) or in which the Parties' Switched Access Services are used for the origination or termination of the call, shall not be compensated as local.

7.8.2 If the BellSouth end user chooses <<customer_name>> as their presubscribed interexchange carrier, or if the BellSouth end user uses <<customer_name>> as an interexchange carrier on a 101XXXX basis, BellSouth will charge <<customer_name>> the appropriate BellSouth tariff charges for originating switched access services

7.8.3 For originating or terminating switched access traffic on the other company's network, the originating Party will pay the terminating Party BellSouth's current intrastate or interstate, whichever is appropriate, switched access tariff rates as set forth in BellSouth's Intrastate or Interstate Access Services Tariff..

7.8.4 When <<customer_name>>'s end office switch, subtending the BellSouth Access Tandem switch for receipt or delivery of switched access traffic, provides an access service connection to or from an interexchange carrier ("IXC") by either a direct trunk group to the IXC utilizing BellSouth facilities, or via BellSouth's tandem switch, each Party will provide its own access services to the IXC and bill on a multi-bill, multi-tariff meet-point basis. Each Party will bill its own access services rates to the IXC with the exception of the interconnection charge. The interconnection charge will be billed by the Party providing the end office function. Each party will use the Multiple Exchange Carrier Access Billing (MECAB) guidelines to establish meet point billing for all applicable traffic. Thirty (30)-day billing periods will be employed for these arrangements. For tandem routed traffic, the tandem company agrees to provide to the Initial Billing Company as defined in MECAB, at no charge, all the switched access detail usage data, recorded at the access tandem, within no more than sixty (60) days after the recording date. The Initial Billing Company will provide the switched access summary usage data, for all originating and terminating traffic, to all Subsequent Billing Companies as defined in MECAB within 10 days of rendering the initial bill to the IXC. Each Party will notify the other when it is not feasible to meet these requirements so that the customers may be notified for any necessary revenue accrual associated with the significantly delayed recording or billing. As business requirements change data reporting requirements may be modified as necessary.

7.8.5 In the event that either Party fails to provide the appropriate MECAB switched access usage data to the other Party within 90 days after the recording date and the receiving Party is unable to bill and/or collect access revenues due to the sending Party's failure to provide such data within said time period, then the Party failing to send the data as specified herein shall be liable to the other Party in an amount equal to the unbillable or uncollectible revenues. Each company will provide complete documentation to the other to substantiate any claim of unbillable switched access revenues, and a negotiated settlement will be agreed upon between the Parties.

7.8.6 Each Party will retain for a minimum period of sixty (60) days, access message detail sufficient to recreate any data which is lost or damaged by their company or any third party involved in processing or transporting data.

7.8.7 Each Party agrees to recreate the lost or damaged data within forty-eight (48) hours of notification by the other or by an authorized third party handling the data.

7.8.8 Each Party also agrees to process the recreated data within forty-eight (48) hours of receipt at its data processing center.

7.8.9 All claims should be filed with the other Party within 120 days of the receipt of the date of the unbillable usage.

7.8.10 The Initial Billing Company shall keep records of its billing activities relating to jointly-provided Intrastate and Interstate access services in sufficient detail to permit the Subsequent Billing Party to, by formal or informal review or audit, to verify the accuracy and reasonableness of the jointly-provided access billing data provided by the Initial Billing Party. Each Party agrees to cooperate in such formal or informal reviews or audits and further agrees to jointly review the findings of such reviews or audits in order to resolve any differences concerning the findings thereof.

7.8.11 <<customer_name>> agrees not to deliver switched access traffic to BellSouth for termination except over <<customer_name>> ordered switched access trunks and facilities.

7.9 **Transit Traffic**

7.9.1 BellSouth shall provide tandem switching and transport services for <<customer_name>>'s Transit Traffic. Rates for local Transit Traffic shall be the applicable Call Transport and Termination charges as set forth in Exhibit A to this Attachment. Rates for Switched Access Transit Traffic shall be the applicable charges as set forth in BellSouth Interstate or Intrastate Switched Access tariffs. Switched Access Transit Traffic presumes that <<customer_name>>'s end office is subtending the BellSouth Access Tandem for switched access traffic to and from <<customer_name>>'s end users utilizing BellSouth facilities, either by direct trunks with the IXC, or via the BellSouth Access Tandem. Billing associated with all Transit Traffic shall be pursuant to MECAB guidelines. Pursuant to these guidelines, the Initial Billing Company shall provide summary usage data, for all originating and terminating Transit Traffic, to all Subsequent Billing Companies. Traffic between <<customer_name>> and Wireless Type 1 third parties shall not be treated as Transit Traffic from a routing or billing perspective. Traffic between <<customer_name>> and Wireless Type 2A or UNE-CLEC third parties shall not be treated as Transit Traffic from a routing or billing perspective until BellSouth and the Wireless carrier or UNE-CLEC third party have the capability to properly meet-point-bill in accordance with MECAB guidelines.

7.9.2 In the event that either Party fails to provide the appropriate MECAB usage data to the other Party within 90 days after the recording date and the receiving Party is unable to bill and/or collect Transit Traffic revenues due to the sending Party's failure to provide such data within said time period, then the Party failing to send the data as specified herein shall be liable to the other Party in an amount equal to the unbillable or uncollectible revenues. Each company will provide complete documentation to the other to substantiate any claim of unbillable revenues and a negotiated settlement will be agreed upon between the Parties

7.9.3 The delivery of traffic which transits the BellSouth network and is transported to another carrier's network is excluded from any BellSouth billing guarantees and

will be delivered at the rates stipulated in this Agreement to a terminating carrier. BellSouth agrees to deliver this traffic to the terminating carrier; provided, however, that <<customer_name>> is solely responsible for negotiating and executing any appropriate contractual agreements with the terminating carrier for the receipt of this traffic through the BellSouth network. BellSouth will not be liable for any compensation to the terminating carrier or to <<customer_name>>. <<customer_name>> agrees to compensate BellSouth for any charges or costs for the delivery of Transit Traffic to a connecting carrier on behalf of <<customer_name>>. Additionally, the Parties agree that any billing to a third party or other telecommunications carrier under this section shall be pursuant to MECAB procedures.

8. FRAME RELAY SERVICE INTERCONNECTION

8.1 In addition to the Local Interconnection services set forth above, BellSouth will offer a network to network Interconnection arrangement between BellSouth's and <<customer_name>>'s frame relay switches as set forth below. The following provisions will apply only to Frame Relay Service and Exchange Access Frame Relay Service in those states in which <<customer_name>> is certified and providing Frame Relay Service as a Local Exchange Carrier and where traffic is being exchanged between <<customer_name>> and BellSouth Frame Relay Switches in the same LATA.

8.2 The Parties agree to establish two-way Frame Relay facilities between their respective Frame Relay Switches to the mutually agreed upon Frame Relay Service point(s) of interconnection ("IP(s)") within the LATA. All IPs shall be within the same Frame Relay Network Serving Areas as defined in Section A40 of BellSouth's General Subscriber Service Tariff except as set forth in this Attachment.

8.3 Upon the request of either Party, such interconnection will be established where BellSouth and <<customer_name>> have Frame Relay Switches in the same LATA. Where there are multiple Frame Relay switches in one central office, an interconnection with any one of the switches will be considered an interconnection with all of the switches at that central office for purposes of routing packet traffic.

8.4 The Parties agree to provision local and intraLATA Frame Relay Service and Exchange Access Frame Relay Service (both intrastate and interstate) over Frame Relay interconnection facilities between the respective Frame Relay switches and the IPs.

8.5 The Parties agree to assess each other reciprocal charges for the facilities that each provides to the other according to the Percent Local Circuit Use Factor (PLCU), determined as follows:

8.5.1 If the data packets originate and terminate in locations in the same LATA, and consistent with the local definitions of the Agreement, the traffic is considered local. Frame Relay framed packet data is transported within Virtual Circuits (VC). For the purposes of this Agreement, if all the data packets transported within a VC remain within the LATA, then consistent with the local definitions in this Agreement, the traffic on that VC is local ("Local VC").

8.5.2 If the originating and terminating locations of the two-way packet data traffic are not in the same LATA, the traffic on that VC is interLATA ("InterLATA VC").

8.5.3 The PLCU is determined by dividing the total number of Local VCs, by the total number of VCs on each Frame Relay facility. To facilitate implementation, <<customer_name>> may determine its PLCU in aggregate, by dividing the total number of Local VCs in a given LATA by the total number VCs in that LATA. The Parties agree to renegotiate the method for determining PLCU, at BellSouth's request, and within 90 days, if BellSouth notifies <<customer_name>> that it has found that this method does not adequately represent the PLCU.

8.5.4 If there are no VCs on a facility when it is billed, the PLCU will be zero.

8.5.5 BellSouth will provide the circuit between the Parties' respective Frame Relay Switches. The Parties will be compensated as follows: BellSouth will invoice, and <<customer_name>> will pay, the total non-recurring and recurring charges for the circuit based upon the rates set forth in BellSouth's Interstate Access Tariff, FCC No. 1. <<customer_name>> will then invoice, and BellSouth will pay, an amount calculated by multiplying the BellSouth billed charges for the circuit by one-half of <<customer_name>>'s PLCU.

8.6 The Parties agree to compensate each other for Frame Relay network-to-network interface (NNI) ports based upon the NNI rates set forth in BellSouth's Interstate Access Tariff, FCC No. 1 Compensation for each pair of NNI ports will be calculated as follows: BellSouth will invoice, and <<customer_name>> will pay, the total non-recurring and recurring charges for the NNI port. <<customer_name>> will then invoice, and BellSouth will pay, an amount calculated by multiplying the BellSouth billed non-recurring and recurring charges for the NNI port by <<customer_name>>'s PLCU.

8.7 Each Party agrees that there will be no charges to the other Party for its own subscriber's Permanent Virtual Circuit (PVC) rate elements for the local PVC segment from its Frame Relay switch to its own subscriber's premises. PVC rate elements include the Data Link Connection Identifier (DLCI) and Committed Information Rate (CIR).

8.8 For the PVC segment between the <<customer_name>> and BellSouth Frame Relay switches, compensation for the PVC charges is based upon the rates in BellSouth's Interstate Access Tariff, FCC No. 1.

8.9 Compensation for PVC rate elements will be calculated as follows:

8.9.1 If <<customer_name>> orders a VC connection between a BellSouth subscriber's PVC segment and a PVC segment from the BellSouth Frame Relay switch to the <<customer_name>> Frame Relay switch, BellSouth will invoice, and <<customer_name>> will pay, the total non-recurring and recurring PVC charges for the PVC segment between the BellSouth and <<customer_name>> Frame Relay switches. If the VC is a Local VC, <<customer_name>> will then invoice and BellSouth will pay, the total nonrecurring and recurring PVC charges billed for that segment. If the VC is not local, no compensation will be paid to <<customer_name>> for the PVC segment.

8.9.2 If BellSouth orders a Local VC connection between a <<customer_name>> subscriber's PVC segment and a PVC segment from the <<customer_name>> Frame Relay switch to the BellSouth Frame Relay switch, BellSouth will invoice, and <<customer_name>> will pay, the total non-recurring and recurring PVC and CIR charges for the PVC segment between the BellSouth and <<customer_name>> Frame Relay switches. If the VC is a Local VC, <<customer_name>> will then invoice and BellSouth will pay the total non-recurring and recurring PVC and CIR charges billed for that segment. If the VC is not local, no compensation will be paid to <<customer_name>> for the PVC segment.

8.9.3 The Parties agree to compensate each other for requests to change a PVC segment or PVC service order record, according to the Feature Change charge as set forth in the BellSouth access tariff BellSouth Tariff FCC No. 1.

8.9.4 If <<customer_name>> requests a change, BellSouth will invoice and <<customer_name>> will pay a Feature Change charge for each affected PVC segment.

8.9.4.1 If BellSouth requests a change to a Local VC, <<customer_name>> will invoice and BellSouth will pay a Feature Change charge for each affected PVC segment.

8.9.5 The Parties agree to limit the sum of the CIR for the VCs on a DS1 NNI port to not more than three times the port speed, or not more than six times the port speed on a DS3 NNI port.

8.9.6 Except as expressly provided herein, this Agreement does not address or alter in any way either Party's provision of Exchange Access Frame Relay Service or interLATA Frame Relay Service. All charges by each Party to the other for carriage of Exchange Access Frame Relay Service or interLATA Frame Relay Service are included in the BellSouth access tariff BellSouth Tariff FCC No. 1.

8.10 <<customer_name>> will identify and report quarterly to BellSouth the PLCU of the Frame Relay facilities it uses, per section 6.5.3 above.

8.11 Either Party may request a review or audit of the various service components, consistent with the provisions of section E2 of the BellSouth State Access Services tariffs or Section 2 of the BellSouth FCC No.1 Tariff.

8.12 If during the term of this Agreement, BellSouth obtains authority to provide interLATA Frame Relay in any State, the Parties agree to renegotiate this arrangement for the exchange of Frame Relay Service Traffic within one hundred eighty (180) days of the date BellSouth receives interLATA authority. In the event the Parties fail to renegotiate this Section 6 within the one hundred eighty day period, they will submit this matter to the appropriate State commission(s) for resolution.

9. OPERATIONAL SUPPORT SYSTEMS (OSS)

9.1 The terms, conditions and rates for OSS are as set forth in FCC Tariff No., for Access Service Records.

Exhibit B

Basic Architecture

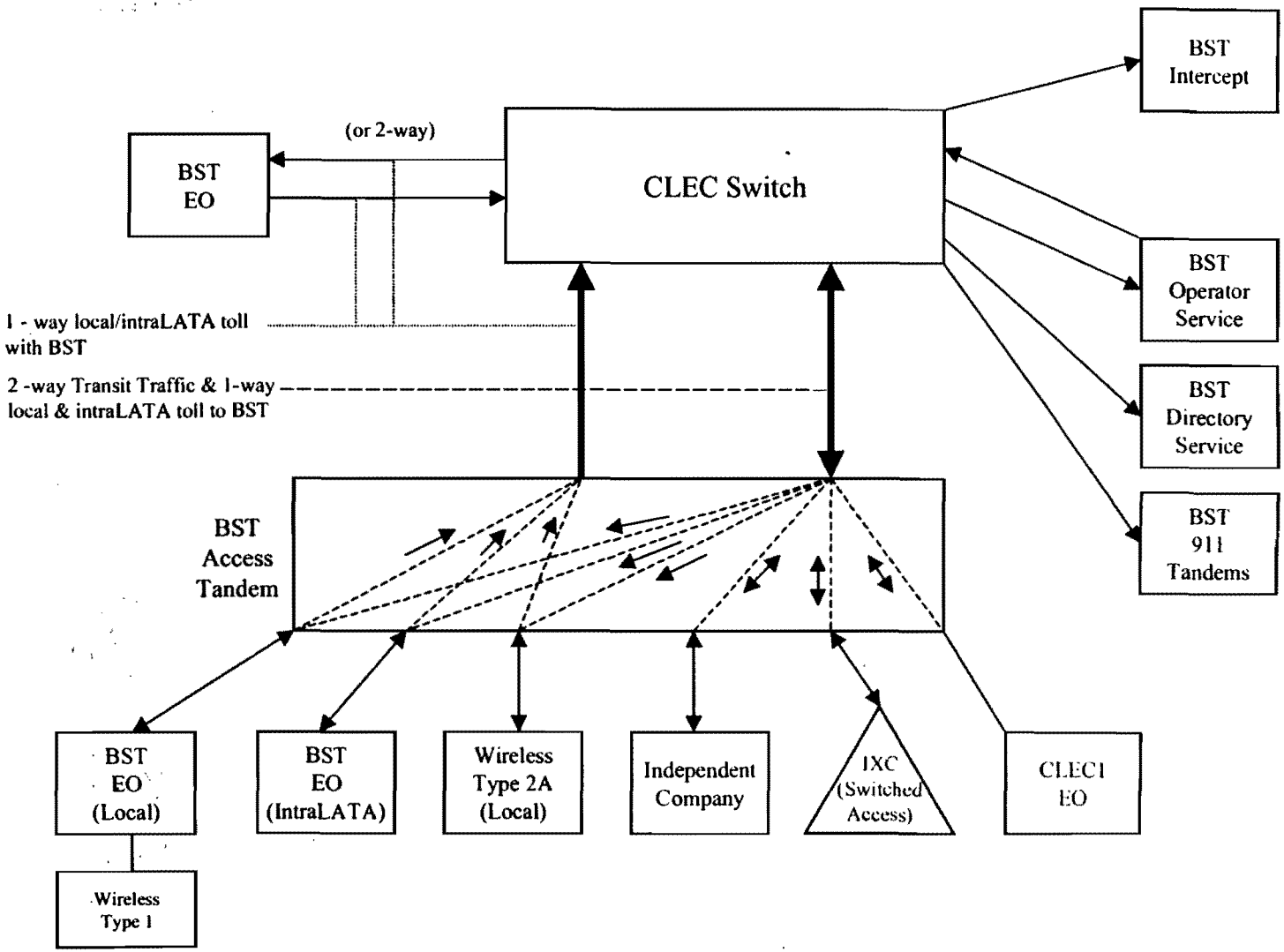

Exhibit C

One-Way Architecture

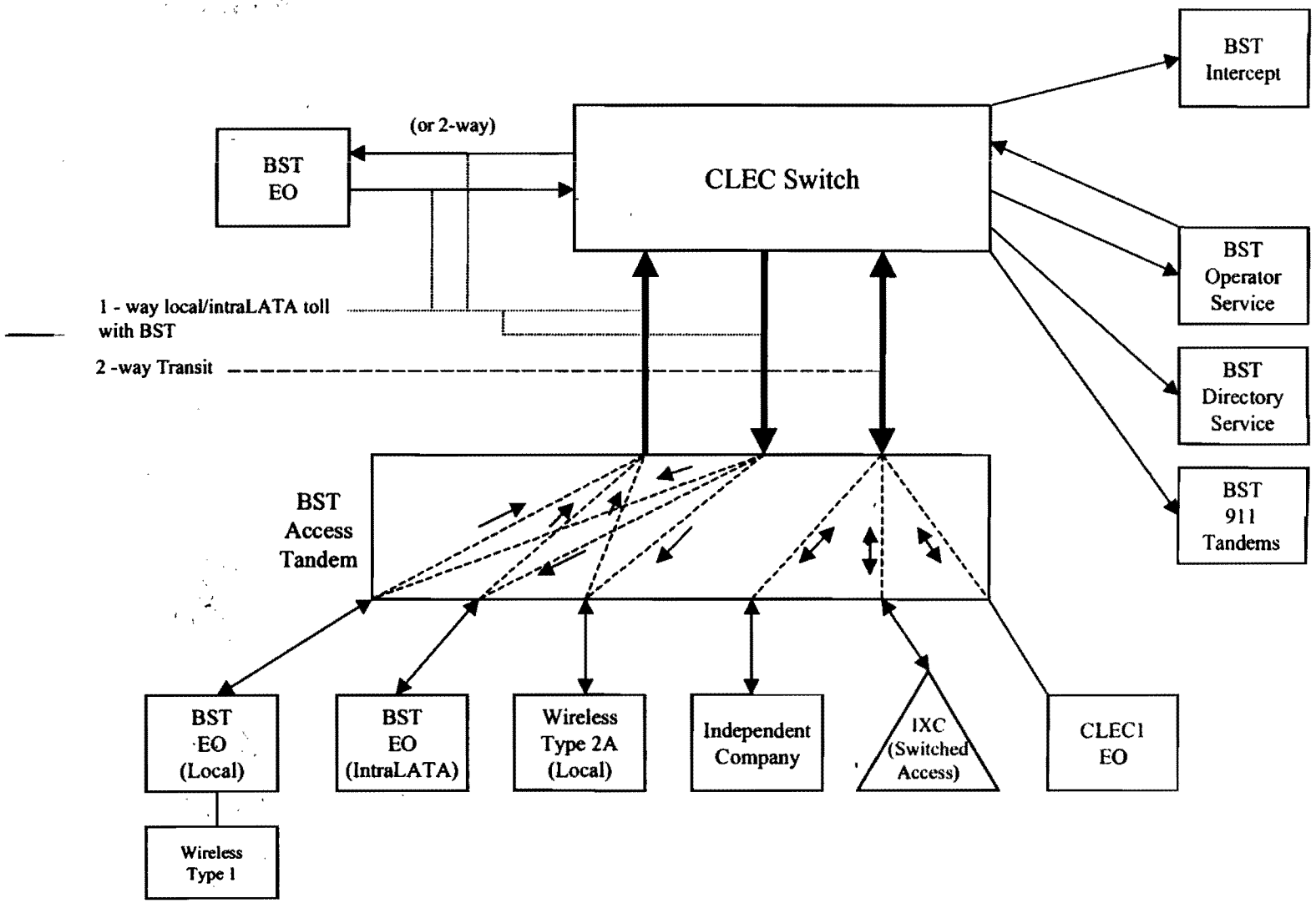

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Exhibit D

Two-Way Architecture

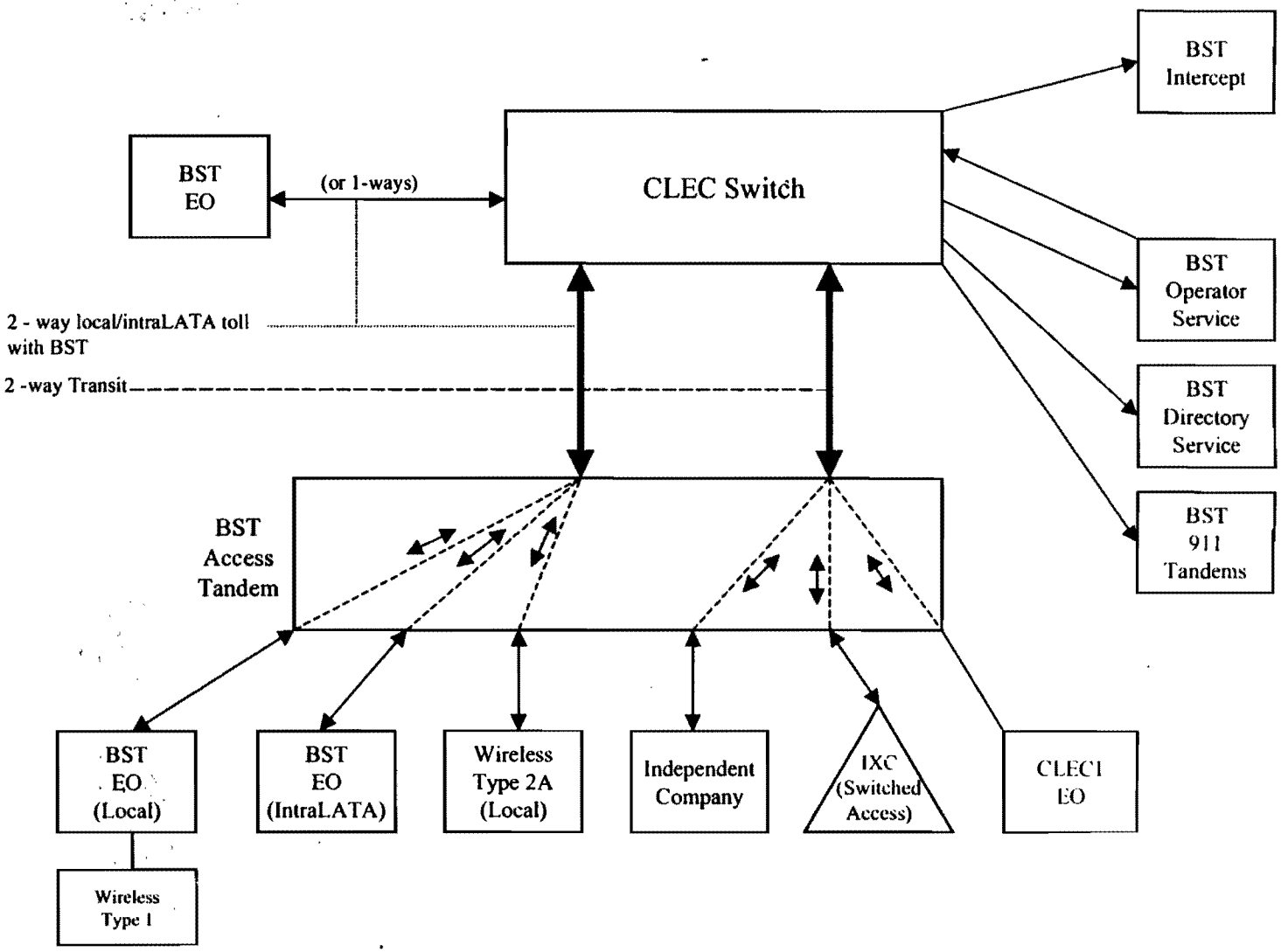

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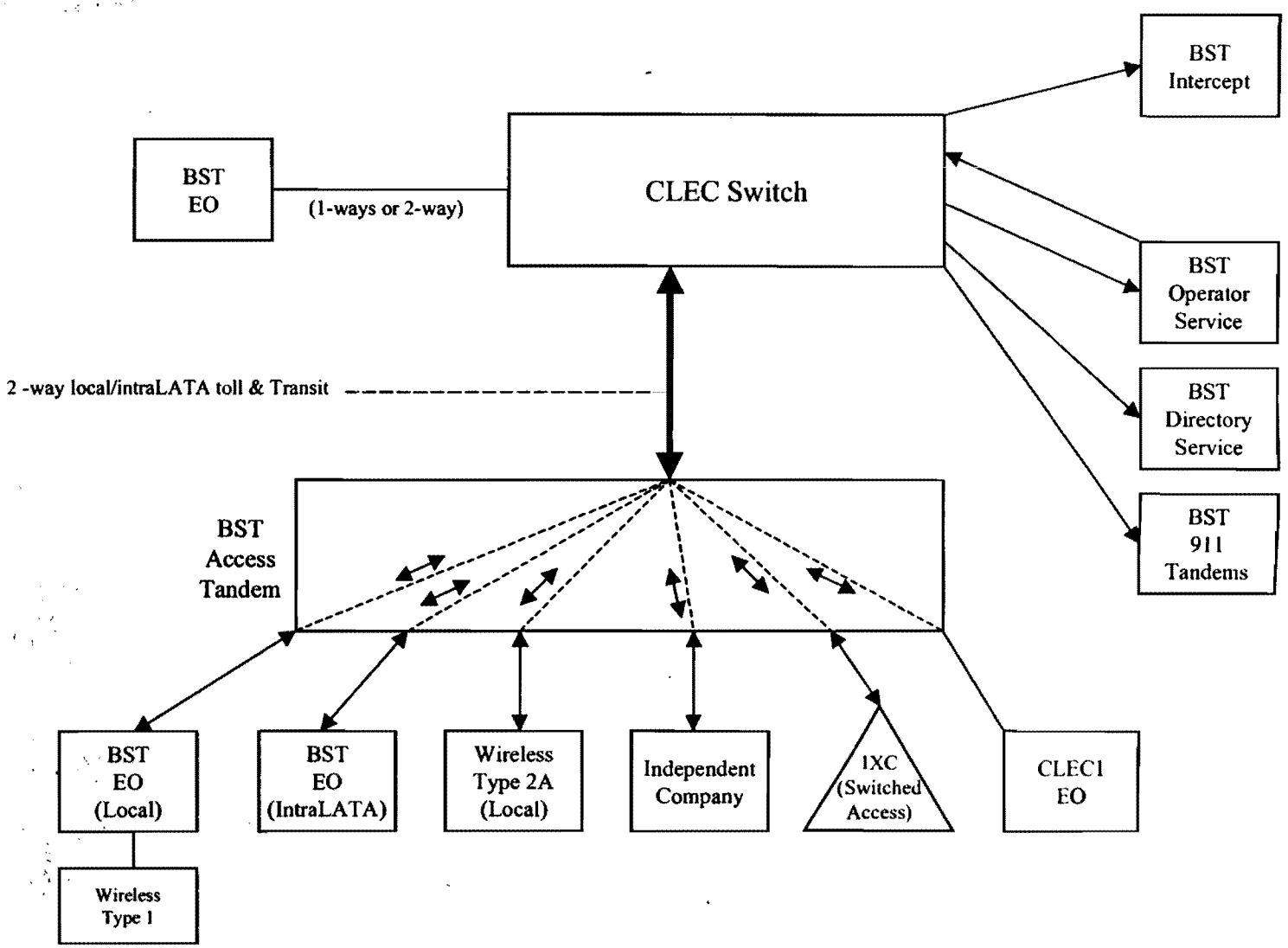
Exhibit E

Supergroup Architecture



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REPORT 24

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A Technical Report on Network Survivability Performance

Abstract

This Technical Report provides information on the network survivability performance of telecommunications networks. Although techniques, parameters and methods needed to study network survivability performance are defined, recommended parameter objectives are not established.

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Prepared by T1A1.2

Working Group on Network Survivability Performance

003034

Report No. 24

November 1993

A Technical Report on Network Survivability Performance

Prepared by
T1A1.2
Working Group
on Network Survivability
Performance

Committee T1 is sponsored by the Alliance for Telecommunciations Industry Solutions
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003035

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Foreword

This report addresses the growing concerns from the telecommunications community about the survivability of telecommunications networks, including the services provided. It is intended to provide a basis for designing and operating telecommunications networks to meet users' expectations regarding network survivability.

The intended audience of this report includes providers, users and regulators of telecommunications networks and services, as well as telecommunications equipment providers.

Suggestions for improvement of this report are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, Suite 500, 1200 G Street NW., Washington, DC 20005.

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0. Executive Summary

As a result of growing concerns from the telecommunications community, this Technical Report has been developed to address the survivability of telecommunications networks, including the services provided.

The report is needed to provide a common understanding and common assessment techniques for network survivability. It provides a basis for designing and operating telecommunications networks to meet users' expectations regarding network survivability. The intended audience of this report includes providers, users and regulators of telecommunications networks and services, as well as telecommunications equipment suppliers. The report also provides a foundation for continuing industry activities in this area.

Terminology to characterize network survivability is provided. In particular, network survivability is defined to be: (i) the ability of a network to maintain or restore an acceptable level of performance during network failures by applying various restoration techniques, and (ii) the mitigation or prevention of service outages from network failures by applying preventative techniques. Network survivability includes other industry terms, such as "network integrity" and "network reliability," and is related to "network availability."

A framework for quantifying service outages is developed. The parameters for this framework are the unservability of services affected by the network failure, the duration of the outage, and the extent of the failure (e.g., geographical area, population, or network). Categories of service outage are outlined. The categories depend on type of user, network and service. Types of users include carriers, residential customers, government agencies, educational and medical institutions, as well as business and financial customers.

A four-layer framework is described for classification of network survivability techniques in telecommunication networks. These layers are physical, system, logical and service. In addition to providing a common basis for describing and comparing techniques, the framework identifies layer(s) responsible for reacting to the various types of failures and their interaction.

Techniques available to network providers to enhance the survivability of their telecommunications networks at each layer are described. Two basic approaches to compare survivability techniques and evaluate network survivability performance are given. The first approach (Given Occurrence of Failure, or GOF) uses a conditional approach and defines survivability measures for a network assuming that given failures have occurred. The second approach (Random Occurrence of Failure, or ROF) uses probability of network failure and, possibly,

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rates of repair and/or restoration, to calculate various measures of network unservability or loss.

Suggestions are given for the general industry. Key suggestions are outlined here:

- quantify service outages with the framework described herein,
- use the terminology defined herein for describing network survivability, including network reliability and network integrity,
- use the layered network survivability framework described herein for clarifying failure survivability analyses, objectives and methods,
- plan survivability jointly (e.g., interexchange carrier and exchange carrier interworking), and
- use the performance measures defined herein to compare survivability techniques and to evaluate network survivability performance.

Recommendations are also given for future standards work. Key recommendations are outlined here:

- better quantification of the qualifying regions for service outage categories,
- validation of traffic characteristics,
- analysis of user expectations of network survivability performance, planning, engineering and operations guidelines for network survivability performance, and
- standardization of network survivability performance measures.

1. Purpose, Scope, Application and Outline

1.1 Purpose As a result of growing concerns from the telecommunications community, this Technical Report has been developed to address the survivability of telecommunications networks, including the services provided. The report is a response to the need for a common understanding of, and assessment techniques for, network survivability, including availability, integrity, and reliability. It also provides a basis for designing and operating telecommunications networks to meet users expectations for network survivability. Further this report provides a foundation for continuing industry activities in the subject area.

1.2 Scope This Technical Report focuses on the survivability of both public and private networks and covers a wide range of potential users. Two frameworks are established: the first for quantifying and categorizing service outages, and the second for classifying network survivability techniques and measures. The performance of network survivability techniques is considered; however,

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recommended objectives for network survivability performance are not established. Recommendations are made for continuing work on this topic.

1.3 Application The intended audience of this Technical Report includes providers, users, and regulators of telecommunications networks, and services, as well as suppliers of telecommunications equipment. Network provider personnel — including designers, planners, traffic engineers, and individuals in charge of operations, maintenance, management and administration — can use this Technical Report to quantify and enhance the survivability of their networks. This Technical Report also provides a service outage framework that can help users communicate to the providers their expectations of service and a framework that allows network providers to specify their requirements for network survivability. Telecommunications equipment suppliers can use this Technical Report to guide the design and building of equipment to improve network survivability.

1.4 Outline Section 2 and Appendix A review related work. Several aspects of Operations, Administration and Maintenance (OA&M) functions are covered in other Committee T1 documents (see Section 2.1). Section 3 is the introduction to this report. Section 4 provides a framework for quantifying and categorizing service outages. Section 5 introduces a framework for classifying network survivability techniques and measures. Network survivability techniques that mitigate the impact of failures or service degradation are addressed in Section 6. Definitions and examples of parameters and measures to evaluate the survivability performance of any network are presented in Section 7 and Appendix B. Recommended objectives for these parameters are not established. Section 8 gives general suggestions and Section 9 gives recommendations to Committee T1 and Working Group T1A1.2. Section 10 summarizes this Technical Report. Appendix A describes the Telecommunications Service Priority System. Appendix B gives example network survivability analyses and assessments. Some user expectations for service outage duration are given in Appendix C, and tolerance categories for restoration times are introduced in Appendix D.

2. Related Work

2.1 Committee T1 Standards Work In addition to T1A1, the following four other T1 technical subcommittees are involved in work related to network survivability performance: T1E1, T1M1, T1S1 and T1X1.

T1E1 is considering environmental standards. These standards also impact network survivability performance.

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T1M1 Working Group 2 (SONET[1] OA&M) is considering the OA&M aspects of failed networks.

T1S1 Working Group 3 (Signaling System Number 7, or SS7, protocol) is studying congestion controls for Common Channel Signaling Networks (CCSNs) and has produced a report to the Signaling Network Systems Focus Team of the Network Reliability Council (see Section 2.3).

T1X1 is charged with developing standards for ring architectures, protection switching and SONET compatibility. This covers a range of survivable network architectures.

2.2 International Standards Work The following Telecommunication Standardization Sector (ITU-TS, formerly CCITT) study groups are involved in work related to network survivability performance:

Study Group 2 addresses the overall operation of telecommunication networks. This work addresses various design alternatives for survivable networks.

Study Group 4 is studying the restoration of failed international exchanges, and transmission systems.

Study Group 5 is studying survivability issues for outside plant.

Study Group 11 is studying CCSNs and switching systems.

Study Group 13 is looking at digital network architectures. This work addresses rings and other survivable network architectures.

Study Group 15 is addressing transmission system requirements, including the restoration requirements for cross-connect systems.

2.3 Other Domestic Forums and Committees

The Industry Carriers Compatibility Forum (ICCF) consists of representatives from the industry carriers and major vendors and deals with compatibility problems (including SS7) between carriers. It is sponsored by the Carrier Liaison Committee (CLC) of the Alliance for Telecommunications Industry Solutions (ATIS).

The Network Operations Forum (NOF) consists primarily of representatives from the industry carriers Operations departments who meet periodically to deal with

[1] Synchronous Optical NETwork.

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operational problems of mutual interest. It also falls under the auspices of the CLC.

The Network Reliability Council (also known as the NRC) was formed by the Federal Communications Commission (FCC) in the fourth quarter of 1991 in response to major telecommunications outages. The Network Reliability Council is expected to provide the FCC and the Telecommunications Industry with recommendations for prevention of public telecommunications network outages and minimization of the impact of such outages. The Network Reliability Council consists of the following seven focus teams: 1) Signaling Network Systems, 2) Fiber Cables (with focus on cable digups), 3) Digital Cross-connect Systems, 4) Power Systems, 5) Switching (with focus on software), 6) Fire Prevention, and 7) Enhanced 911 Systems.

2.4 U.S. NSTAC Task Force Work The following task forces established by the National Security Telecommunications Advisory Committee (NSTAC) studied Network Survivability issues and forwarded their recommendations to the U.S. Government:

Telecommunications Systems Survivability (TSS), June 1988
This task force studied the work of five previous National Security Telecommunications Advisory Committee (NSTAC) task forces:

1. Commercial Satellite Survivability (CSS), June 1983 and August 1989
   In response to the twelve recommendations of this task force, the government developed the Commercial SATCOM Interconnectivity (CSI) program where commercial satellites could be used to route traffic around damaged areas of public switched networks.
2. Commercial Network Survivability (CNS), August 1985
   To improve the survivability of public switched networks when Section 706 of the Communications Act of 1934 is invoked, this task force recommended interconnecting the commercial telecommunications networks.
3. Electromagnetic Pulse (EMP), July 1985
   As a result of this task force's recommendations, the government and industry is addressing EMP in T1E1.
4. National Coordinating Mechanism (NCM), December 1983
   This task force called for the establishment of the National Coordination Center (NCC): a joint industry-government operation to initiate, coordinate, restore, and reconstitute public switched network services under all conditions of crisis or emergency.

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5. Automated Information Processing (AIP), October 1985
   This task force addressed the survivability and security of automated information processes within public switched networks.

Telecommunications Industry Mobilization (TIM), April 1989
This task force examined the telecommunications industry's ability to rapidly and effectively "marshal their telecom resources needed to transition from a normal state to a state of readiness for war or other national emergency."

Telecommunication Service Priority (TSP), September 1990
This task force developed a system for priority provisioning and restoration of critical fede l, state, local, and foreign government communications services. It replaces th isting Restoration Priority (RP) System and revokes the public network pı dence system. A detailed discussion of the TSP system is in Appendix A.

National Research Council Report Task Force, March 1990
This task force reviewed the National Research Council's 1989 report "Growing Vulnerability of the Public Switched Networks: Implications for National Security Emergency Preparedness" and concluded that public switched networks of the 1990s are growing more survivable because of: (i) the diversity provided by the major interexchange carriers, (ii) the demand by network users for very high availability of network services, and (iii) the development of increasingly robust network architectures that incorporate major advances in transmission, switching, and signaling technologies.

Intelligent Network (IN), November 1990
This task force investigated the evolving capabilities of the IN : rovide customized software-controlled network services and examined ..e vulnerability and interoperability issues associated with this emerging technology.

Energy Task Force, February 1990
This task force recommended the government establish a priority for electric power restoration and fuel distribution to public switched network telecommunications companies during emergency conditions.

3. Introduction

Historically, the designers and operators of telecommunications networks have placed a high emphasis on overall network performance quality and continuit the services they provide. This has been termed in the industry as network availability.

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Due to the nature of business today, a significant number of end users have an absolute dependency on telecommunications. Advancing technology (in both hardware and software), increased centralized control and services evolution have resulted in increased complexity, and capacity concentration. Users of these networks and services have also raised their requirements and expectations. The demand for high-quality performance, assured service continuity, and transparency to failures has never been greater. Users who require enhanced levels of network survivability performance include not only government, military, and emergency organizations, but the general public as well. This is termed by the users to be network reliability. The term network integrity is also sometimes used in this context. The use of the term "reliability" in this network context should not be confused with the more technical use of the term in the context of the ability of a specific component or equipment to perform its intended function over a specified period of time.

Along with the high concentration of telecommunications facilities and services brought about by technology, there have been continuing occurrences of service outages caused by metallic and fiber cable cuts, fires, natural disasters, human errors, software faults, sabotage, and malicious damage. The potential impact of a single network failure is higher in magnitude, geographic scope, and public perception than ever before. This potential impact heightens the need for network survivability; network survivability has two components: (i) the ability of a network to maintain or restore an acceptable level of performance during network failures by applying various restoration techniques, and (ii) the mitigation or prevention of service outages from network failures by applying preventative techniques. Preventative techniques can reduce the need for restoration techniques.

Depending on the type and scope of the failures, which can range from affecting very large geographic areas to a single customer, service restoration times can range from many days to milliseconds.

The type and scope of service outages, occurring from both natural and human-caused network failures, are categorized in Section 4 as being one of catastrophic, major or minor. These categories are based on the impact of the failure on users. For minor failures, network restoration can be automatic and virtually transparent to the user. However, for catastrophic and major events affecting large populations, some service may be restored automatically, but most service will be restored manually and as quickly as possible, based upon availability of personnel and replacement facilities.

A framework for quantifying and categorizing service outages in specific terms has been developed in Section 4. The parameters of this framework are: (i) the Unservability (U) of some or all of the provided service affected by the failure; (ii) the Duration (D) during which the service outage exists, and (iii) the Extent (E) in

terms of the geographical area, population and traffic volumes affected by the network failure. Throughout this report, this framework will be referred to as the (U, D, E) triple.

To lessen the occurrence and the degree of such service outages, survivability techniques have included redundancy of networks and systems, provisioning of highest reliability systems, good preventative maintenance, monitoring and surveillance, manual response, and optimized restoration and repair techniques.

Survivability techniques are being developed, based on intelligent and efficient technology, that provide the potential and capability to develop new and preemptive techniques for network survivability. Innovative developments in all layers and elements of networks are making it technically and practically possible to cope with many types of network failures. When this is coupled with well-planned reactive techniques such as readiness and contingency planning (Disaster Recovery), the structure is in place for the capability to provide a full spectrum of network survivability. The information contained within this Technical Report can help to provide a focus and impetus for ensuring the survivability performance of networks and services in general, as well as a base for enhanced network survivability techniques for special applications needs.

3.1 User Categories This section lists a range of telecommunications network users, and groups them into categories based on broad functional or service related characteristics.

User concerns have been heightened by telecommunications failures that have dramatized the vulnerability of telecommunications networks to fires, viruses, software errors, optical fiber/metallic cable cuts, power failures and other natural or human-caused accidents.

Users have unique requirements and expectations for uninterrupted service, depending on the user type, service value and subscription cost. To meet these user expectations, service providers may make use of: specific network configurations, dynamic routing, restoration techniques or procedures, network/system hardening, prevention of unauthorized access, and emerging technologies. Specific user groups with similar or unique expectations include:

- Interexchange Carriers (IC),
- Exchange Carriers (EC),
- residential customers (including Plain Old Telephone Service, or POTS),
- government agencies (federal, state and municipal),
- educational institutions,
- business customers, (excluding some financial institutions)
- cellular carriers,

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- information service providers,
- other access providers,
- financial institutions, and
- emergency organizations.

Note that many service providers are also considered to be network users. Users need to identify their survivability expectations. An example of the U.S. Government user expectations is discussed in Appendix C.

As an example of a user network, a public switched network illustrated in Figure 3.1 is considered to be divided into IC and EC portions[2]. In this example, an IC is a user of two ECs' access services.

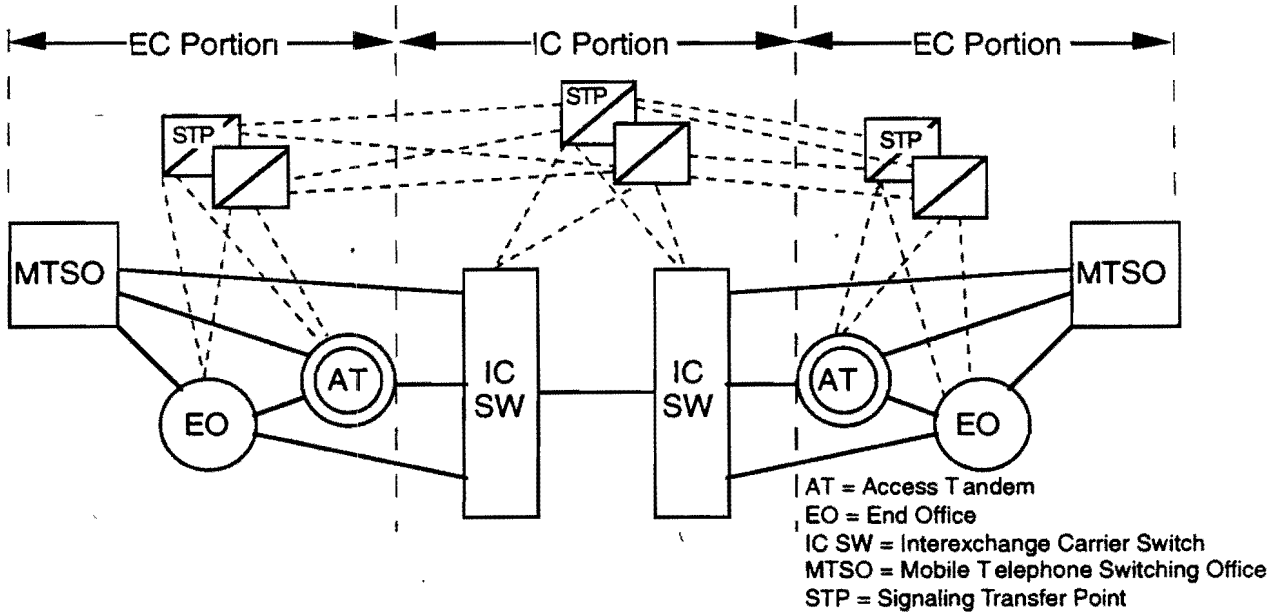

Figure 3.1: IC and EC Portions of a Connection in a Public Switched Network

4. Framework for Quantifying and Categorizing Service Outages

This section introduces a general framework for quantifying service outages from a users' perspective, applying it to three examples: circuit switched, packet switched and leased line networks. Before describing this framework, the term service outage is defined as follows:

> A service outage is the state of a service when network failure(s) impair the initiation of new requests for service and/or the continued use of the service and

[2] Cellular carriers are considered to be both IC and EC carriers.

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where the service outage parameters defined below do not fall into the "no outage" qualifying region.

4.1 Service Outage Parameters The three parameters of the framework are introduced below:

Unservability (U) A major impact of a service outage is service disruption to all or a portion of users. Unservability is defined in terms of a unit of usage. For example:

- In a circuit switched network, the most common function of the network is the ability to establish or maintain a connection from a source to a destination within the limits of engineered blocking and transmission performance. The unit of usage is a call attempt or call. In this instance, unservability is the percentage of units that fail.
- In a packet network, the unit of usage is a packet. The unservability is defined as the percentage of packets that were not delivered within the design delay.
- In a leased line network, unservability is defined as the percentage of service units failed (e.g., DS-0, DS-1 or DS-3 service units).

Duration (D) This parameter defines the time during which the service is unservable. It is measured by determining the beginning and the end points of a network failure, based on the performance exceeding the unservability threshold.

Extent (E) This parameter includes the context of geographic area, population affected traffic volumes, and customer traffic patterns, in which the unservability exceeds a given threshold.

One can categorize service outages by different sets of values for which the (U, D, E) triple qualifies for the particular category of outage. If one were to graph the (U, D, E) triple in 3-space, then the values for a particular outage category would form a region, which we define as the *qualifying region.* For example, Figure 4.1 illustrates three simple qualifying regions. The (U, D, E) triple is the basis for quantifying the impact of service outages on users. Service outages may be classified as catastrophic, major, or minor, depending on whether the values of the (U, D, E) triple fall in the appropriate qualifying region. The different sets of values for the (U, D, E) triple that define each of these categories are under study.

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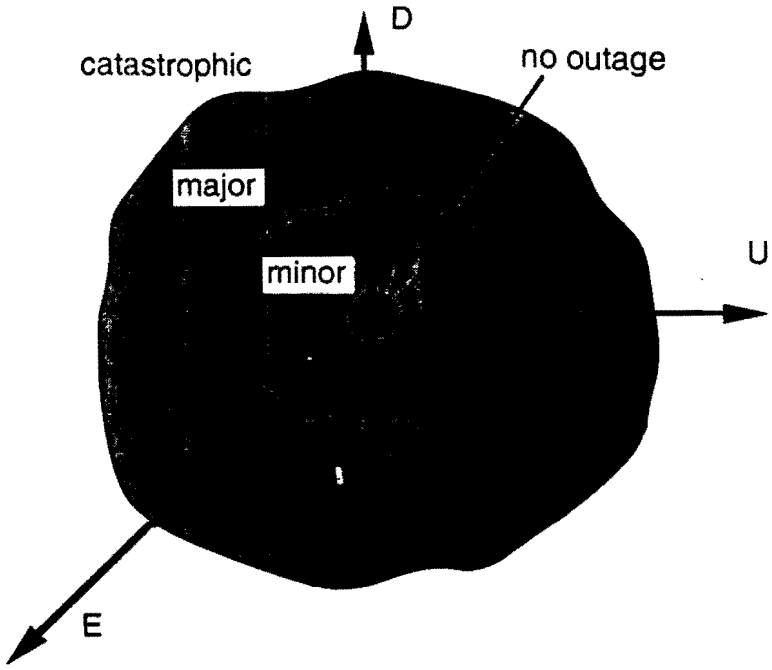

Figure 4.1: Example Qualifying Regions for (U, D, E)

Further investigation is needed to determine the impacts, if any, on the infrastructure of network elements, operations support systems and interfaces for measuring, collecting, and analyzing information to support the U, D and E parameters. If the network infrastructure is not initially able to provide the information, investigation into the identification of interim procedures may be needed.

4.2 Service Outage Categories This section generically defines and describes the service outage categories based upon the above framework.

Depending on the combination of a failure's U, D and E, the following three distinct service outage categories can be defined for both natural and human-caused failures (in order of decreasing severity):

Catastrophic — Possible causes: severe network node failure(s)[3], caused by earthquake, flood, hurricane, tornado, power company grid failure, global hardware/software defect, act of war, etc.

Major — Possible causes: toll center, common channel signaling, network node failure caused by fire, terrorism, failure of cable backbone

[3] Examples include a critical Central Office (CO) failure, one or more STP pair failures, multiple EO, AT, or MTSO failures.

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route, Digital Cross-connect System (DCS)[4] failure, access tandem switch failure, CO power/battery failure, software defects, fiber cable failure, etc.

Minor — Possible causes: single fiber failure, equipment failure (including shelf or unit).

The goal of a service provider is to restore interrupted service as quickly as possible. For catastrophic outages, affecting large populations, some service may be restored automatically, but most service will be restored manually. For major outages, a larger percentage of service may be restored automatically and the remainder of the service would be restored manually. For minor outages, service restoration can be automatic.

It also should be recognized that the users' expectations of uninterrupted service is tempered by the category and type of service outage. For example, in a catastrophic outage caused by a hurricane and affecting a very large number of users in one area, most users may recognize that service will be restored as quickly as is humanly possible. The time for total restoration of service for every user may take days to weeks. Future standards activity should specify quantifications of these service outage qualifying regions for particular services, networks, and users.

Considering the above framework for measuring service outages, Appendix C discusses users' expectations.

5. Framework for Classifying Network Survivability Techniques and Measures

This section discusses a four-layer framework (see Table 5.1) that allows for the classification of network survivability techniques in telecommunication networks[5]. Each layer can be characterized by a collection of networks (or subnetworks). Each of the networks consists of nodes, links, traffic or demand[6], and control mechanisms and control networks. The links provide capacity to carry the traffic and the nodes provide points of access, switching, or routing for the traffic. The control mechanisms for each of these networks can

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[4] The term EDSX (Electronic Digital Signal Cross-connect) is often used for a DCS whose interface rate equals its cross-connect rate, e.g., a DCS-3/3 that cross-connects DS-3s. This distinction is not used here.

[5] The network layers defined here should not be confused with layers defined in other more restricted contexts, such as the OSI layers for packet networks (see Section 6.4.2).

[6] Throughout the rest of this document the terms "traffic" and "demand" are used interchangeably.

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Table 5.1: Network Survivability Layers

Layer	Function, Components	Type of Traffic	Survivability Role	Survivability Techniques	Control Mechanisms & Networks
Service	provide public and private data and voice services nodes: switches (circuit, packet), signaling points, AIN node equipment links: trunks, data links, signaling linksets	telephone calls, data packets, cells (ATM), signaling units	mitigate the impact of service, logical, system and physical layer failures	size limits, routing (e.g., dynamic routing), reconfiguration (e.g., dual-homing, quad linkset arrangements)	Common Channel Signaling (CCS) networks, ATM congestion controls, packet protocols, packet congestion controls, protocol-based controls (e.g., SS7)
Logical	meet the needs of each service using the physical capacity nodes: transmission equipment (e.g., MUXs, DCSs) links: channels (e.g., DS-0, DS-1, DS-3)	DS-0, DS-1, DS-3, SONET STS-n signals	reconfigure around logical, system and physical layer failures	restoration switching	network controllers, operations support systems, manual interfaces and distributed DCS methods
System	provide bandwidth and diversity nodes: full-rate transmission equipment (terminals) links: full-rate channels (optical fiber, metallic, radio systems including satellite)	DS-3, SONET STS-n signals	reconfigure around system and physical layer failures	protection switching (e.g., self-healing rings, 1+1 diverse routing)	subnetwork controllers, operations support systems and manual interfaces
Physical	provide geographical and media assets nodes: buildings, underground vaults links: rights-of-way, media	--	provide physical and electromagnetic protection	geographical diversity, building size limits, protection against physical hazards	automated power, security and fire control systems and manual intervention

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provide the functions of signaling, traffic routing control, traffic admissibility control, and data communications. The control mechanisms also use a control data communications network; for communication among control logic points and nodes. The control data communications network may either be separate (out-of-band) or coincident (in-band) with the traffic bearing network. The survivability of the control data communications network itself also should be studied and evaluated.

In this representation, the link capacity of the service layer in turn forms the traffic for the logical layer, whose link capacity in turn forms traffic for the system layer, etc. Nodes and links o ystem and logical layers represent transmission e ɔment and provide ɔandwidth required for the service layer links. Service l nodes represent the itching or processing equipment that uses this l dwidth to provide use ervice networks.[7]

Network survivability techniques can be deployed at various layers of this framework to ensure that failures interrupt end-users as little as possible. Failures within a layer can be guarded against by techniques either in that layer or at a higher layer[8]. Beginning with the physical layer, the function of each layer is described below. Sample network survivability techniques representing network based solutions for link and node failures for each layer are described in Section 6.

5.1 Physical Layer The physical layer can be viewed as having two sublayers: the geographical sublayer and the media sublayer. The geographical sublayer consists of the assets that house the media and other equipment associated with the upper layers, e.g., buildings, conduits, manholes and rights-of-way. The media sublayer contains the transmission media used by the transmission systems, e.g., fiber cable, copper cable and radio spectra.

Figure 5.1 illustrates an example physical layer subnetwork. The links of this example network represent fiber cables (media) that in turn route over conduit sections (not shown) between the buildings or possible repeater site locations.

[7] The service, logical, system and physical layers defined here correspond roughly to the circuit, path, section and physical media layers, respectively, used in CCITT G.803.

[8] For example, a cable cut may be repaired or restored in the physical, system or logical layers. Otherwise, it can be restored by the service layer. In contrast, a switch failure at the service layer can only be restored in the service layer.

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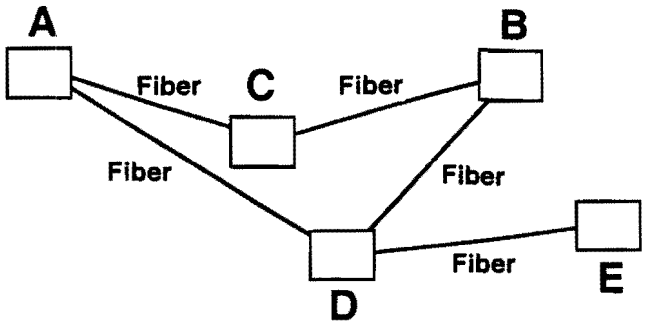

Figure 5.1: Example Physical Layer Subnetwork

5.2 System Layer The system layer represents the network transmission systems, and the system terminating and full-rate interface equipment. Network transmission systems include both cable-based (fiber and metallic) and wireless technologies (e.g., cellular, Personal Communications Network (PCN) and radio). Network survivability techniques at the system layer reconfigure the network components to protect the logical layer, and thus the service layer, against physical or system layer failures. These techniques combine system diversity with geographical diversity and reserve capacity to allow bandwidth lost by failures to be restored.

Figure 5.2 illustrates a subnetwork at the system layer. It consists of a SONET [44,38] OC-48 (2.448 gigabits/second) self-healing ring [40,42] and two SONET point-to-point OC-12 (622 megabits/second) fiber systems. The capacity over the links of this network becomes demand (traffic) for the physical layer example network shown in Figure 5.1. For example, the B-E OC-12 fiber system shown in Figure 5.2 routes over two fiber cable links (node pairs B-D and D-E) in the physical layer example of Figure 5.1.

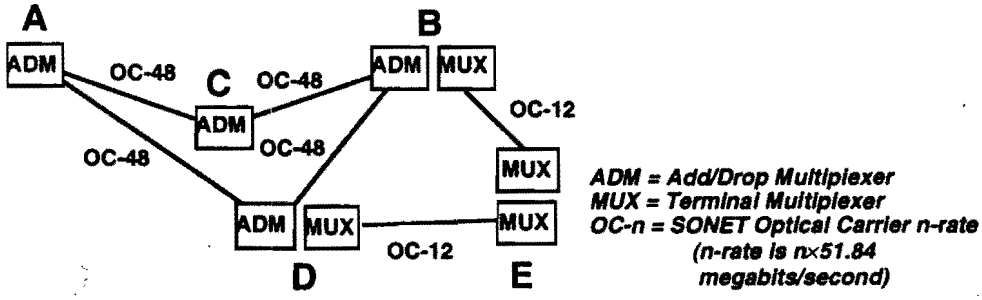

Figure 5.2: Example System Layer Subnetwork

5.3 Logical Layer The next layer of the planning framework is the logical layer, in which lower-rate transmission channels such as DS-0s, DS-1s or DS-3s and their interface equipment appear. Using the full-rate transmission channels of the system layer, the logical layer provides channels for use by the service

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networks in the service layer. After a failure is detected by the logical layer, network survivability techniques act to preserve the logical network that the service layer uses.

There are many possible distinctions between the traffic characteristics of a network at the logical layer and a network at the service layer. Traffic holding times are one such distinction. For example, traffic for a wideband DCS network (a *wideband* DCS interfaces digital signals at the DS-3, or STS-n rate, and cross-connects[9] the constituent channels at the DS-1 or SONET Virtual Tributary (VT) group rate; a *broadband* DCS interfaces digital signals at the DS-3 or STS-n rate and cross-connects the constituent channels at the DS-3 or STS-1 rate) at the logical layer are DS-1s that represent private line demand or multiplexed trunks of a circuit switched network. Here, traffic holding time represents the time between connection and disconnection of a DS-1, which could range from days to years. Also, this traffic does not have easy re-connect ("redial") capability as in a circuit switched network. In contrast, the traffic in a circuit switched network at the service layer is calls, whose holding times are typically short – in the range of minutes.

The example in Figure 5.3 shows a logical layer subnetwork of wideband DCSs. Here, the links represent families of DS-3 or SONET STS-1 capacity between the DCSs. These capacities become demand (traffic) for the example system layer subnetwork in Section 5.2. For example, the DS-3s between nodes A and B route over nodes A-C-B of the SONET self-healing ring in the system layer example subnetwork. Note, although not illustrated in this simple example, there can be further layering of subnetworks within the logical layer (e.g., the link capacities of a subnetwork of wideband DCSs may route over a subnetwork of broadband DCSs).

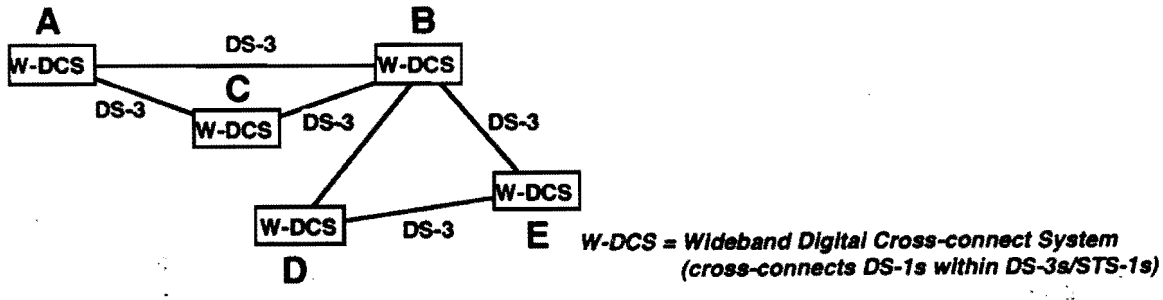

Figure 5.3: Example Logical Layer Subnetwork

[9] Cross-connecting is the process of connecting between terminal blocks on the two sides of a distribution frame, or between terminals on a terminal block. The same connection is also made through software implementations of this process by a DCS.

5.4 Service Layer The top layer of the planning framework is the service layer. This layer contains user service networks such as public and private data, voice and CCSNs. Survivability techniques offered in this layer can include:

- size limits,
- dynamic routing,
- message retransmission,
- multi-serving, and
- reconfiguration (reconnection and redirection).

Service layer rerouting and reconfiguration techniques would normally be activated for capacity that is not restored by techniques invoked at the system or logical layers. Service layer techniques form the last safeguards before failures become apparent to the user.

Figure 5.4 illustrates an example service layer subnetwork. This represents a portion of a circuit-switched network. Here, the links represent trunk groups (with integrated DS-1 interfaces) between circuit switching systems. These capacities become demand (traffic) for the example logical layer subnetwork in Figure 5.3. For example, the direct trunks between switches A and D form DS-1s that route over nodes A-B-D in the logical layer. The demand (traffic) transported by this example service layer subnetwork are normal "telephone" calls, often measured as "traffic load," (in units of Erlangs or hundred call seconds).

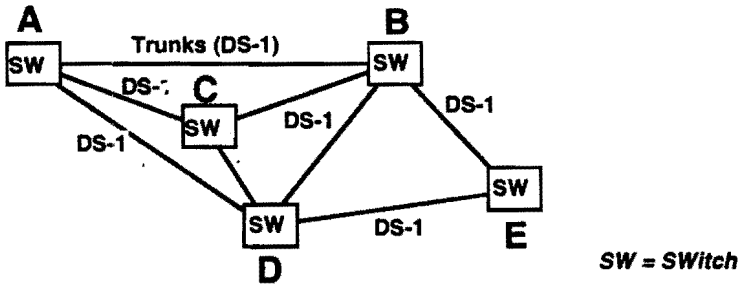

Figure 5.4: Example Service Layer Subnetwork

5.5 Summary The increased impact of failures has led to a greater awareness of the need to design survivable networks. There is a need for a common framework and terminology for discussing and comparing the wide variety of network survivability techniques that are available. The four-layer model described above provides such a framework. Table 5.1 summarizes this framework and lists some of the techniques that can be applied at each layer to minimize service interruptions to users.

This model provides a method of categorizing the various network survivability techniques in terms of the layers at which a network responds to failure. In

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addition to providing a common basis for describing and comparing techniques, this framework identifies the layer(s) responsible for reacting to the various types of failures and their interaction. Failures within a layer can be guarded against by techniques either in that layer or at a higher layer. To protect the service users, network planners need to select effective combinations of network survivability techniques across the layers for incremental deployment.

6. Network Survivability Techniques

This section contains short summaries of various techniques that provide for survivability of telecommunications networks. These techniques are generic and are based on the four network layers described in the framework of Section 5.

Basic Steps for Restoration

As illustrated in Figure 6.1, network restoration can be accomplished through six basic steps in response to a network failure within the four network layers:

1. *Detection*: Detection of the network failure by the appropriate Operations Support System (OSS), controller, or network element.
2. *Notification*: Notification of the network failure through the control architecture. Under a centralized scheme this means notifying the central operations support system or controller of the failure, either from the network element directly or via another operations support system for network surveillance. Under distributed control; this means notifying the other network elements via the links connecting network elements or a separate data communications network.

After the notification step, two parallel processes begin: (i) repair of the failed components, and (ii) reconfiguration of affected traffic. These steps can be applied to implementing most network survivability techniques, although some of the steps may not be necessary. Also note that some combinations of the steps may be iterated. For example, the path selection and rerouting steps may be iterated for each demand that is rerouted.

3a. *Fault Isolation*: Under the repair process, (see Figure 6.1), fault isolation is the identification or location of the network failure.

3b. *Identification*: Under the reconfiguration process, the affected demands are identified for rerouting.

4a. *Repair*: The repair process is the effort to repair the network failure to allow normalization of the network.

4b. *Path Selection*: Path selection is the selecting of an alternate path for each demand to be rerouted, either through data look-up or algorithm.

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5. *Rerouting*: Rerouting is the moving of the affected demands to an alternate path.
6. *Normalization*: Normalization is detection of the repair of the network failure and the return to the normal state of the network. This normalization could include rerouting of affected demands to new or original routes.

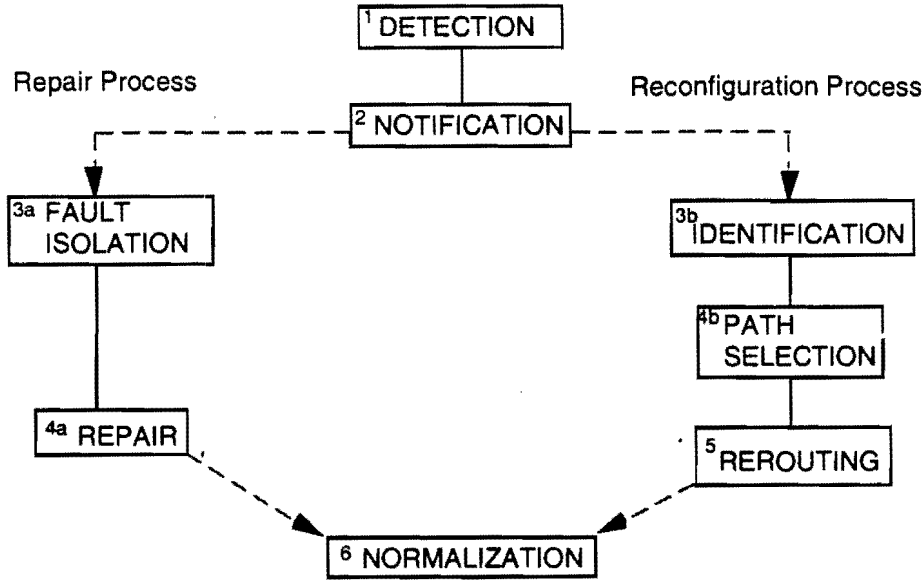

Figure 6.1: Basic Steps for Restoration

Determination of alternate paths in the path selection step can be of two types: precalculated or determined dynamically based on path status. A precalculated method of alternate path selection specifies that for each demand that must be rerouted, a preplanned, reserved alternate path with spare capacity is identified. For example, self-healing rings (Section 6.2) use precalculated methods. Status based methods respond using current network status knowledge to select alternate paths. For example, DCS reconfiguration methods (Section 6.3) often use status-based methods.

The two general approaches for status based path selection methods are preplanned lists of paths stored as local routing tables and dynamic path generation, where the paths are created at the time of failure.

The following network survivability techniques for each layer may utilize paths established via either wireline (cable) or wireless technologies. Wireline technologies consist of copper cable (coaxial or twisted pair) and fiber optics. Wireless technologies include terrestrial radio, satellite, cellular, and the evolving PCNs. Each of these technologies brings to the network survivability planning process its own limitations. Recognizing that a limited capacity system may not be

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adequate by itself to fully restore disrupted services, when used in conjunction with other surviving technologies, each could play an important role in minimizing disruptions caused by network failure.

6.1 Physical Layer Physical layer survivability falls into three categories: (i) geographical diversity and flexibility, (ii) security to human-caused intrusion, and (iii) tolerance, i.e., the ability of components to resist human-caused or natural disasters.

Geographical diversity is a technique whereby pairs of buildings are connected via multiple paths that do not share the same locations or rights-of-way and where critical network systems are spread among different locations. To enhance network survivability, network and service providers need to ensure sufficient redundant and diverse facilities of technologically similar media are in place to transport traffic and maintain uninterrupted services should the primary media become damaged. Where technologically similar media are not available, the restoration links need to be equipped to provide the same level of transport as the primary.

Given the higher bit rate and increased capacity of optical fiber cables, restoration of traffic transported via this medium must be moved to other facilities with the same capacity. This suggests that the fiber diversity route must be technologically similar and of equal capacity to restore the affected demands while not overtaxing the unaffected media. It also suggests that the restoration routes could be a combination of technologically similar media which, when combined, has sufficient capacity to restore the affected demands.

Security of the physical layer should be a major point of consideration. Increasing and maintaining a high level of physical security is necessary to ensure protection from damage caused by persons intent on disrupting telecommunications services.

Physical layer techniques which enhance building and telecommunication systems design availability do so by increasing their ability to tolerate external and environmental effects. For example, good fire detection and suppression systems are well-known methods to limit the degree of damage suffered by network assets.

Standards which address some of these areas have been developed or are under development in T1E1:

- earthquake protec.. nd testing (project approved),
- central office telecommunications equipment ambient temperature and humidity (ANSI T1.304-1989),
- DC power systems environment protection (ANSI T1.311-1991),

- central office equipment electrostatic discharge (ANSI T1.308-1991),
- electrical protection for central offices and facilities (ANSI T1.313-1991), and
- telecommunications equipment ignitability requirements (ANSI T1.307-1990).

6.2 System Layer System layer survivability is enhanced by considering techniques which support reliable connectivity over existing surviving links. These include automatic cutover systems, link diversity, spare or excess capacity, coding, spread spectrum transmission, and error correction in addition to the following.

6.2.1 Point-to-Point Systems with Automatic Protection Switching Automatic Protection Switching (APS) is a transport network survivability technique where both ends of a working channel's termination equipment switch to a full bandwidth protection channel in the event of link failure (see Figure 6.2). APS can either have one protection channel[10] for each working channel (1+1 or 1:1), or have one protection channel for one or more (*n*) working channels (1:*n*). The working and protection channels may make use of diverse routing for added network survivability. A point-to-point system with diverse routing does not provide individual channel add-drop capability at intermediate locations and hence another protection architecture must be used to provide this type of application.[27].

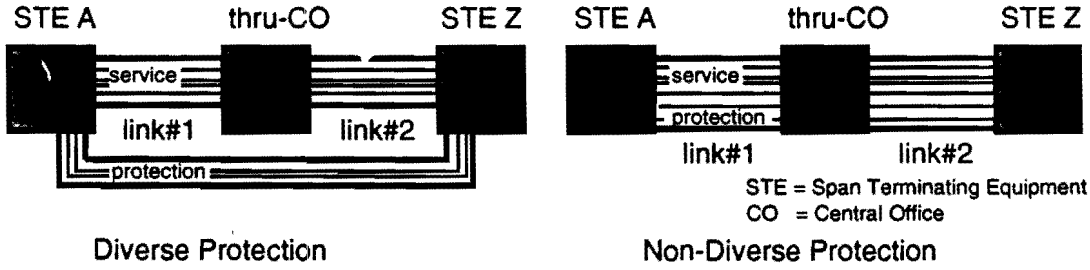

Figure 6.2: Diverse vs. Non-Diverse Protection

6.2.2 Rings A ring is a collection of nodes forming a closed loop whereby each node is connected to two adjacent nodes via a duplex communications facility. A ring provides redundant bandwidth and/or network equipment so disrupted services can be automatically restored following network failures.

[10] 1+1 systems transmit on the protection channel at all times. 1:1 systems transmit on the protection channel only after the failure (the protection channel is normally idle).

Rings can be divided into two general categories, unidirectional and bidirectional, according to the direction of traffic flow under normal conditions. In the SONET application [40,42], unidirectional and bidirectional architectures are defined based on the direction in which incoming and associated returning tributaries travel around the ring. An incoming tributary is the signal added into the ring, and the returning tributary is the associated signal dropped from the ring.

6.2.2.1 Unidirectional Ring In a Unidirectional Ring (UR), working traffic is carried around the ring in one direction only (e.g., clockwise). Refer to Figure 6.3. Traffic from any node A to any other node B is routed along the working communications ring from A to B via D and C, and the return traffic continues around the ring from B back to A, in the same direction of transport using the remaining portion of the working communications ring. Thus, traffic arrives at nodes A and B by different routes. Because the transmission of normal working traffic on the UR is in one direction only, ring capacity is determined by the sum of demands between each pair of nodes. URs are sometimes called "counter-rotating rings" because the second communications ring (for protection only) transmits in the opposing direction as the first. This is also known as 1:1 protection, or 1:1 UR.

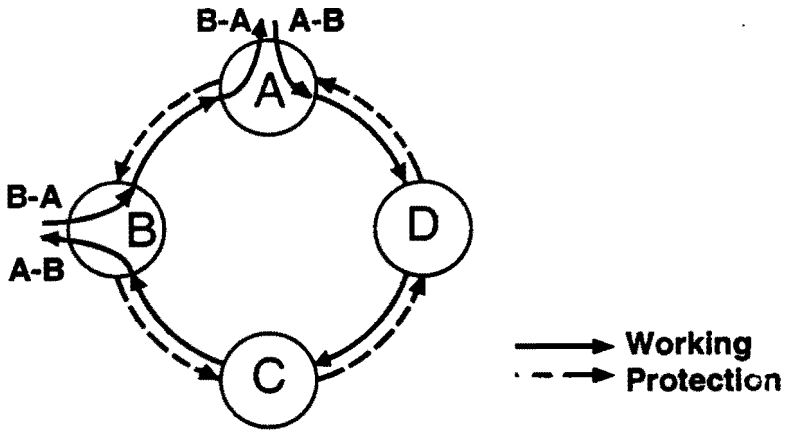

Figure 6.3: Unidirectional Ring

6.2.2.2 Bidirectional Ring In a Bidirectional Ring (BR), working traffic travels in both directions over a single path that uses the two parallel communications paths (operating in opposite directions) between the nodes of the ring (e.g., between A and B), hence the name BR. Since traffic is routed over a single path between nodes, spare capacity around the ring can be shared on a per span basis (i.e., demand carried per span), and not dedicated to the total demand on the ring as for a UR. In a BR, traffic is often routed over the shortest path and is identified during provisioning. This is referred to as a shortest path algorithm or nondemand splitting. (For optimal load balancing algorithms, however, some traffic may be routed over the longer path.) Nondemand splitting basically means that the total demand between any two points on the ring travels the same route

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(shortest path), and is not normally split between two different routes (i.e., split between shortest and longest paths). BRs are engineered based on the span carrying the maximum amount of traffic. A BR may use four fibers or two fibers depending upon the spare capacity arrangement, as shown in Figure 6.4.

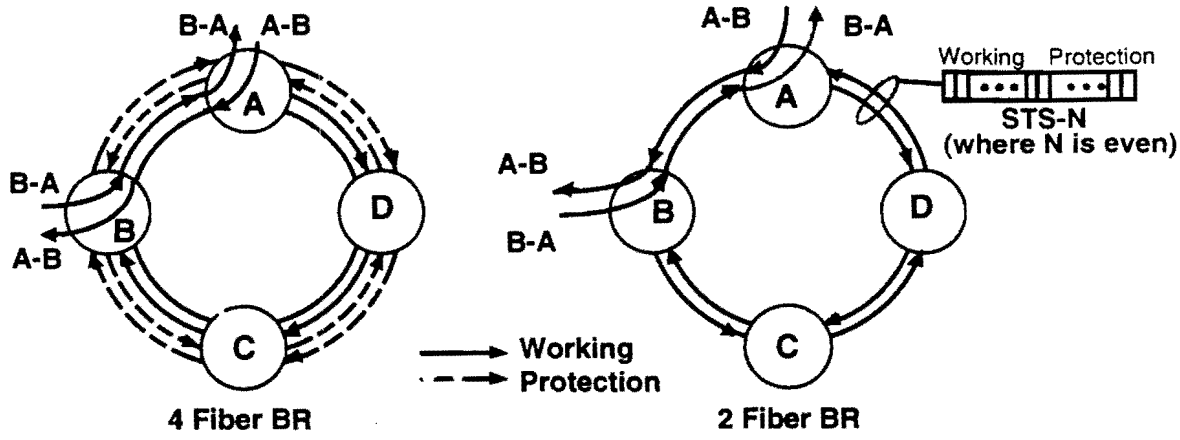

Figure 6.4: Bidirectional Rings

In a four fiber BR (or 1:1 configuration), working and protection channels use separate communications paths (fibers). The 1:1 configuration has evolved from today's point-to-point protected systems and can provide line protection switching using similar SONET automatic protection switching procedures.

In a two fiber BR, working and protection channels use the same two parallel communications paths (i.e., reserve half bandwidth for protection). This ring arrangement can provide line protection switching by using a time slot interchange method for merging working channels with protection channels.

Unidirectional and bidirectional rings can be further categorized into line and path protection switched rings according to the SONET layer used to trigger the protection switch action that enables the ring to automatically recover from failures. Bidirectional path switched rings are not discussed here.

6.2.2.3 Line Protection Switched Ring A line protection switched ring architecture uses SONET line layer indications to trigger the protection switching action and may be unidirectional or bidirectional. Switching action is performed at only the line level to recover from failures, and does not involve path level indications. Line level indications include line level failure conditions and signaling messages that are sent between nodes to effect a coordinated line protection switch.

An example of a unidirectional, line protection switched ring (UR/L) is a "folded," UR implementation, that folds (or loops) the disrupted line signal (i.e., the optical

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line signal or *n* line SPEs[11]) onto a separate protection fiber ring (1:1 concept). This example is shown in Figure 6.5. The nodes adjacent to the break (nodes A and B in Figure 6.5) perform the fold or looping function. Because of the loopback capabilities at the nodes adjacent to the break, the folded ring remains in a ring topology.

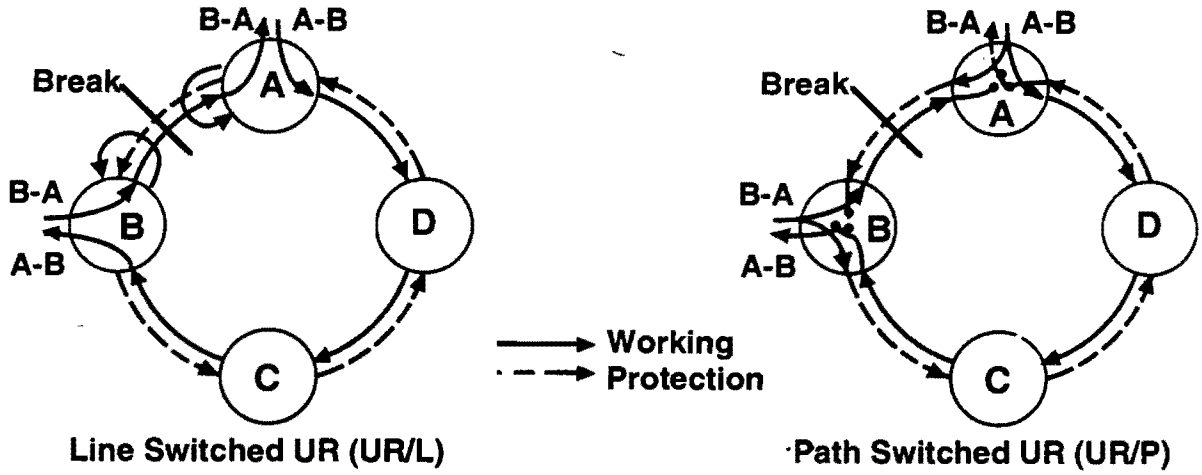

Figure 6.5: Unidirectional Ring Implementations

An example of a bidirectional, line protection switched ring is a two fiber BR (BR/2F) implementation, and is shown in Figure 6.6. In this implementation, protection capacity is provided around the ring and is available to restore disrupted traffic during protection switch conditions. This protection capacity (i.e., channels) is shared by all spans (i.e., between adjacent nodes) on the ring. In the case of a fiber cut, the nodes adjacent to the break set up bidirectional paths (loopback functions using Time Slot Interchange (TSI)) on the protection channels in the opposite direction for only those services affected by the break. The loopback function is for looping back disrupted traffic between nodes A and B from working to protection channels. As a result, all traffic that was normally on the working channels on the link between nodes A and B is now on the protection channels in the reverse direction around the ring. The protection channels can then be reused by other spans when the protection channels become available again.

[11] Synchronous Payload Envelopes.

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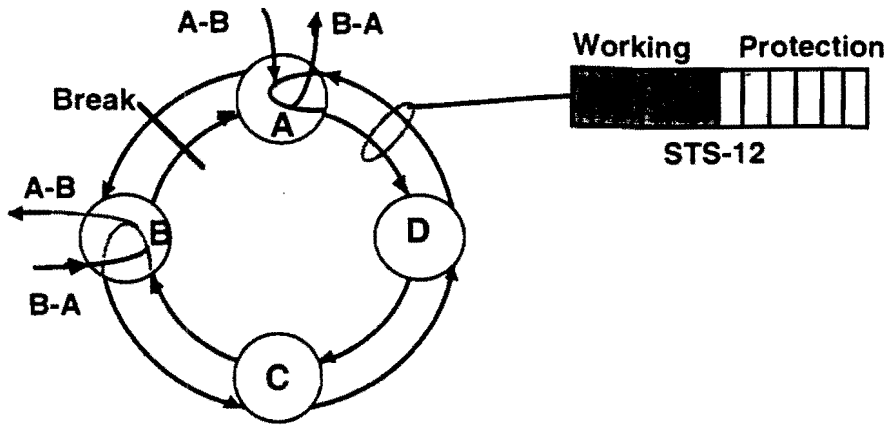

Figure 6.6: Bidirectional Ring Implementation

A four fiber BR (BR/4F) implementation uses a line loopback recovery technique, but unlike the BR/2F implementation, working and protection channels are routed on separate communications paths (fibers). Another BR/4F implementation uses a combination of line loopbacks and automatic protection switching span protection. The line loopback function protects against cable cuts, and the span protection safeguards against equipment failures.

6.2.2.4 Path Protection Switched Ring A path protection switched ring architecture uses SONET path layer indications[12] to trigger the protection switching action and may be unidirectional or bidirectional. Switching action is performed at only the STS or VT path level to recover from failures, and does not involve line level indications. Path level indications include path level failure conditions and, if necessary, signaling messages that are sent between nodes to effect a coordinated path protection switch. Path switching of a specific path is independent of other paths' status.

In some unidirectional, path protection switched rings (UR/P, see Figure 6.5), both directions of working traffic between any node A and any other node B travel on a single fiber ring in the same direction (e.g., clockwise), but arrive at their destinations by different paths (i.e., the two directions of traffic use the opposite portions of the single ring). A second protection fiber ring carries a duplicate copy of the information signals in the opposite direction. This is considered a "dual-fed" or "1+1 protection" approach when duplicate information is transmitted in both directions on the ring. Thus, at a receiving node (e.g., node A), two signals (one from each direction) are available for signal selection. In the case of a break in the ring (between node A and B), receiving node switches to the protection path for

[12] DS-1 or DS-3 Alarm Indication Signals (AIS) are also used for this purpose.

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path restoration. Receiving node B was not affected by the break, so no path switching is necessary. For each disrupted path, path switching requires identifying and selecting the valid (or protection) path for path restoration. The information for the switching control is conveyed within the path signal itself (e.g., Path AIS). It should be noted that, unlike common approaches to ring implementations which maintain their ring characteristics following a fault, this implementation ceases functioning as a ring if a break in the ring occurs, i.e., it does not remain in a ring topology (no loopbacks) following a break in the ring or the loss of a node. However, communications among the nodes is maintained following such a break.

6.3 Logical Layer The logical layer reestablishes active demands that route over failed network links or nodes, as contrasted with a circuit switched network in the service layer, where existing demands are lost (and must redial). This requirement imposes a more difficult network survivability routing task on the subnetworks at this layer, as well as more critical restoration intervals. Restoration switching, as implemented in DCS based reconfiguration strategies, is described below.

6.3.1 DCS Reconfiguration Strategies The routing capability of DCSs can be used to restore service in case of network failures. By changing cross-connects, DCS reconfiguration methods restore service by routing existing, failed demands (e.g., DS-1, VT 1.5, or STS-1 systems) on alternate routes. At present, DCS reconfiguration methods operate on a network of either wideband DCSs or a network of broadband DCSs. However, because of the smaller number of demands to reroute, most DCS reconfiguration schemes are targeted for broadband DCS networks.

There are many methods being developed for DCS reconfiguration. In this section we generically describe the steps of a DCS reconfiguration scheme as well as present the general characteristics of the different approaches.

DCS repair and reconfiguration processes follow the basic steps identified at the start of Section 6 in response to a network failure. For each of those steps, there are a variety of implementation techniques. However, a fundamental characteristic that applies to each step is the method of control: under *centralized* control, the step is principally done by an OSS or "controller," which we will refer to generically as a "centralized system," while under *distributed* control, the step is done by the individual DCSs. Note that there are methods that mix some steps under centralized control with other steps under distributed control (e.g., distributed control of the path selection step with centralized control of the normalization step).

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Another fundamental characteristic for DCS reconfiguration is the method for data communications. For centralized control this involves communication between the DCSs and the centralized system(s). For distributed control this involves communication among the DCSs. The most critical aspect of data communications for DCS reconfiguration is the guarantee of a secure data channel. This can be described succinctly by the following requirement: for a given demand, if there exists a surviving, alternate route, then data communication is required among all DCSs along that route (to enable rerouting of the demand). Therefore, in general, communication between DCSs and the centralized system(s) must occur over physically redundant routes. For distributed control, communication between DCSs can use SONET overhead (or related signal overhead) along all the possible inter-DCS "logical" links. This aspect guarantees that if there exists a surviving, alternate route between two DCSs, then communications will occur along this route and, thus, the requirement is satisfied.

We discuss various general characteristics of DCS reconfiguration schemes for each step below:

6.3.1.1 Detection and Notification Under centralized control, DCSs (or, possibly, higher level network elements) detect and notify the centralized system of the failure, possibly via another OSS for network surveillance. It is possible that these alarms are received at a variety of multiplex levels and the centralized system has to "locate" and analyze the fault, i.e., deduce which channels are affected (e.g., which STS-1s or DS-1s are affected). Under distributed control, the DCS monitors each of its channels and analyzes the faults; although, for repair purposes, an alarm may still be sent to the network surveillance OSS.

6.3.1.2 Identification Under centralized control, the centralized system identifies the fault and instigates the reconfiguration process. It may have various thresholds to screen out false or intermittent alarms. Under distributed control this step means identifying the failure to the DCSs and triggering the event. When a failure is identified between a pair of DCSs, this implies some sort of "handshaking" or prearranged understanding so that only one of the DCSs instigates the reconfiguration process.

6.3.1.3 Path (Route) Selection Methods for implementing this step can generally be described by the three following characteristics:

i) Control: centralized or distributed. Centralized control means that a centralized system calculates the alternate routes, i.e., the affected DCSs and channel assignments. Distributed control means that software in the DCSs calculates the routes, often in a parallel manner among all the DCSs. It is possible to have combinations of both: the centralized system determines higher level routes or routing guidelines and the network elements choose specific routes. For example,

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the DCSs can use routing tables that are populated by a centralized system, an architecture that is similar to that used in switches in a circuit switched network.

ii) Type of alternate routing: link or point-to-point[13]. With *link* rerouting, all demands routed over the failed link have the segment of their route corresponding to the failed link replaced by an alternate route. Link rerouting is illustrated for a wideband DCS subnetwork with DS-3 links in Figure 6.7. Here the route of a sample DS-1 demand is shown by a dashed line. When the B-C DS-3 link fails, alternate DS-1 routes are found between nodes B and C. The "segment" of each DS-1 route that originally routed through the failed link is cross-connected to the alternate route, sometimes called a "patch". For the sample DS-1, the alternate route goes through nodes B-A-D-C. The result is that at the DS-1 level there is retracing of the route. With point-to-point rerouting, constituent demands are re-routed from end node to end node. This is illustrated in Figure 6.8 where the DS-1 is routed directly over the A-D DS-3 link.

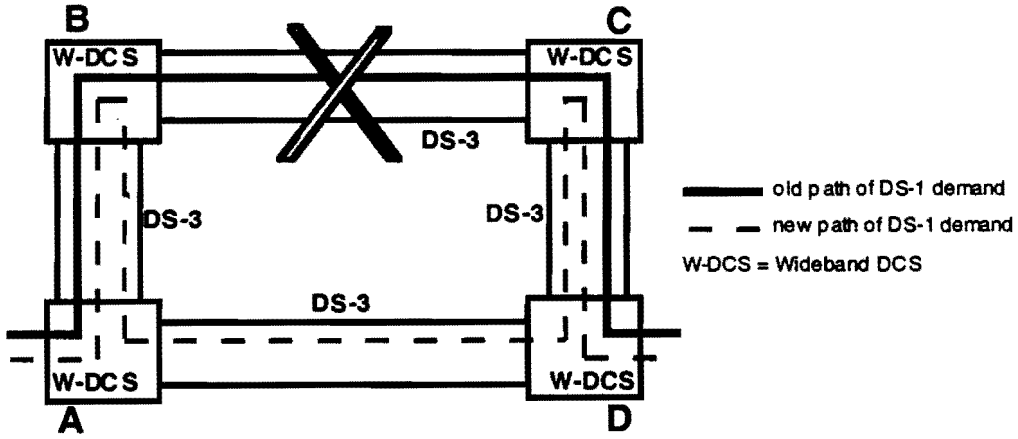

Figure 6.7: Link Rerouting from Link B-C to B-A-D-C

The principal advantages of link rerouting are speed and ease of implementation because the DCS needs to find alternate routes between only one node pair, e.g., nodes B and C in Figure 6.7, and the various end points of the demands that route through the link do not have to be determined. However, it is complex to adapt some link rerouting methods for multiple link failures and, especially, node failures.

[13] Many other references refer to point-to-point rerouting as "path" rerouting (for example, see [16]). However, since these references also use the term "alternate path," even for link rerouting methods, "point-to-point" is a less ambiguous term.

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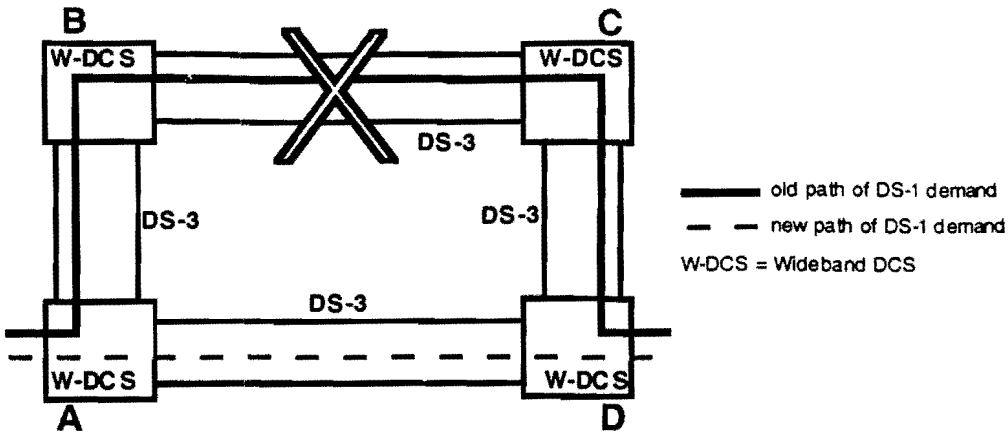

Figure 6.8: Point-to-Point Rerouting of A-D DS-1 Demand over Spare Facilities

Point-to-point rerouting requires determination of individual demands and their end points and an associated route selection process for each such end point pair. Point-to-point rerouting schemes tend to be more efficient from the standpoint of utilization of network capacity, i.e., they require less network spare capacity to achieve the same level of network survivability. Another advantage is that some implementations allow the capability to selectively choose which demands to reroute in case of failure. Also, because demands are rerouted between their end points, point-to-point rerouting techniques can be more readily adapted to handle node failures. However, the complexity of point-to-point rerouting techniques tends to make them slower than link rerouting techniques.

iii) Route calculation process: precalculated or dynamic. With precalculated methods the alternate routes are stored in a database (either in a centralized system or locally in the DCS) and retrieved when the restoration process is instigated. If a precalculated method stores only one route, then for each demand that must be rerouted, a single, alternate route is identified and reserved. If multiple routes are stored, then they can be tried in sequence until a functioning route (with spare channels) is found. Precalculated methods can suffer from the difficult task of satisfying physical diversity requirements when preplanning the alternate routes, as well as database integrity issues. Precalculated schemes also suffer from the problem of keeping the data current under a changing network. The main advantage of precalculated schemes is simplicity of implementation and speed of execution.

Dynamic routing methods use current network status knowledge, i.e., link/node operational status (failed or working) and associated link spare (also called "occupancy" or "utilization") to calculate the alternate routes at the time of failure. An advantage of status based methods is that failed links or nodes can be readily

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identified at the time of failure and avoided in the selection of alternate routes. This simplifies the computational burden of diversity requirements faced by predetermined methods. However, dynamic routing methods are more complex to implement and can be slower to execute.

Most methods using distributed control for the path selection step implement dynamic routing via various adaptations of a method called "flooding." In this method for a given pair of DCSs (say, A and Z) between which alternate paths are sought, one of the DCSs instigates the restoration process (called the "sender"; say DCS A) by sending out requests for alternate routes to each of its neighboring DCSs, which in turn send out requests to each of their neighboring DCSs, etc. Thus, routes are pieced together a link at a time. As route requests reach the destination (DCS Z), confirmations are sent back along the route. To control the process, guarantee a good selection of routes, and avoid cycling, the DCSs use information such as link counts to retain efficient routes and discard the others.

6.3.1.4 Rerouting Under centralized control, demands are rerouted when the centralized system sends specific cross-connect commands to the DCS over the data communication network (indicating which channels to cross-connect). Under distributed control, the DCS instigates its own cross-connects.

6.3.1.5 Normalization This is one of the most difficult aspects of DCS reconfiguration methods. The major difficulty is that after the failure is repaired (e.g., a fiber cut is re-spliced — possibly days after the initial failure), it is difficult to reroute demand back onto the failed link without incurring further interruption of service. In fact, if not carefully executed, the normalization step could potentially incur a longer disruption of service than the initial failure event. Where adverse impact associated with normalization is unavoidable, this impact can be minimized by planning and coordination with the users of the services.

There are some arguments to leave the rerouted demands alone; i.e., unchanged. However, this option is not likely to gain support from network planners because the reconfiguration process tends to use up most of the network spare capacity and, in addition, uses long and inefficient alternate routes. If the demands are not rerouted after the failed link is repaired, new connections would also tend to be routed inefficiently in the attempt to use up the idle spare on the newly repaired link. Since one of the advantages of DCS reconfiguration is its capacity efficiency, this practice would obviate this advantage. To understand the potential magnitude of this, consider a 144-fiber cable that carries OC-48 systems. A full cut on this cable can easily involve hundreds of active STS-1 channels (a maximum of 3,456 STS-1 channels).

6.3.1.6 Summary of DCS Reconfiguration Methods Beyond implementation issues, the various methods can be evaluated in terms of speed of

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reconfiguration and the efficiency of path selection. In terms of speed of reconfiguration, while there are simulation studies of the times of the path selection step for various methods, at present there are few observed execution times in real networks. However, a generalization for broadband DCS reconfiguration is that methods that use distributed control for the rerouting step have restoration time on the order of seconds while those that use centralized control have a restoration time on the order of minutes.

Methods that use centralized control for all steps are found in [10] and [11]. Methods that use distributed control for all steps (except normalization) and dynamic route calculation are given by [12-16]. A method that uses distributed control for the detection, signaling and identification steps, centralized control for the path selection step (precalculated routes), and distributed control for the rerouting steps is given in [17].

6.4 Service Layer The service layer provides public and private data and voice services. The survivability techniques of this layer mitigate the impact of uncovered failures at the logical, system, and physical layers as well as failures and degradation at the service layer itself (e.g., switch failures).

6.4.1 Circuit Switching

6.4.1.1 Size Limits A preventative technique to mitigate the severity of service outages is to limit the size or capacity of a part of a circuit switched network to ensure that its failure will not overly diminish the overall grades of service. Limiting capacity loss typically involves limiting the number of lines carried by (and thus user dependence on) any one switch or transmission system.

6.4.1.2 Dynamic Routing Dynamic Routing is the evolutionary result of traditional switched-network hierarchical-routing structures. Using dynamic routing, a service network can reroute workloads around failures in the network without requiring changes in the underlying logical network. It is most appropriately based upon service demands, and is an enhancement of simple alternate routing. A key attribute of dynamic routing techniques is that the path choice is determined at the time of the call attempt. The choice is based upon a relatively short network status update interval calculation which determines networking path strategy using link occupancy, optimum route sets and changing network conditions. In the event of a service outage, dynamic routing reroutes new service requests around the affected area. The established service connections in the affected area are disrupted and not rerouted.

Dynamic routing has the potential of providing the survivability advantages of link failure and tandem node failure protection in addition to network routing efficiency

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benefits. Descriptions of various dynamic routing methods for circuit switched networks can be found in [29-32].

6.4.1.3 Reconfiguration Reconfiguring the service network includes options such as dual-homing and internal rearrangements in private networks. After a failure, dual-homing reconfigures a service network by redefining the home switch for both incoming and outgoing traffic destined to the affected service area.

6.4.1.4 Network Management When two or more network elements in an exchange carrier and/or interchange carrier network are experiencing degraded service, affecting performance for a set threshold time, manual network management control methods such as call gapping (where a limited number of calls is allowed in a given time interval), CANcel To (CANT, which disallows calls to a designated switch), CANcel From (CANF, which disallows calls from a designated switch), SKIP (which causes affected traffic to skip the controlled trunk group) and reroute can be used. See [49].

6.4.1.5 Multi-Serving Techniques that enhance survivability at the Service Layer include:

- wireless technology,
- dual homing (two or more serving central offices for a given serving area) or split homing (providing service from two or more nodes)
- alternate access to other ICs, and
- EC bypass.

6.4.2 Packet Switching Packet networks have their own layered structure for data communications within the seven layer Open Systems Interconnection (OSI) standard of the International Standards Organization (ISO) [25]. Generally, in this structure, communication at higher OSI layers assumes secure communication at lower OSI layers. Additional data communication protocols such as Frame Relay or other non-OSI standard implementations may use the OSI or other layering structures.

Techniques for survivability of packet networks at the service layer include some of the following actions within the transmission protocols and routing schemes:

- retransmission of packets or data frames that are lost or corrupted,
- dynamic routing of packets for routing around links and nodes that are failed or heavily congested,
- priority routing of messages, and

- congestion control; for fixed routing schemes — rerouting of traffic around failures or heavy congestion, queuing of packets or rejection of packets between certain point-to-points.

6.4.3 Common Channel Signaling CCSNs (Common Channel Signaling Networks) are dedicated signaling networks which transport both circuit associated (call setup) and non-circuit associated (transaction capabilities) signaling messages, between exchanges or other signaling nodes, separately from the voice/data path, using the SS7 (Signaling System Number 7) protocol[14]. CCSNs support both Integrated Services Digital Network (ISDN) and non-ISDN or POTS calls in a circuit switched network. The SS7 protocol consists of the following five parts: the Message Transfer Part (MTP), the Signaling Connection Control Part (SCCP), the ISDN User Part (ISDN-UP or ISUP), the Transaction Capabilities Application Part (TCAP), and the Operations, Maintenance and Administration Part (OMAP). The MTP and SCCP provide the basic transport messages between nodes in the CCSN, management of mated pairs of Signaling Transfer Points (STPs), duplicate Service Control Points (SCPs) and databases, and load balancing within and among link sets. The ISDN-UP provides call handling signaling functions, such as call setup and release, for non-ISDN as well as for ISDN voice and/or data calls. The TCAP supports non-circuit related activities, such as establishing forwarding arrangements for an 800 Service call. The OMAP provides operations and management of the logical and physical resources.

Survivability techniques are needed for each of the five parts of the SS7 protocol. Some survivability techniques for the MTP and the SCCP are described here. Software diversity, which can be used as a survivability technique for any part is also described. The TCAP relies mainly on SCCP for survivability. Some survivability techniques for circuit-switching networks using the ISDN-UP for call control are covered in Section 6.4.1.

6.4.3.1 Service Layer Architecture for MTP CCSNs as designed today include a high level of network element redundancy, intended to avoid interruption of service for the users of the traffic networks which rely on CCSNs for signaling. Common Channel Signaling (CCS) network element arrangements are used as service layer survivability techniques. The effectiveness of these arrangements depends on:

- proper engineering of CCS network elements to satisfy the desired performance objectives, and

---

[14] The SS7 protocol, a variant of CCITT SS No. 7 [41], is modeled after the Open System Interconnection (OSI) seven-layer reference model [25], although it does not strictly adhere to it. Figure 5 of [41] illustrates this relationship.

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- support of CCS network element redundancy and arrangements by the interoffice facilities (physical, system and logical layers) network, which should have an appropriate level of diversity of equipment sites and facilities (see sections 6.1, 6.2, 6.3, and Table 5.1).

There are two categories of signaling nodes, or Signaling Points (SPs):

a. Signaling End Points (SEPs), consisting of:
   - CCS Switching Offices (CCSSOs), which have the capabilities to provide call control on the CCSN and may also interact with centralized, on-line databases to support query-oriented services such as 800 Service and Alternate Billing Service (ABS). CCSSOs that have both call control and database access capabilities are called Service Switching Points (SSPs).
   - SCPs, which provide access to databases and query processing systems for call control and customer-related information, and decision-making for intelligent services. SCPs may be duplicated, or may operate as stand-alone units.

b. STPs, which are high-speed, high-reliability, large-capacity packet switches for CCS message routing and transport. The American National Standard (ANS)-based reference architecture (ANSI T1.111.5-1992) [43] has STPs deployed in mated pairs. Figure 6.9 shows a typical STP hierarchy that consists of:
   - Regional (remote) STPs, or RSTPs, which are directly connected to regional SCPs.
   - Local (home) STPs, or LSTPs, which route traffic between switching offices, and forward traffic to RSTPs for routing to an SCP.
   - Gateway STPs, either regional or local STP pairs, which interconnect different carriers' CCSNs and route signaling traffic between them.

   Note that an STP can serve both RSTP and LSTP functions. For simplicity, not all possible connections are shown in Figure 6.9.

According to ANSI T1.111.5-1992 [43], there are six categories of CCS link sets, Access (A), Bridge (B), Cross (C), Diagonal (D), Extended (E) and Fully-associated (F):

1. A-link sets connect SEPs (SSPs, CCSSOs and SCPs) to home STP pairs.
2. B-link sets connect STP pairs of the same hierarchical level within a network (e.g., local STP pair to local STP pair).

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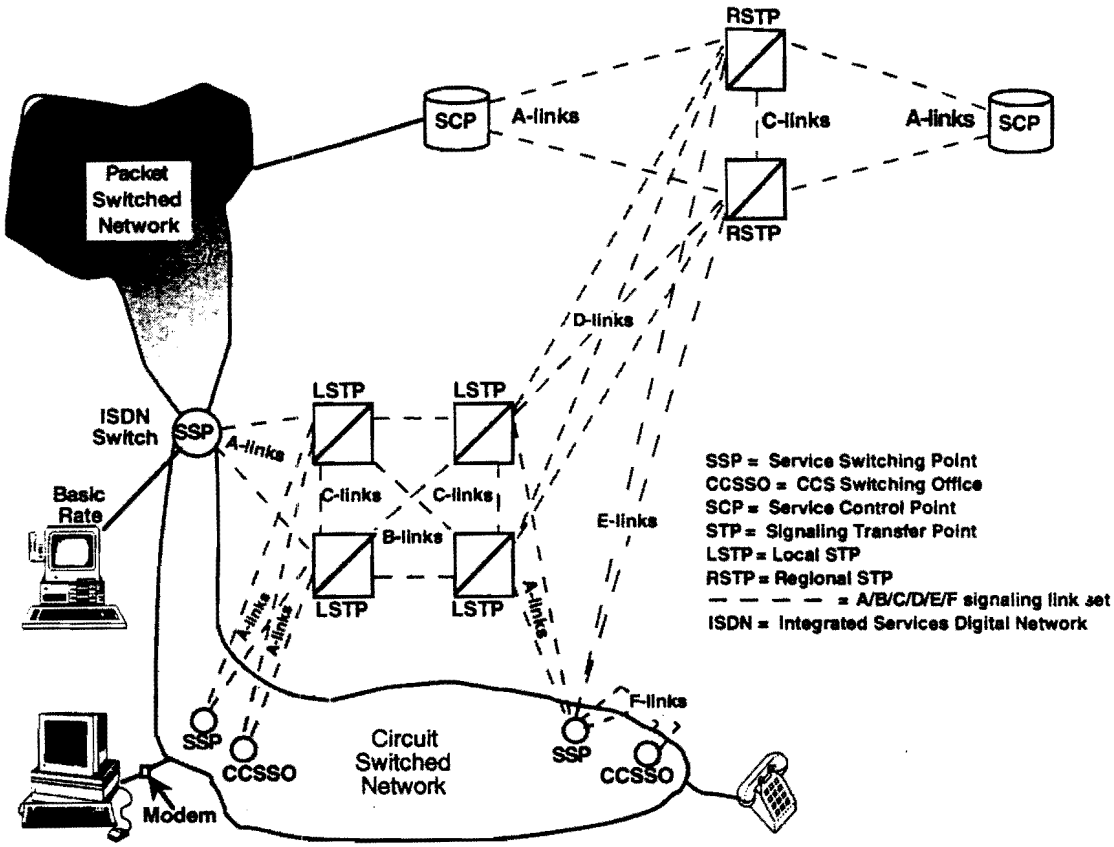

Figure 6.9: Relationship Between a CCSN and Other Traffic Networks

3. C-link sets connect the two mates in a mated STP pair. Under normal (no failure) conditions, they carry only network management messages.
4. D-link sets connect STP pairs of different hierarchical levels within a network (e.g., local STP pair to regional STP pair) or interconnect STP pairs of one network to STP pairs of a different network[15] (e.g., EC STP pair to IC STP pair).
5. E-link sets directly connect SEPs with remote STP pairs.
6. F-link sets directly connect SEPs which have a high community of interest.

A-link sets are deployed in pairs (such a pair is called a combined link set) from an SEP to its home mated STP pair. E-link sets are deployed in pairs (such a pair is called a combined link set) from an SEP to one or more remote mated STP pairs. B- and D-link sets are deployed in quads (one combined link set from each STP) between two sets of mated STP pairs, as per the ANS-based reference architecture.

[15] This terminology is based on agreements by T1S1.3 at its November 1992 meeting [50].

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In such cases, the CCSN traffic load is balanced among the available (non-failed) links within each of the A-, B-, D-, E- and F-link sets. Upon STP or link set failure, the entire load is routed onto the A-, B-, D-, E- and F-link sets which remain connected, or the C-link sets. In order for service layer diversity to be supported at the physical layer, (i) mated STPs and duplicated SCPs should be deployed at physically diverse equipment sites and (ii) paths using physically diverse equipment sites and facility routes are needed between the link sets in a combined A-link set, between the link sets in a combined E-link set, and within B- and D-link set quads.

Some networks may not comply with the ANS-based reference architecture (e.g., STPs in stand-alone, unmated configurations). Performance implications for such configurations are discussed in Section 7.4.1.3.

The basic mesh network segments used in CCSNs are [22, 43]:

- *user interface segments*, consisting of the SEP equipment which contains shared CCS message handling capabilities.
- *network access segments*, consisting of the SEP interfaces[16] with the A-link sets, the A-link set transport facilities, the STP interfaces with the A-link sets, and the portion of the STPs which contain shared CCS message handling capabilities.
- *backbone network segments*, consisting of the STP interfaces with the B-/D- and C-link sets, and the B-/D- and C-link set transport facilities.

Figure 6.10 illustrates a typical MTP arrangement of CCS basic mesh network segments. Given that sufficient link capacity has been provisioned so that all surviving links can carry the offered loads, such arrangements provide service layer survivability and limit service disruption due to: (i) any single failure in the network access segments or backbone network segments, and (ii) any double failure in the backbone network segments[17].

Some Survivability Techniques in the MTP layer include:

- dynamic rerouting after link and STP failures,
- congestion control mechanisms,
- graceful MTP restart procedures, and
- cluster routing procedures.

---

[16] Interfaces are those CCS message handling capabilities dedicated for one link.

[17] This implies that the four link sets composing a quad are provisioned with three-way diversity.

The MTP layer dynamically changes message routing to account for the changing availability of links and STPs. Congestion control procedures reduce traffic loads to links and STPs by throttling message generation at the sources. MTP restart procedures allow an STP to become available at the MTP layer without becoming overloaded with service and network management messages and processing. Cluster routing reduces the amount of routing information required in an STP, the amount of network management processing, and network management message transmission required if routes change their status (e.g., available to unavailable). Cluster routing may also benefit SEPs.

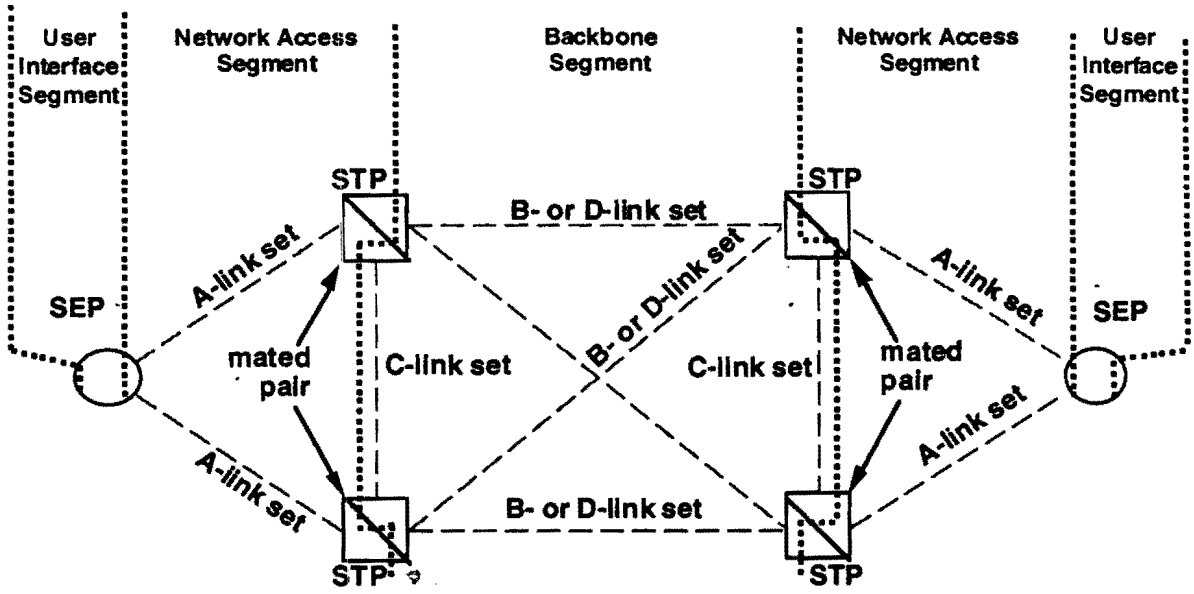

Figure 6.10: CCS Basic Mesh Network Segments

6.4.3.2 Service Layer Architecture for SCCP The SCCP provides additional network type functions to the MTP procedures. SCCP supports connectionless and connection-oriented services that are required for data transport between points. Connectionless service refers to data transport through the network without the set-up of a logical signaling connection, (datagram service). Connection-oriented service refers to data transport through the network using logical signaling connections (virtual circuits). The signaling links, STPs and SEPs may be combined in many different ways to form a "signaling network." Figure 6.11 gives an example of how the MTP signaling network of Figure 6.10 can be configured for SCCP.

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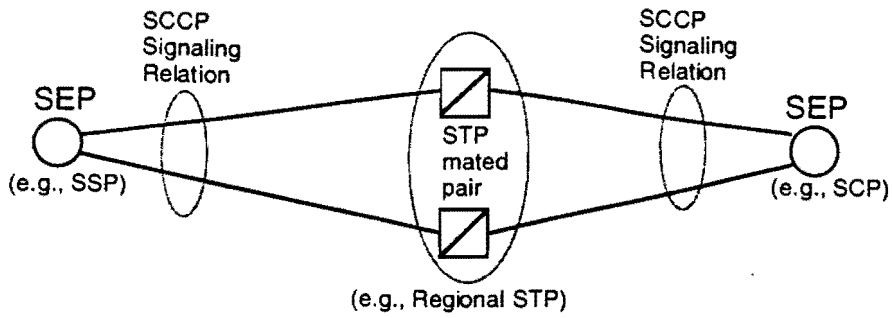

Figure 6.11: Example SCCP Signaling Network Structure

In the above figure an SCCP signaling relation exists between each SEP and the pair of STPs. The STP pair performs SCCP relay functions (e.g., Global Title Translation, or GTT).

Survivability Techniques in the SCCP layer include:

- backing up GTT to another STP pair,
- duplicating SCPs,
- load balancing between two SCPs,
- switching to backup SCPs, and
- using multiple MTP routes.

SCCP redundancy through multiple signaling relations between two signaling points can be achieved by equipping several STP pairs for GTTs. Load balancing between two SCPs spreads the impact of any traffic surges. When a data base fails in an SCP, SCCP can switch to use backup data bases in other SCPs. The impact of any changes to the MTP signaling network structure is diminished through the use of multiple MTP routes for some SCCP signaling relations.

6.4.3.3 Manual Traffic Management Controls In situations where the SS7 protocol may not provide protection against some failures or implementation error conditions, several manual traffic management controls are available and others have been proposed [20]. These manual network traffic management controls provide or will provide capabilities to render link sets unavailable to all message traffic, and to selectively block message traffic based on a number of selected MTP and SCCP attributes.

For example, one control would allow a network operator to cause links to become unavailable. This control could be used to isolate a signaling point from other signaling points or isolate one network from another.

6.4.3.4 Relationship of Software Diversity to CCSN Reliability With the increasing amount of software deployed in the CCSNs and its increasing complexity, software and its failure effects on the CCSN have become a major

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BST GUIDELINES TO TECHNICAL PUBLICATION GR-905-CORE

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1 Introduction

1.1 General

Telcordia document GR-905-CORE (GR-905) specifies the interfaces required to interconnect out-of-band Common Channel Signaling (CCS) networks that utilize the Signaling System Number 7 (SS7) protocol provided by a different CCS Network. The BST CCS Network will have its own particular architectural variations and technological capabilities. **Therefore, the intent of the BST Interconnection Guidelines document is to supplement GR-905.**

Interconnecting CCS Networks (ICNs) operating within BST include those associated with Interexchange Carriers (ICs), International Carriers (INCs), and Exchange Carriers (ECs). The primary audience of this document is the ICNs. The information is therefore focused on their needs. It is important to note the difference between GR-905 and other requirements documents. Other requirements address individual network elements and focus on the information needs of vendors who develop those elements. Familiarity with related requirements documents will be helpful in reading this document. Several are listed at the end of this section.

1.2 Purpose

The purpose of this document is to provide information required for interconnecting with the BST CCS network. This includes the interface architecture, interface protocol, messages, signals, conditions and events that occur for exchange of information between networks. Also described are the physical interconnection requirements, capabilities affecting the interface, performance objectives/requirements and interface provisioning.

The exchange of information between networks relates to **call control and call-related applications only** for this issue of the document. This information will be updated periodically with the evolution of supported capabilities.

1.3 Organization of the Document

This guidelines document consists of sections as follows:

Section 1 provides the introduction including the intended audience, the purpose, and the organization of the document, and a listing of related documents.

Section 2 describes the CCS network interconnection architecture within BST. The network architecture section describes the two types of signaling interface architectures considered (both of which are non-associated):

1. BST Signaling Transfer Points (STPs) to ICN STPs
2. BST STPs to ICN Signaling End Points (SEPs)

Section 3 describes the Initial Address Message (IAM) and defines the Integrated Services Digital Network User Part (ISUP) capabilities supported by BST. Features and options available to the ICNs for individual capabilities are listed.

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Section 4 describes the Signaling Connection Control Part (SCCP) protocol requirements for connectionless service, SCCP routing, and SCCP management.

Section 5 describes the Transaction Capabilities Application Part (TCAP) protocol requirements including a general description of TCAP procedures and formatting procedures.

Section 6 describes BST service offerings including CLASS[SM1] , LIDB, and Toll-Free Service.

Section 7 describes the impact of Local Number Portability (LNP) on call setup between BST and an ICN, and the routing of service related messages in an LNP environment.

Section 8 describes the operational guidelines for CCS link ordering/provisioning and link maintenance coordination.

Section 9 describes BST's performance objectives regarding network availability and reliability.

GLOSSARY provides acronym definitions.

APPENDIX A contains a list of FSPOI CLLI codes.

APPENDIX B contains a diagram of BST's GSTP architecture.

1.4 Related Documents

These BST Interconnection Guidelines are based upon, and should be read in conjunction with, Telcordia GR-905-CORE, which is fully consistent with other Telcordia requirement documents. The following are the related reference documents. Familiarity with these documents will be helpful. In particular, GR-246-CORE is strongly recommended as reference material. In addition to the interface specifications described in this document, the ICNs must be in conformance with the specifications in GR-246-CORE.

Independent Local Exchange Carrier (ILEC) interconnection arrangements have been cited specifically in section 5.1.7.2 of GR-905, for call control when the call is routed based only on the dialed number.

Related documents* are:

1. GR-317-CORE, Switching System Generic Requirements for Call Control Using the Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1997), plus revisions. (Scheduled to be reissued in November 1999).

2. GR-246-CORE, Specification of Signaling System Number 7, Issue 3, (Telcordia, December 1998). (Scheduled to be reissued in December 1999)

3. TR-NPL-000258, Compatibility Information for Feature Group D Switched Access Service, Issue 1, (Telcordia, October 1985).

[1] CLASS is a service mark of Telcordia Technologies

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4. GR-394-CORE, Switching System Generic Requirements for Interexchange Carrier Interconnection Using the Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1997), plus revisions. (Scheduled to be reissued in November 1999)

5. GR-82-CORE, Signaling Transfer Point Generic Requirements, Issue 2, (Telcordia, December 1996), plus revisions. (Scheduled to be reissued in December 1999)

6. FR-64, LATA Switching System Generic Requirements, (Telcordia, 1999 Edition).

7. GR-905-CORE, Common Channel Signaling (CCS) Network Interface Specification Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1996), plus revisions. (Scheduled to be reissued in December 1999)

8. GR-334-CORE, Switched Access Service: Transmission Parameter Limits and Interface Combinations, Issue 1 (Telcordia, June 1994).

9. GR-1357-CORE, Common Channel Signaling (CCS) Network Interface Specification Supporting Switched DS1/Switched Fractional DS1 Service Capability (SWF-DS1), Issue 1 (Telcordia, May 1999).

* For information regarding Telcordia documents, you may call Telcordia Customer Service at 1-800-521-2673 (voice), 1-732-699-5800 (voice), or 1-732-336-2559 (FAX). An online catalog is also available at *telecom-info.telcordia.com*.

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2 CCS NETWORK INTERCONNECTION ARCHITECTURE

2.1 General

2.1.1 Purpose

The purpose of this section is to provide the interconnecting network (ICN) with a description of the architectural layout of BST's CCS network and points of interconnection, as well as guidelines for ICN interconnection arrangements. ICNs as used in this document may refer to the CCS networks of the following types of telecommunications carriers: Interexchange Carriers (ICs), International Carriers (INCs), independent Local Exchange Carriers (LECs), Competitive Access Providers (CAPs), facilities-based Competitive Local Exchange Carriers (CLECs), Tandem Service Providers (TSPs), Other LATA Carriers (OLCs), Wireless Service Providers (WSPs), Signaling Transfer Point (STP) Hub Providers, Internet Service Providers (ISPs), and other, non-traditional telecommunications carriers, requiring SS7 signaling interconnection.

2.1.2 Interconnection Architecture Capabilities

The signaling interactions between the ICN and the BST CCS network will include:

- Exchange-access call control signaling for the control of circuit-switched trunks between BST's local exchange network and the carrier's network;
- ICN signaling access to data base services offered by BST, including:
  - 8XX Toll Free Data Base Service
  - Alternate Billing Services utilizing the BST Line Information Data Base (LIDB)
  - Local Number Portability (LNP) Location Routing Number translations.
- Access to BST's Signaling Transfer Points (STPs) on an unbundled basis by CLEC ICNs in BST's territory, as required by law.

2.1.3 Protocol Conformance

It is required that the ICN utilizes the North American version of Signaling System No. 7 (SS7) protocol as specified by ANSI standards in order to communicate with BST's CCS network. This protocol is specified in Telcordia Generic Requirements Document GR-246-CORE, *Telcordia Specification of Signaling System Number 7 (SS7).* In addition, the ICN is expected to comply with signaling network interface requirements specified in Telcordia GR-905-CORE, *Common Channel Signaling (CCS) Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP).*

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2.2 BST Network Architecture and ICN Interconnection Points

2.2.1 Points of Interconnection: BST Gateway STP (GSTP) Pairs

The points of signaling interconnection, at which ICN CCS networks connect to the BST CCS network, will be at BST-designated Gateway Signaling Transfer Point (GSTP) pairs. These GSTP pairs will be capable of supporting internetwork routing and gateway screening functions for incoming messages. All ICN signaling links must terminate at BST GSTP pairs.

Two major reasons for selecting the GSTPs as the ICN interconnection points to the BST network are as follows:

- The STP, in general, is a mid-point in the path of signaling message flow and performs the necessary routing of SS7 messages. Efficiency is achieved in message routing when access is provided to all nodes in the CCS network via a **few** interconnection points.

- The GSTP has the capability of screening incoming messages to see if they are destined for an appropriate address and are one of the allowed message types. Due to the power of the CCS network and the SS7 protocol, **network security** is a critical aspect in the interconnection of CCS networks.

BST currently maintains 6 GSTP mated pairs in its regional territory at which telecommunications carriers may interconnect their ICNs in order to access BST signaling end points and Service Control Point (SCP) data bases. These include GSTP pairs located in the following metropolitan areas:

- Atlanta, GA
- Birmingham, AL
- Greenville, SC
- Jacksonville, FL
- Nashville, TN
- West Palm Beach, FL

These GSTP pairs are interconnected via D-link set quads to local STP pairs through which exchange-access signaling traffic will be through-switched to originating or terminating BST Signaling End Point (SEP) CCS Switching Offices/Service Switching Points (CCS SOs/SSPs) within BST Local Access and Transport Areas (LATAs). BST regional SCP databases are also accessible via the GSTP pairs. Any carrier can have access to any (or all or any number of) BST SEPs and services via any GSTP pair or combination, subject to the following restrictions:

1. BST does not provide multiple paths to the same SEPs.
2. If BST does the final Global Title Translations (GTTs) for ICN access to the BST LIDB SCPs, then BST requires that the ICN be connected to the Atlanta GSTP pair.
3. Capacity constraints at the GSTP pair.

For a complete list of GSTP Common Language Location Identification (CLLI) codes please refer to Appendix A.

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2.2.2 ICN Signaling Interconnection Alternatives

BST will support two primary modes of ICN signaling interconnection to its GSTP pairs:

- via D-link-set quads from the ICN STP pairs, and
- via A-link-set pairs directly from ICN Signaling End Points (SEPs).

(Interconnection of ICN SEPs via E-link sets to alternate BST STP pairs is not offered at this time.)

2.2.2.1 BST STP To ICN STP Interconnection (Alternative 1)

This alternative, shown in Figure 1, uses the SS7 protocol and non-associated architecture. Signaling takes place via a path between the BST and ICN STPs. The BST and ICN signaling networks are interconnected by connecting the BST mated STP pair to the ICN mated STP pair via 56 Kbps digital transmission link facilities. Four link sets, each comprised of one or more D-links interconnect the ICN and BST STP pairs. The arrangement is referred to as a D-link quad. The BST and ICN signaling links meet at least one Signaling Point of Interconnection (SPOI).

In the BST CCS network every signaling point (SP) is connected via two signaling links called A-links to a mated STP pair. BST has established a hierarchy of STPs within its network. One level of STPs will provide signaling connectivity for a set of BST switching offices. Another (higher or "regional") level comprise the GSTPs which handle Internetwork ICN-BST signaling traffic and provide access to BST's regional Service Control Points (SCPs) (databases) used to provide 8XX Toll Free Data Base Service, Alternate Billing Service (ABS), etc.

Figure 1 assumes that the service is implemented with mated pairs of STPs in both the BST (designated A1 and A2) and ICN networks (designated B1 and B2) with four signaling links connecting the mated pairs of STPs as shown. At least three completely diverse links are required for interconnection of STP pairs to meet the SS7 reliability criterion.

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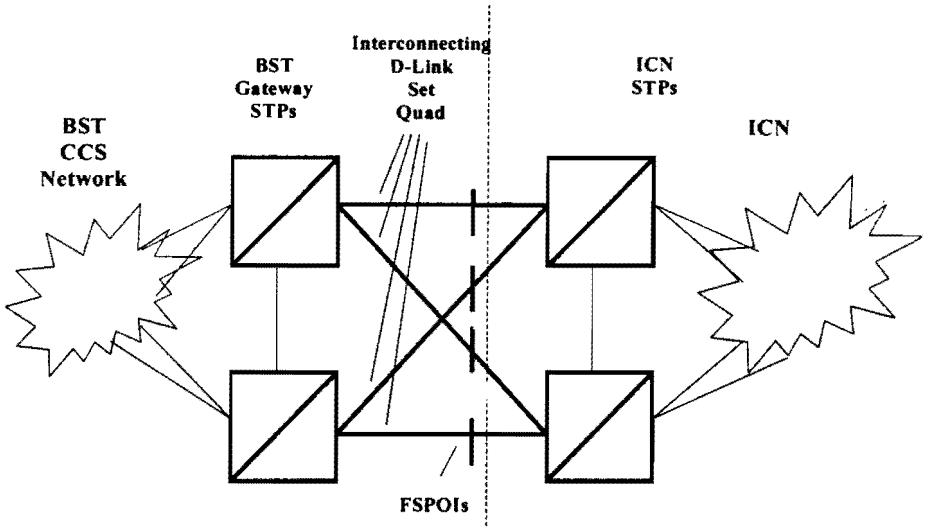

Figure 1 - BST STPs to ICN STPs Interconnection Architecture

2.2.2.2 BST STP To ICN Switch (CCS SO/SSP) Interconnection (Alternative 2)

This is a variation of the first alternative, as shown in Figure 2. The interface looks the same on the BST side, but is different on the ICN side, since it interfaces with the ICN switch (CCS SO/SSP) acting as a SEP.

In this case, interconnection is achieved by utilizing A-links (access links). A-links are installed in pairs from the ICN SEP with one link to each STP of the mated pair. These A-links should be provided on physically diverse routes.

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BST GUIDELINES TO TECHNICAL PUBLICATION GR-905-CORE

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1 Introduction

1.1 General

Telcordia document GR-905-CORE (GR-905) specifies the interfaces required to interconnect out-of-band Common Channel Signaling (CCS) networks that utilize the Signaling System Number 7 (SS7) protocol provided by a different CCS Network. The BST CCS Network will have its own particular architectural variations and technological capabilities. **Therefore, the intent of the BST Interconnection Guidelines document is to supplement GR-905.**

Interconnecting CCS Networks (ICNs) operating within BST include those associated with Interexchange Carriers (ICs), International Carriers (INCs), and Exchange Carriers (ECs). The primary audience of this document is the ICNs. The information is therefore focused on their needs. It is important to note the difference between GR-905 and other requirements documents. Other requirements address individual network elements and focus on the information needs of vendors who develop those elements. Familiarity with related requirements documents will be helpful in reading this document. Several are listed at the end of this section.

1.2 Purpose

The purpose of this document is to provide information required for interconnecting with the BST CCS network. This includes the interface architecture, interface protocol, messages, signals, conditions and events that occur for exchange of information between networks. Also described are the physical interconnection requirements, capabilities affecting the interface, performance objectives/requirements and interface provisioning.

The exchange of information between networks relates to **call control and call-related applications only** for this issue of the document. This information will be updated periodically with the evolution of supported capabilities.

1.3 Organization of the Document

This guidelines document consists of sections as follows:

Section 1 provides the introduction including the intended audience, the purpose, and the organization of the document, and a listing of related documents.

Section 2 describes the CCS network interconnection architecture within BST. The network architecture section describes the two types of signaling interface architectures considered (both of which are non-associated):

1. BST Signaling Transfer Points (STPs) to ICN STPs
2. BST STPs to ICN Signaling End Points (SEPs)

Section 3 describes the Initial Address Message (IAM) and defines the Integrated Services Digital Network User Part (ISUP) capabilities supported by BST. Features and options available to the ICNs for individual capabilities are listed.

Section 4 describes the Signaling Connection Control Part (SCCP) protocol requirements for connectionless service, SCCP routing, and SCCP management.

Section 5 describes the Transaction Capabilities Application Part (TCAP) protocol requirements including a general description of TCAP procedures and formatting procedures.

Section 6 describes BST service offerings including CLASS[SM1] , LIDB, and Toll-Free Service.

Section 7 describes the impact of Local Number Portability (LNP) on call setup between BST and an ICN, and the routing of service related messages in an LNP environment.

Section 8 describes the operational guidelines for CCS link ordering/provisioning and link maintenance coordination.

Section 9 describes BST's performance objectives regarding network availability and reliability.

GLOSSARY provides acronym definitions.

APPENDIX A contains a list of FSPOI CLLI codes.

APPENDIX B contains a diagram of BST's GSTP architecture.

1.4 Related Documents

These BST Interconnection Guidelines are based upon, and should be read in conjunction with, Telcordia GR-905-CORE, which is fully consistent with other Telcordia requirement documents. The following are the related reference documents. Familiarity with these documents will be helpful. In particular, GR-246-CORE is strongly recommended as reference material. In addition to the interface specifications described in this document, the ICNs must be in conformance with the specifications in GR-246-CORE.

Independent Local Exchange Carrier (ILEC) interconnection arrangements have been cited specifically in section 5.1.7.2 of GR-905, for call control when the call is routed based only on the dialed number.

Related documents* are:

1. GR-317-CORE, Switching System Generic Requirements for Call Control Using the Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1997), plus revisions. (Scheduled to be reissued in November 1999).

2. GR-246-CORE, Specification of Signaling System Number 7, Issue 3, (Telcordia, December 1998). (Scheduled to be reissued in December 1999)

3. TR-NPL-000258, Compatibility Information for Feature Group D Switched Access Service, Issue 1, (Telcordia, October 1985).

[1] CLASS is a service mark of Telcordia Technologies

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4. GR-394-CORE, Switching System Generic Requirements for Interexchange Carrier Interconnection Using the Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1997), plus revisions. (Scheduled to be reissued in November 1999)

5. GR-82-CORE, Signaling Transfer Point Generic Requirements, Issue 2, (Telcordia, December 1996), plus revisions. (Scheduled to be reissued in December 1999)

6. FR-64, LATA Switching System Generic Requirements, (Telcordia, 1999 Edition).

7. GR-905-CORE, Common Channel Signaling (CCS) Network Interface Specification Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP), Issue 2, (Telcordia, December 1996), plus revisions. (Scheduled to be reissued in December 1999)

8. GR-334-CORE, Switched Access Service: Transmission Parameter Limits and Interface Combinations, Issue 1 (Telcordia, June 1994).

9. GR-1357-CORE, Common Channel Signaling (CCS) Network Interface Specification Supporting Switched DS1/Switched Fractional DS1 Service Capability (SWF-DS1), Issue 1 (Telcordia, May 1999).

* For information regarding Telcordia documents, you may call Telcordia Customer Service at 1-800-521-2673 (voice), 1-732-699-5800 (voice), or 1-732-336-2559 (FAX). An online catalog is also available at *telecom-info.telcordia.com*.

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2 CCS NETWORK INTERCONNECTION ARCHITECTURE

2.1 General

2.1.1 Purpose

The purpose of this section is to provide the interconnecting network (ICN) with a description of the architectural layout of BST's CCS network and points of interconnection, as well as guidelines for ICN interconnection arrangements. ICNs as used in this document may refer to the CCS networks of the following types of telecommunications carriers: Interexchange Carriers (ICs), International Carriers (INCs), independent Local Exchange Carriers (LECs), Competitive Access Providers (CAPs), facilities-based Competitive Local Exchange Carriers (CLECs), Tandem Service Providers (TSPs), Other LATA Carriers (OLCs), Wireless Service Providers (WSPs), Signaling Transfer Point (STP) Hub Providers, Internet Service Providers (ISPs), and other, non-traditional telecommunications carriers, requiring SS7 signaling interconnection.

2.1.2 Interconnection Architecture Capabilities

The signaling interactions between the ICN and the BST CCS network will include:

- Exchange-access call control signaling for the control of circuit-switched trunks between BST's local exchange network and the carrier's network;
- ICN signaling access to data base services offered by BST, including:
  - 8XX Toll Free Data Base Service
  - Alternate Billing Services utilizing the BST Line Information Data Base (LIDB)
  - Local Number Portability (LNP) Location Routing Number translations.
- Access to BST's Signaling Transfer Points (STPs) on an unbundled basis by CLEC ICNs in BST's territory, as required by law.

2.1.3 Protocol Conformance

It is required that the ICN utilizes the North American version of Signaling System No. 7 (SS7) protocol as specified by ANSI standards in order to communicate with BST's CCS network. This protocol is specified in Telcordia Generic Requirements Document GR-246-CORE, *Telcordia Specification of Signaling System Number 7 (SS7).* In addition, the ICN is expected to comply with signaling network interface requirements specified in Telcordia GR-905-CORE, *Common Channel Signaling (CCS) Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP).*

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2.2 BST Network Architecture and ICN Interconnection Points

2.2.1 Points of Interconnection: BST Gateway STP (GSTP) Pairs

The points of signaling interconnection, at which ICN CCS networks connect to the BST CCS network, will be at BST-designated Gateway Signaling Transfer Point (GSTP) pairs. These GSTP pairs will be capable of supporting internetwork routing and gateway screening functions for incoming messages. All ICN signaling links must terminate at BST GSTP pairs.

Two major reasons for selecting the GSTPs as the ICN interconnection points to the BST network are as follows:

- The STP, in general, is a mid-point in the path of signaling message flow and performs the necessary routing of SS7 messages. Efficiency is achieved in message routing when access is provided to all nodes in the CCS network via a **few** interconnection points.

- The GSTP has the capability of screening incoming messages to see if they are destined for an appropriate address and are one of the allowed message types. Due to the power of the CCS network and the SS7 protocol, **network security** is a critical aspect in the interconnection of CCS networks.

BST currently maintains 6 GSTP mated pairs in its regional territory at which telecommunications carriers may interconnect their ICNs in order to access BST signaling end points and Service Control Point (SCP) data bases. These include GSTP pairs located in the following metropolitan areas:

- Atlanta, GA
- Birmingham, AL
- Greenville, SC
- Jacksonville, FL
- Nashville, TN
- West Palm Beach, FL

These GSTP pairs are interconnected via D-link set quads to local STP pairs through which exchange-access signaling traffic will be through-switched to originating or terminating BST Signaling End Point (SEP) CCS Switching Offices/Service Switching Points (CCS SOs/SSPs) within BST Local Access and Transport Areas (LATAs). BST regional SCP databases are also accessible via the GSTP pairs. Any carrier can have access to any (or all or any number of) BST SEPs and services via any GSTP pair or combination, subject to the following restrictions:

1. BST does not provide multiple paths to the same SEPs.
2. If BST does the final Global Title Translations (GTTs) for ICN access to the BST LIDB SCPs, then BST requires that the ICN be connected to the Atlanta GSTP pair.
3. Capacity constraints at the GSTP pair.

For a complete list of GSTP Common Language Location Identification (CLLI) codes please refer to Appendix A.

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2.2.2 ICN Signaling Interconnection Alternatives

BST will support two primary modes of ICN signaling interconnection to its GSTP pairs:

- via D-link-set quads from the ICN STP pairs, and
- via A-link-set pairs directly from ICN Signaling End Points (SEPs).

(Interconnection of ICN SEPs via E-link sets to alternate BST STP pairs is not offered at this time.)

2.2.2.1 BST STP To ICN STP Interconnection (Alternative 1)

This alternative, shown in Figure 1, uses the SS7 protocol and non-associated architecture. Signaling takes place via a path between the BST and ICN STPs. The BST and ICN signaling networks are interconnected by connecting the BST mated STP pair to the ICN mated STP pair via 56 Kbps digital transmission link facilities. Four link sets, each comprised of one or more D-links interconnect the ICN and BST STP pairs. The arrangement is referred to as a D-link quad. The BST and ICN signaling links meet at least one Signaling Point of Interconnection (SPOI).

In the BST CCS network every signaling point (SP) is connected via two signaling links called A-links to a mated STP pair. BST has established a hierarchy of STPs within its network. One level of STPs will provide signaling connectivity for a set of BST switching offices. Another (higher or "regional") level comprise the GSTPs which handle Internetwork ICN-BST signaling traffic and provide access to BST's regional Service Control Points (SCPs) (databases) used to provide 8XX Toll Free Data Base Service, Alternate Billing Service (ABS), etc.

Figure 1 assumes that the service is implemented with mated pairs of STPs in both the BST (designated A1 and A2) and ICN networks (designated B1 and B2) with four signaling links connecting the mated pairs of STPs as shown. At least three completely diverse links are required for interconnection of STP pairs to meet the SS7 reliability criterion.

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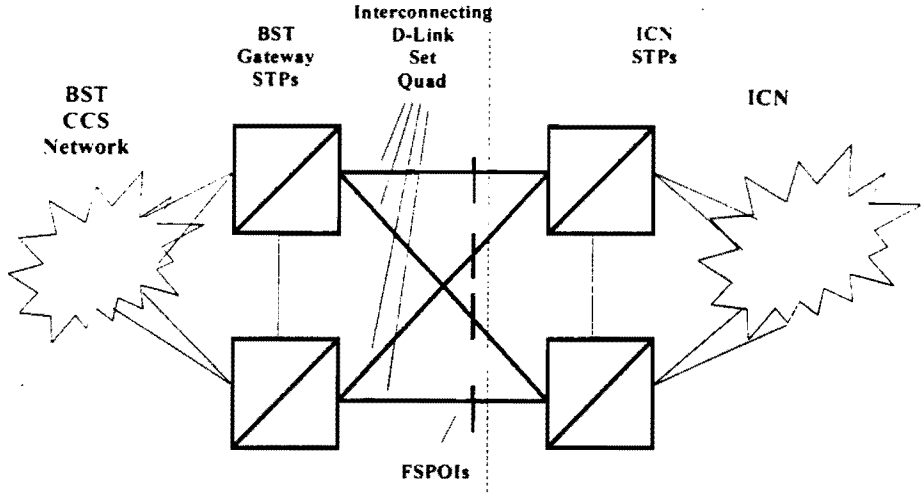

Figure 1 - BST STPs to ICN STPs Interconnection Architecture

2.2.2.2 BST STP To ICN Switch (CCS SO/SSP) Interconnection (Alternative 2)

This is a variation of the first alternative, as shown in Figure 2. The interface looks the same on the BST side, but is different on the ICN side, since it interfaces with the ICN switch (CCS SO/SSP) acting as a SEP.

In this case, interconnection is achieved by utilizing A-links (access links). A-links are installed in pairs from the ICN SEP with one link to each STP of the mated pair. These A-links should be provided on physically diverse routes.

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concern. Because software engineering is a process susceptible to human error, no program can be guaranteed to perform as expected. The software "bug" contributing to the 1991 CCSN outages, which affected a large number of customer lines, has underscored the vulnerability of CCSNs to software failures.

Potential alternatives related to CCSN reliability are included in the following paragraphs. These potential alternatives are included here because they are being discussed in the industry; however, the validity of these and other potential alternatives is not known and requires further investigation. In addition, some of these potential alternatives may not be viable.

Four alternatives are identified here: i) multiple software developments in STPs, ii) different software generics for backup, iii) mixed-supplier STP pairs, and iv) E-links to different suppliers' STPs. This Technical Report considers mixed-supplier STP pairs to be the least viable of these alternatives.

The *advantages and disadvantages (or concerns)* of these alternatives to ensure software diversity *should be weighed* by individual telecommunications network providers. For example, the prevalence of correlated software failure modes, the cost of deploying these alternatives, as well as the service and revenue lost by correlated software failures should be carefully considered and analyzed. These and the other concerns expressed below are not exhaustive listings, but rather catalysts for further discussion and standards contributions.

i) Multiple software developments in STPs: Software generics meeting the same requirements could be developed by two different teams from a single supplier (i.e., not identical copies). These two developments would reside on the two STPs of a mated pair and would help ensure the software failure mode independence between the two STPs in the mated pair.

Following are some of the concerns related to this alternative:

- The additional resources required for multiple software development and the associated costs concern both suppliers and network providers. These additional costs would probably be reflected in the prices network providers pay for these products, and would also continue for each new generic.
- Although the processes for multiple software developments may be separate, many faults may result from the fact that the requirements/specification stage is usually the same.
- Uniformity in features, capabilities, user interfaces, etc. between the two software developments is extremely important. In other words, multiple developments of the software have to be totally transparent to the users.

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ii) Different software generics for backup: The same software could be used in both STPs as the current implementation, and a different software generic (e.g., an older version) could be used for backup. For example, when certain thresholds are exceeded or phenomena observed, an older generic would be loaded into the STPs.

The following are some of the concerns with this alternative:

- Based on the current understanding of the behavior of the CCS network, the measurements to be used and the phenomena to indicate major problems can not be clearly defined. It is therefore extremely difficult to decide what conditions should exist before loading the STPs with a backup generic.
- The procedures to reboot and reload the STPs under the failing conditions and the problems which may occur in transition need to be carefully evaluated. Without detailed procedures to ensure smooth transitions, many problems may occur.
- Incompatibilities may exist between newer and older generics and less capabilities may be offered by the previous generics.

iii) Mixed-supplier STP pairs: It has been suggested that mixed-supplier STPs in a mated pair configuration may protect against failure conditions propagating between the mates, because the failure modes of the two mates may be independent for both hardware and software.

The following are some of the problems to be resolved with this alternative:

- The lower-capacity STP in the mated pair becomes the limiting factor. Furthermore, the CCSN supported by the mixed-supplier STP pair would suffer the shortcomings (capacity, recovery, etc.) of both pairs.
- If all interoperability issues are not resolved and thoroughly tested, and deployment is not well coordinated, introducing a different supplier's STP to an existing mated STP pair would risk end-office isolations or mate STP outages.
- OA&M and Provisioning:
  - the OA&M and provisioning functions of each mate STP would have differing requirements that would create problems within the respective support areas. These problems include: link growth and activation, making routing data changes and, in particular, systems support during critical network outages.
  - If all of the activities and differences between each STP in the mated pair are not well understood, then additional exceptional (e.g., interoperability) training of operations personnel is required. Lack of such training would jeopardize the survivability of the CCSN.
  - Additional, separate data administration may be required, and any inconsistencies between mate STPs would cause confusion.

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- Troubleshooting mixed-supplier STP mated pair failures would be extremely difficult with the two suppliers' technical support organizations.
- System initialization procedures may have designed capabilities that facilitate operation when the mate STP is from the same supplier.
- There may be feature differences between mixed-supplier STP mated pairs which would cause inconsistencies. Timing of feature introduction would also be different with the two suppliers.

- Comprehensive conformance testing needs to be undertaken (e.g., to ensure that the STPs do not send or depend on proprietary C-link messages during recovery).

iv) E-links to different suppliers' STPs: In addition to the two A-link sets to the home STP pair, E-links could be deployed to a remote STP pair of a different supplier [28] (see Figure 6.12). This architecture provides alternate access for SEPs to the rest of the CCSN and also helps ensure software and hardware failure mode independence. This architecture will improve the availability of the network access segment as well as bypass problems that occur in the home STP pair or the quad links. Various levels of diversity implemented in E-links (e.g., diversity between E- and A-links) may lead to different levels of reliability improvement. The benefits of E-links, which increase the diversity and redundancy of the CCSN, do not depend on the provisioning of different supplier STP pairs in the network.

The following are some of the concerns with this alternative:

- In the case where the E-links are deployed to a pair of STPs from a different supplier, all of the functions and features available at the home STP pair may not be available at the remote STP pair. This may cause capabilities which might otherwise be offered on one STP pair to be delayed until the supplier of the other STP pair develops the software generics to support those capabilities.
- If E-links are deployed, more routing options exist and therefore, routing tables will be more complex in both switches and STPs. Additional effort may be needed to administer and maintain the routing table databases. Furthermore, much more memory will be needed at the switches and STPs to support the additional routing and translation table information.
- The remote STP pair would have to handle the entire traffic load if the home STP pair becomes inaccessible. As a result, additional throughput and link ports are required at the remote STP pairs to handle the traffic and links from the SEPs when E-links are deployed. This may force rehoming and reengineering the network more frequently.

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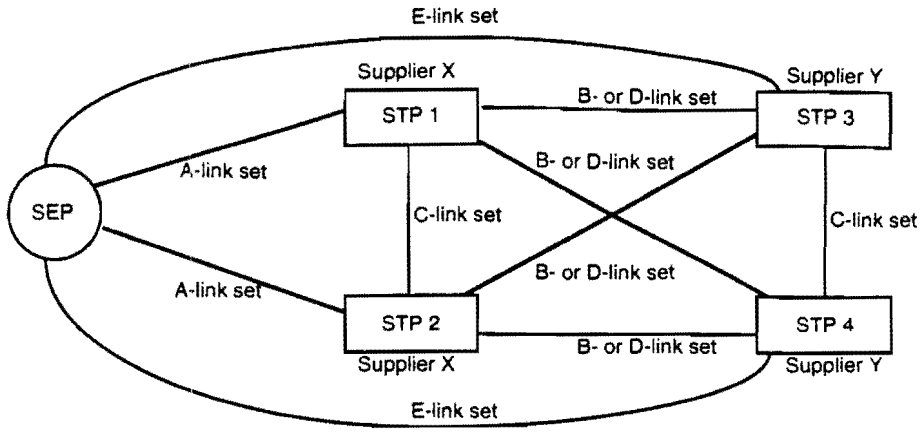

Figure 6.12: E-Link sets to a Remote STP Pair of a Different Supplier

The above four alternatives, in addition to others, should be considered in future discussion and standards contributions addressing software diversity and CCSN reliability improvement. These alternatives are intended to ensure software failure mode independence of the STPs so that correlated software failures will not result in a major network outage.

6.5 Integrated Techniques Some integrated techniques include networks that have combinations of DCSs, automatic protection switching and self-healing rings. A few of these are summarized below:

- A subnetwork combining DCS restoration and point-to-point systems using APS with diverse routing, where the spare bandwidth for the DCS rerouting method can access the spare paths of the APS systems that are reserved for their protection channels (e.g., Figure 6.13). Among other methods, this can be accomplished by having direct optical interfaces into the DCSs for the APS systems.
- Combinations of many intersecting (including overlapping) self-healing rings covering the network:
  - traffic between rings is cross-connected via the low-speed ports of DCSs and Add-Drop Multiplexers (ADMs, see Figure 6.14), (A device which processes signals for combination and decombination purposes) and
  - the self-healing rings intersect via DCSs with integrated high-speed or fiber interfaces (see Figure 6.15). The DCS plays the role of ADM for all the intersecting rings at that office, as well as cross-connecting traffic between rings.
- Self-healing rings lie on the perimeter of the network and intersect with the core, mesh subnetwork of DCSs (see Figure 6.16). Failures within the mesh are protected by DCS restoration methods. The rings may either intersect the DCSs with integrated high-speed or fiber interfaces or the traffic among

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the rings and DCS mesh are cross-connected via low-speed ports of the DCSs and ADMs.

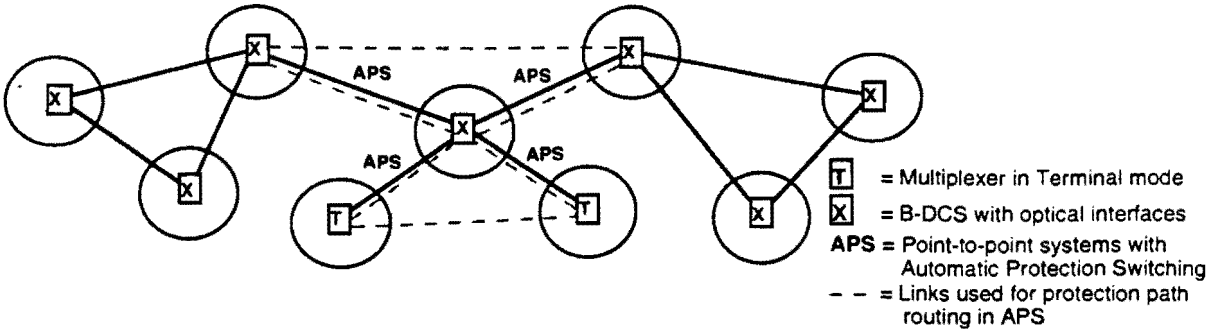

Figure 6.13: Integrated Point-to-Point Systems and DCSs

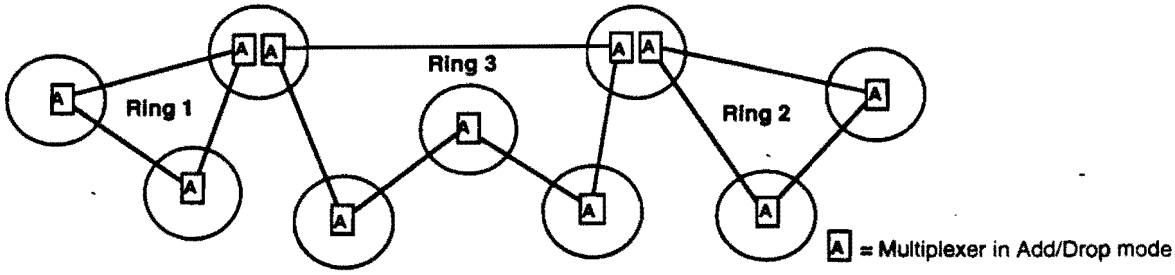

Figure 6.14: Intersecting Self-Healing Rings

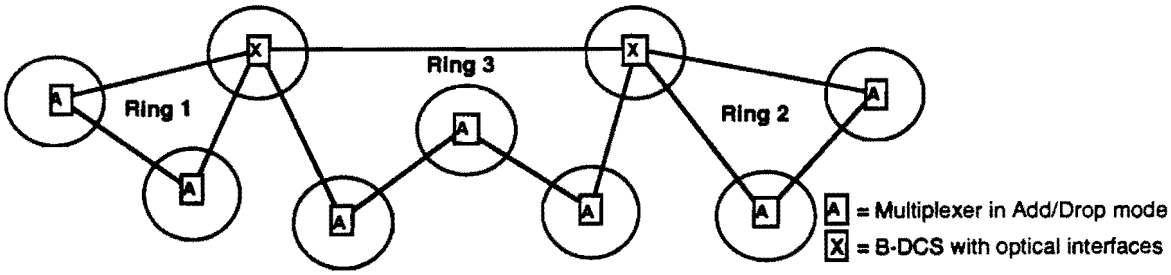

Figure 6.15: Integrated Self-Healing Rings and DCSs

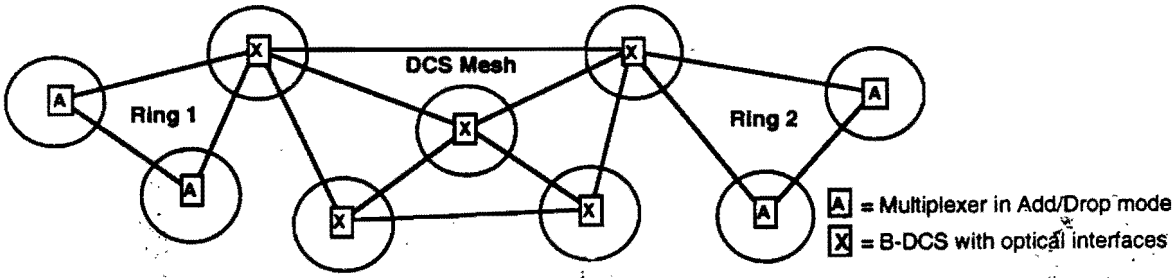

Figure 6.16. DCS Mesh Ring

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7. Network Survivability Performance Analysis

7.1 Network Survivability Characterization For the purpose of a network survivability performance study, the general framework defined in Section 5 can be used and the network can be partitioned into the following four network survivability layers: service, logical, system and physical. For each layer, a set of measurements can be defined and their characteristics can be modeled.

There are many ways to characterize network survivability and define survivability measurements. Using survivability measurements, one can formulate models and then define relevant measures such as traffic survivability ratio, service connectivity ratio, average network downtime, etc., that can be used to estimate the survivability performance of a real or hypothetical network. Table 7.1 lists some network survivability measurements for the four network survivability layers.

Layers	Examples of Survivability Measurements
Service	end-to-end grade of service, number of calls, number of connected subscribers, traffic volume, carried load, packet throughput, utilization
Logical	number of surviving lower-rate transmission channels (DS-1s, or DS-3s), connectivity
System	number of surviving transmission systems
Physical	building integrity, connectivity and number of surviving cables

Table 7.1: Examples of Network Survivability Measurements

7.2 Network Survivability Analysis Models There are two basic approaches to survivability analysis defined here. The first, the Given Occurrence of Failure (GOF) survivability analysis model, uses a conditional approach and defines survivability measures for a network assuming that given failure(s) have occurred. This GOF model may either use probabilistic weighting of the resulting states of the network and resulting network restoration and/or repair after the failure or it may use deterministic analysis of these states. Both approaches can be used to evaluate different restoration, repair or preventative methods depending on which type of comparison characteristics are critical.

The second survivability analysis model, the Random Occurrence of Failure (ROF) model, uses probability of network failure(s) and, possibly, rates of repair and/or restoration to calculate various probabilistic measures of network unavailability or loss (e.g., the expected amount of time a network is unservable).

7.2.1 Given Occurrence of Failure Survivability Model In the GOF survivability model, it is assumed disaster has already occurred and a given

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element (or elements) of the network has already failed. Hence, from a modeling point of view, the occurrence of a given failure is assumed. Users often phrase their survivability requirements in terms of which types of failure they want their traffic protected from, and what proportion of the traffic should survive. The general procedure for evaluating GOF measures is as follows (see also [26]):

1. define a survivability measurement (see Table 7.1),
2. identify the sample space (i.e., the failures that can occur),
3. choose the failures of interest, and
4. calculate the network survivability measures.

7.2.2 Random Occurrence of Failure Survivability Model The ROF survivability model is a general form of the well known availability model. This model is based on the assumption that failures can be characterized by random variables with given probability distribution functions. The general procedure for evaluating availability based network survivability measures is as follows:

1. obtain observed rates of failure and repair/restoration,
2. define network survivability measurements of interest,
3. identify the network state space (i.e., the various states in which a network can reside concerning whether its components are working or failed),
4. determine the survivability measurement for each network state,
5. determine or assign the transitional probability from each state to another, and
6. calculate the network survivability measures (e.g., the expected units lost or unservable over time).

Note: Step 6 is often a very complex task and sometimes impossible to evaluate exactly in networks.

7.2.3 Application of GOF and ROF Models The above two survivability models can be applied to develop performance measures for all four survivability layers. For example, the fraction of buildings remaining after a hurricane of a specified strength and extent is a survivability attribute for the physical layer. The measures used in system and logical layers are usually based on a static traffic model, i.e., the traffic is assumed to change over a long interval of time, an assumption that may be inappropriate for higher network layers (e.g., a service layer network).

In both the ROF and GOF models, it is important to first specify what measurements of the network to capture, then to obtain the survivability measures

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using procedures summarized in Section 7.2. To clarify the application of the models, more discussion on their measures follows.

7.3 GOF Network Survivability Measures In the GOF model, a selected measurement, say x, of the network can be quantified, such as in Figure 7.1, failure of x occurs at time t_0 and the following survivability attributes can be defined:

- S_a the fraction of x that remains after failure has happened and before restoration starts (1-U),
- S_u the fraction of x unservable after failure has happened and before restoration starts (U),
- S_r the fraction of x that is restored at t_1,
- t_0 the time the failure occurs,
- t_r the duration required until fraction S_a+S_r of x is restored, and
- t_R the duration required until all of x (t_2) is restored (D).

In general, S_a, S_u, S_r, t_r and t_R are random variables depending on network topology, type of failure, restoration techniques, etc.

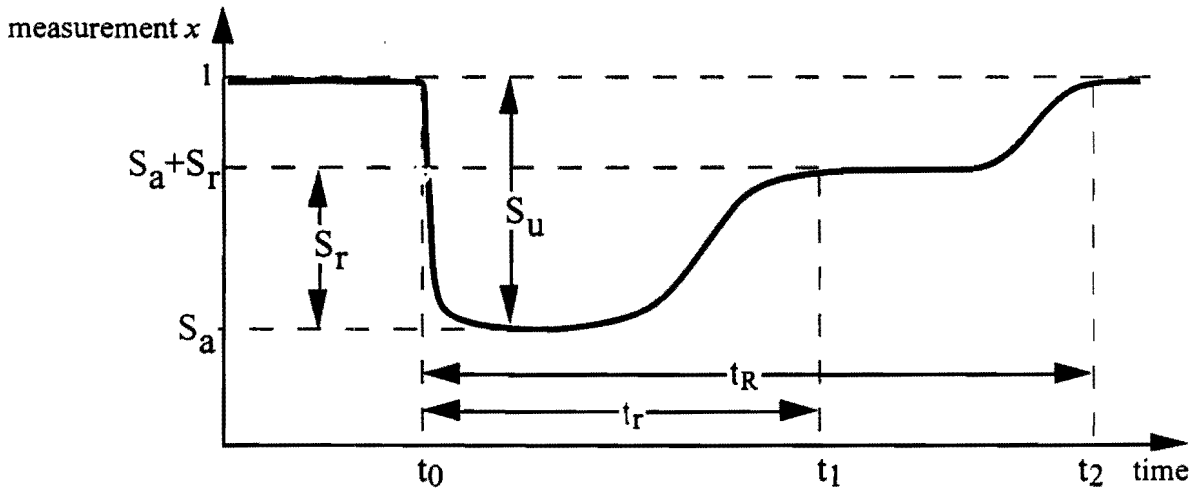

Figure 7.1: Survivability Attributes

Using the three main survivability attributes, S_a, S_r, and t_r defined above, the survivability of a network for a given "measurement" can be characterized. In general, these attributes are random variables, and each one has a probability (frequency or distribution) function.

A number of different quantities of interest can be derived, each capturing a particular network characteristic. For instance, for S_a, S_r, and t_r, we can obtain the

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expected values, the worst-case values, the *p*-percentile values, and the probability of zero. Note that each measure captures a different aspect of network survivability. Two examples on network survivability analysis and assessment based on the GOF model are given in Appendix B.

7.3.1 Service Layer Examples

Service Outage Performance Based on Traffic Blocking
Traffic blocking level can be used as a survivability measurement in circuit switched network survivability analysis. In this case, the survivability parameter can be the "relative average traffic blocking level." Many grades of availability could be defined, in terms of various blocking levels and the duration of such blocking. The basic two states are defined as Acceptable (no service outage) and Unacceptable (service outage) as shown in Figure 7.2.

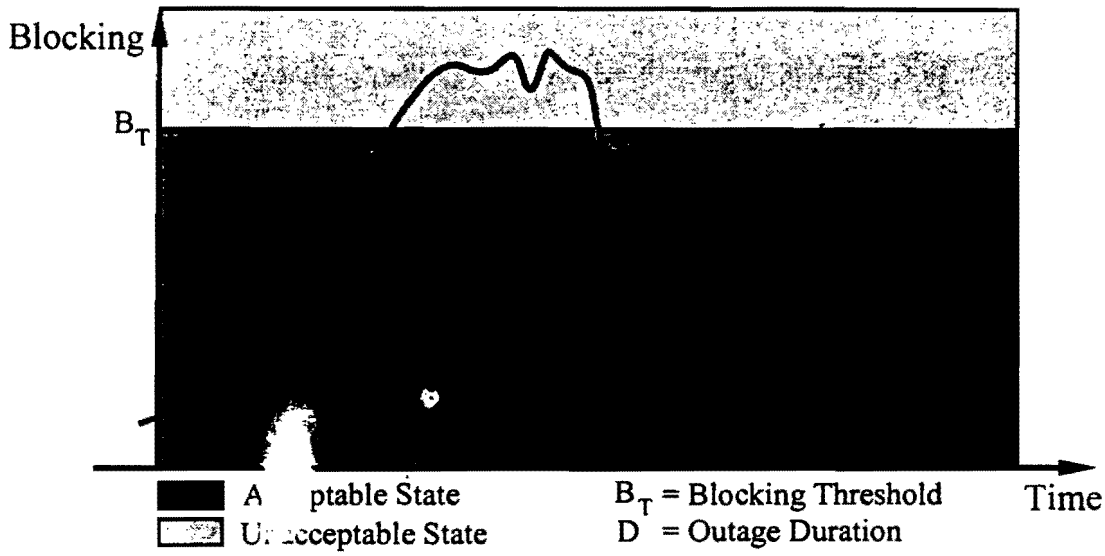

Figure 7.2: Two-State Traffic Model

The acceptable state can be defined as the case where the blocking is less than some specified level, B_T. The threshold of B_T could be the engineered blocking, or some higher level. The cause of blocking may be network failure conditions (capacity loss) as well as overload situations (demand increase).

The unacceptable state can be defined as the case where blocking exceeds the blocking threshold B_T. The Service Outage Time, D is defined to be the interval between the point where blocking exceeds the threshold B_T, and the first point where blocking drops below B_T. The blocking threshold which defines the transition between the two states can be determined on the basis of specific user group requirements and objectives. Although a two-state model is defined here, other states can be defined, including marginal states of acceptability. For

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example, a network manager may define other states which will allow more refined actions.

We will relate the blocking survivability parameter to the network failure impact categories in Section 5.2. Given a failure, three parameters, U, D and E are used to classify the magnitude of the service failure. Here, U is the load-weighted percentage of point-to-points whose blocking exceeds the threshold B_T, D is the maximum duration for which all point-to-points included in that percentage exceed the threshold, and E is the set of point-to-points considered. For example, if the combination of U, D and E is within the proper qualifying region as defined in Section 4, then a catastrophic service outage has occurred for this user group.

User Lost Erlang
The User Lost Erlang (ULE) measure proposed in [33], is a single dimensional measure of service outages. Single dimensional measures are not adequate to capture the three essential parameters of an outage (unservability, duration and extent). For example, under the ULE measure a 30 million access line Interexchange network with a loss of one million Erlangs over six minutes is equated with a one million access line EC (Exchange Carrier) network with a loss of ten thousand Erlangs over ten hours.

7.3.2 Logical and System Layer Examples

Restoration Time
Given a network failure, the restoration time is the time from loss of first working signal until the time the last signal is restored by the restoration method. Note that depending on various types of failures (e.g., node failure) and network configurations, it is possible that not all lost signals can be restored. Also, restoration times of different methods must be compared at the same level of restoration, i.e., over similar networks with the same number of lost and restored signals.

Consistent with Section 6, restoration time can be generally broken into the following phases:

1. *Detection time*: the time from loss of first signal until the restoration method detects the loss or alarm.
2. *Notification time*: the time required to notify the control architecture of the failure.
3. *Identification* of failed signals.
4. *Path selection time*: the time required to obtain alternate paths for lost signals (by data look-up or algorithm).

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5. *Rerouting time*: the time required to complete all cross-connects or switching to alternate paths.

Impacts of restoration time on various network services can be found in Appendix D.

Verification Time
In addition to restoration time, practical implementation of most restoration methods will verify their operation. Verification time is defined to be the time required to verify successful cross-connection or switching by an operations system, network controller, or network element. In some methods, the verification process starts after the last signal is restored, while in others it occurs in parallel with the restoration process.

Verified Restoration Time
While the verification time is not strictly included in the restoration time definition, its implementation can vary widely across restoration methods and its measure can be important for the performance evaluation of different restoration methods. Therefore, a combined measure is defined here. Given a network failure, verified restoration time is defined to be the time from the loss of the first working signal until the time the last signal is restored and verified.

Restoration Ratio
Given a set of simultaneous network failures, the restoration ratio is x/y, where x is the number of signals restored by the restoration method and y is the number of signals that were lost because of the network failure. This measure is used to compare two similar restoration methods on equivalent networks, i.e., with the same nodes and links, the same amount of working signals, the same amount of spare capacity, and the same amount of lost signals, x. An aggregate restoration ratio can also be calculated by averaging the restoration ratio over a given set of non-simultaneous failures (e.g., all possible single link failures or all single node failures or both).

Given the failure set, a restoration method can also be compared against the optimal ratio, i.e., the maximum restoration ratio for a given network. Note that in some cases the maximum ratio may be intractable to compute. For example, with DCS reconfiguration methods, if a *link* rerouting method is used (see Section 6.3.1 for definitions), the theoretical maximum number of signals that can be restored for any single link failure by using any link rerouting method is the solution to a maximum "flow" problem (in optimization terminology) between the two end points of the failed link. This is, generally, an easy problem to solve. However, if *point-to-point* rerouting methods are used, then this theoretical maximum number is at least as large as that of link rerouting methods, but computing the theoretical

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maximum number of signals that can be restored by using point-to-point rerouting methods is, in general, an intractable problem.

Efficiency Ratio
Given a possible set of non-simultaneous failures in a network (e.g., all possible single link failures), the efficiency ratio is defined to be how much spare signal capacity is necessary to guarantee maximum restoration over all possible network failures, expressed as a ratio = *number of spare signals / number of working signals*. Note that, in general, for node failures, signals that terminate/originate at the failed node cannot be restored, and hence maximum restoration is less than 100%.

Given the possible failure set in a network, a restoration method can also be compared against the optimal efficiency ratio, i.e., the minimum theoretical efficiency ratio in that network for any possible restoration method. As with the restoration ratio, the minimum ratio may be intractable to compute.

7.4 ROF Network Survivability Measures In contrast to the GOF model, the ROF model makes no assumptions that a given failure has occurred (i.e., t_0 in Figure 7.1 is random). If the probability distribution of time between failures is exponential, the failure process could be fully characterized by Mean Time Between Failure (MTBF), or Mean time Between Service Outages (MTBSO) and the Unservability (υ), could be estimated in terms of Mean Time To Repair (MTTR) and MTBSO. Service unservability, based on traffic blocking is an important measurement in the service layer and is discussed next.

7.4.1 Service Layer Examples

7.4.1.1 Circuit Switching

Overall Average Blocking
The ROF model can be used to estimate the expected Overall Average Blocking (OAB_{avg}) when enough historical data on the long-term variation of the blocking level is available and an acceptable estimate for MTTSR (Mean Time to Service Restoration) and MTBSO (Mean Time Between Service Outages) can be obtained. It can be shown that [34]:

$$OAB_{avg} = (1-\upsilon)B_n + \upsilon B_u$$

where B_n and B_u are the blocking in acceptable (normal) and unacceptable states respectively. The Unservability (υ), is defined as the long-term ratio of outage time to scheduled service time. Under the assumption of exponentially distributed failure and restoration times we have:

$$\upsilon = \frac{MTTSR}{MTTSR + MTBSO}$$

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Annual Loss of Traffic
Annual Loss of traffic is the amount of traffic that the network is expected to lose per year due to failures. This aspect of survivability takes into account the frequency and duration of failures using the ROF model.

A measure for the annual loss of traffic is Expected Loss of Traffic (ELT), measured in units such as carried load (e.g., in units of Erlangs) per year.

7.4.1.2 Packet Switching

Packet Delay (Transport Time)
Survivability of packet switching networks can be measured using packet delay or transport time. Others measurements are: message loss probability, undetected error probability, message out of sequence probability, and availability[18]. Packet delay can be computed on a point-to-point basis and averaged over time, i.e., point-to-point packets from A-Z see an average delay over a given interval of time. Aggregate measures are computed by averaging the weighted point-to-point delays over all point-to-points, where the weighting is the proportional relative packet traffic (load) to the whole traffic in the network of interest.

Failure can be related in terms of Section 4, by analyzing a distribution of point-to-points whose delay exceeds a given threshold. This threshold would depend on the grade of service objectives for the particular network. An example of an aggregate unservability measure could be the weighted proportion of point-to-points whose delay exceeds the threshold, e.g., 50% of traffic exceeds the threshold (the point-to-points whose delay exceeds the threshold constitute 50% of the total traffic of the network).

7.4.1.3 Common Channel Signaling

Performance Evaluation
Most performance characteristics commonly used for packet networks also apply to CCSNs. Performance of CCSNs can be evaluated using measurements such as availability (or downtime), transport time (delay), message loss probability, undetected error probability, message-out-of-sequence probability, and signaling link bit error ratio [21]. The first two measurements have direct impact on planning and engineering survivable CCSNs, and are discussed below.

Performance measurements such as delay or utilization can be specified as peak (maximum) over a given time interval, or mean (average) over a given time interval, or else are relative to the completion of a given type of call. Whether

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[18] CCITT Recommendation I.355 [47] on ISDN availability identifies the wide range of ISDN network performance parameters (circuit-switched and packet-switched) and their thresholds for defining unacceptable states.

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peak or mean delay/utilization measures are appropriate, and how long the time intervals over which these statistics should apply need to be determined to derive appropriate CCSN traffic engineering parameters. For more detailed information on SS7 monitoring and measurements, see [48].

For a circuit switched network, for example, traffic engineering is based on performance objectives such as maximum busy-season busy-hour blocking. More study of the characteristics of CCS traffic which results from voice, ISDN or other services (this traffic is likely to be more bursty than traffic in a circuit switched network) is needed, to determine the relevant time scales for the CCSN.

Downtime Objectives

Downtime objectives are intended to control the amount of time a CCSN (or a segment thereof) is unable to perform its required signaling functions. They can be represented by a single number equal to the long-term percentage of time a CCSN — or segments thereof — are expected to be "down." As such, downtime objectives can significantly influence end user perception of service quality. The expected percentage of downtime for a network element can be interpreted either as:

- the average downtime over many years for this network element, or as
- the average downtime over one year for a population of the network elements.

According to American National Standard (ANS) ANSI T1.111.6-1992, Section 5.1.2 [43], the MTP downtime objective for the CCS basic mesh network shown in Figure 7.3, corresponds to (an average of)[19] no more than 10 minutes downtime per year for the signaling paths between two SEPs, and is broken down as follows (see Section 6.4.3.1):

- each user interface segment should be down (an average of)[19] no more than 3 minutes per year
- each network access segment should be down (an average of)[19] no more than 2 minutes per year, and
- the backbone network segment should be down a negligible amount of time (i.e., close to 0 minutes downtime per year). Note that downtime for this segment includes failures that prevent use of the backbone segment but do not by themselves disable any other segment(s).

[19] The original text in [43] refers to "nominal requirements" that are interpreted in this Technical Report as "average downtime numbers."

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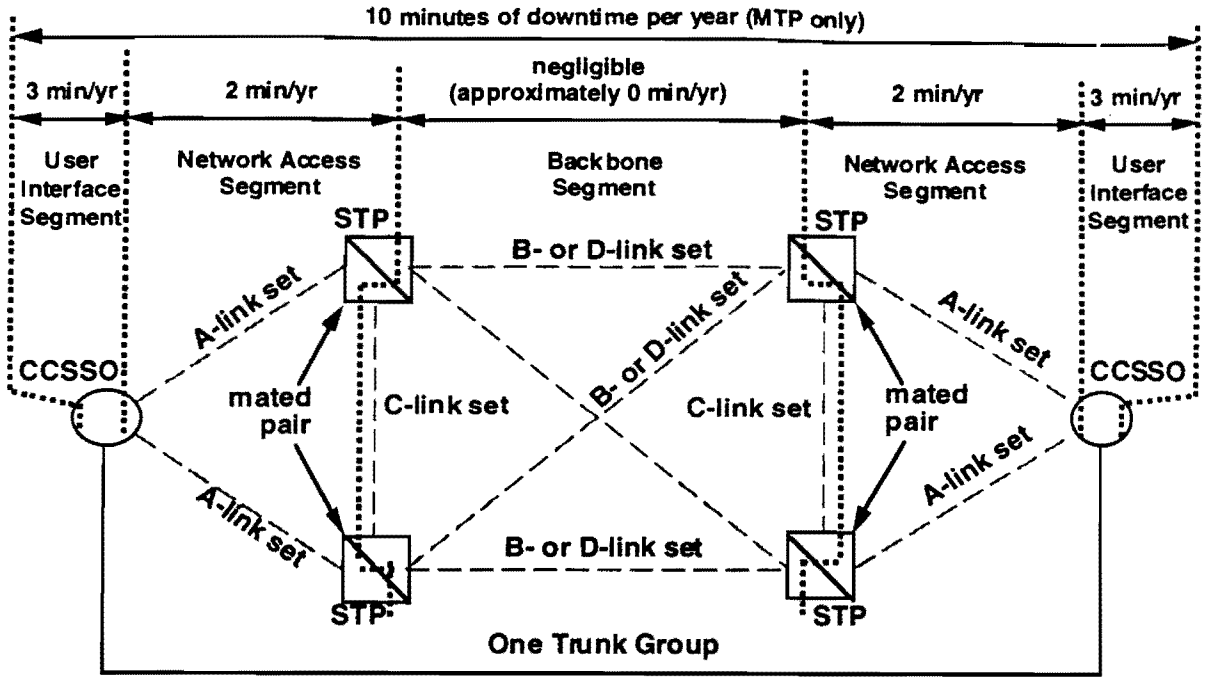

Figure 7.3: ANSI (T1.111.6) Downtime Objectives for CCS Basic Mesh Network Segments (MTP only)

To meet the above allocation, the ANS-based (ANSI T1.111.5-1992, Section 7.2.1) reference architecture uses two-way diversity for the A-link sets, mated pairs of STPs, and three-way diversity for the B-/D-link sets [43]. If three-way diversity is not achieved in the backbone segment, the downtime of that segment may not be negligible. Also, if mated STP pairs are not deployed in the CCS architecture, then the downtime objectives of the network-access segment and the backbone segment may not be met. Hence, the 10-minute end-to-end downtime objective may not be achievable.

When the SEPs in Figure 6.10 (Section 6.4.3.1) are both CCSSOs, the 10-minute end-to-end downtime objective and the above allocation to network segments correspond to a single trunk group with its terminating CCSSOs interconnected using the ANS-based reference architecture (see Figure 7.3). It also applies when instead of CCSSOs we have SSPs or SCPs.

One or more switches homed on an STP pair cannot communicate with all switches homed on another STP pair (but all switches on any one STP pair can still communicate with other switches homed on that pair) if any of the following occurs:

- the entire B-/D-link set quad fails,
- one of the STPs in either mated pair and the B-/D-link set pair of the other STP in the mated pair fail, or

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- one or more A-link set(s) to one of the STPs in either mated pair and its C-link set and the B-/D-link set pair of the other STP in the mated pair fail.

Delay Objectives

Delay objectives have the most direct impact on CCS traffic engineering. Three major types of message transfer delay measures (as well as hybrids of these types) are usually considered: peak (or maximum), percentile, and mean (or average). A peak (or maximum) delay requires that messages be transmitted within a given time period. A percentile delay requires that a certain percentage of all messages be transmitted within a given time period. A mean (or average) delay requires that, on the average, messages be transmitted within a given time period. Some measures for cross-STP delays are provided in [23]. No objectives are defined in the SS7 standards for either link set delays or end-to-end delays[20].

Even when end-to-end delay objectives are completely defined, allocating them to individual cross-network element delays is difficult. When a hybrid delay objective involving the peak, percentile and mean criteria is considered as in the FCC Docket No. 86-10 case[21], finding an effective allocation policy is a yet more complex difficult task. For example, it is difficult to determine how the 5-second call setup delay for the 800 Service mandated by FCC Docket No. 86-10 should be apportioned to the call piece parts: POTS connection to switch, intra-SSP processing, processing in network access segments of the CCSN, interconnection to ICs, access to SCPs, etc. Criteria/rules are needed to effectively perform allocation of delay objectives among individual or groups of CCS network elements. For example, one may want to increase the utilization of (thus allocating higher admissible delays to) more expensive CCS network elements.

Utilization Objectives

Signaling link set utilization is defined as the fraction of time message signal unit (MSU) packet transmission occurs over the link set. It can be computed as the ratio of the link set's carried load to the link set's capacity (or link set speed). Processor utilization can be computed in a similar fashion. Low utilization implies higher costs. High utilizations, on the other hand, may cause unacceptable delays. Even if the network element is engineered for a low utilization, CCS network element failures might cause some additional signaling traffic to be diverted to the network element, thereby increasing (usually, doubling for a single network

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[20] Some delay objectives have been mandated by regulatory agencies. For example, average end-to-end call setup delays under 5 seconds for the 800 Service are required to comply with FCC Docket No. 86-10 [24].

[21] FCC Docket No. 86-10 requires that (i) 97% of the 800 Service traffic involve call set-up times of 5 seconds or less by March 4, 1993, and (ii) 100% of the 800 Service traffic involve maximum call set-up times of 5 seconds or less and average call set-up times of 2.5 seconds or less by March 4, 1995.

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element failure) its carried load and its utilization. Utilization upper bounds can be used to ensure both congestion control and survivability at reasonable costs.

As an example, [23] requires that a signaling link set load be limited to 0.4 Erlangs per link under normal conditions (i.e., utilization objective of at most 40%), so that if a failure occurs, an expected peak load of at most 0.8 Erlangs of CCS traffic would be carried by the surviving signaling link set. The time scale involved in this utilization objective is however left undefined in [23]. It is not clear whether hourly averages adequately capture the variations in carried loads, or whether averages over some other period (e.g., five minutes) are needed.

Based on [23], the utilization objective guideline of 40% applies to A-, B-, D- and E-link sets, which are then engineered to not exceed 40% utilization under normal (no failure) conditions. To support double failures in the backbone network segments, B- and D-link sets could be engineered to a utilization lower than 40% under normal (no failure) conditions. Currently, there are no standardized utilization guidelines for either C-link sets or F-link sets. C-link sets carry CCS traffic only in case of a combined B-/D-link set or A-/E-link set failure (they also carry network management messages between STP mates).

Setting adequate utilization objectives ensures survivability in the event of a single failure in the network access segments, or a single failure in the backbone network segments, or a double failure in the backbone network segments. Based on [43], in the event of such a failure, congestion is avoided if the utilization remains below 80%. However, a backbone network segment in a CCSN engineered according to this requirement cannot withstand a double failure such as the simultaneous failure of an STP and one of the two B- or D-link sets connecting its mate to the other mated pair of STPs. Among other alternatives [50] to lessen vulnerability to this type of double failure, the utilization objective for B-/D-link sets could be reduced.

Another requirement given in [23] is that an STP should be able to handle its mate's traffic load in addition to its normal (no failure) traffic load. No similar requirement for CCS nodal network elements other than STPs is given in [23]. SCPs are candidates for similar mating requirements.

7.4.2 Logical and System Layer Examples

Annual Loss of Traffic

Annual Loss of traffic is the amount of traffic that the network is expected to lose per year due to failures. This aspect of survivability takes into account the frequency and duration of failures using the ROF model. A good measure for the annual loss of traffic is Expected Loss of Traffic (ELT) – measured, in the logical layer, in units such as DS-1 or DS-3 minutes per year.

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To compute this measure, for a network with say DS-3 demands, consider all the pairs of nodes in the network for which zero DS-3 demand or "traffic" exists (a DS-3 demand between node A and node Z is defined to be a contiguous transmission signal that is accessible at the DS-3 rate at both nodes A and Z and does not drop below the DS-3 rate between A and Z). For example, in local exchange networks a DS-3 signal may be provided to carry a customer demand at the DS-3 rate or it may be provided to multiplex or groom many DS-1 signals from various origination and destination pairs for transport between the node pair of the DS-3.

If the network of interest has self-healing capability, each DS-3 demand would normally be routed over a path of self-healing systems/subnetworks. Given a pair of nodes, {i, j}, and the number of DS-3 demands between them, d_{ij}, let $\{R_{ijk}\}$ denote the unique paths between i and j over which the {i, j} DS-3 demands route. Correspondingly, let d_{ijk} denote the number of {i, j} DS-3 demands that route over path R_{ijk} ($\sum_k d_{ijk}=d_{ij}$). $ELT_{i,j}$ is defined to be the sum over k of the product of d_{ijk} and the expected downtime (in minutes per year) of path R_{ijk}. ELT, the quantity for the whole network, is the sum of $ELT_{i,j}$ over all pairs of nodes in the network for which non-zero traffic exists. The expected downtime for each path, R_{ijk}, is calculated by taking into account the probability and average duration of failures.

Annual Loss of Connectivity

Annual Loss of Connectivity is the propensity of the network to lose all connectivity between a pair of nodes per year. Connection between two nodes, i and j, is lost if, for all paths R_{ijk}, there exists no working or protection channels able to carry the demand, d_{ij}. This aspect of survivability also takes into account frequency and duration of failures using the ROF model.

The consequences of losing connection between two nodes can be more serious than the consequences of losing an equivalent amount of traffic throughout the network without losing connectivity. Loss of connectivity can lead to the loss of important emergency and high priority traffic or create a situation of isolation.

Two measures can be defined for this aspect of survivability, the Average Expected Downtime of Connection (AEDC), measured in units of minutes per year, and Probability Distribution of Downtime of Connection (PDDC).

The first measure, AEDC provides a summary of the loss of connectivity. The second measure, PDDC, allows a more detailed study of the likelihood of incidents of prolonged loss of connection.

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Given a pair of nodes, {i j}, $EDC_{i,j}$ is defined to be the expected value of the downtime of connection between nodes i and j measured in minutes per year. For the same pair of nodes, $PDDC_{i,j}$ takes the form of a curve. On the horizontal axis is duration T in minutes. On the vertical axis is the probability that in a year there will be at least one incident where the nodes i and j will lose connection with each other for T minutes or longer.

AEDC, the summary quantity for the whole network, is the arithmetic average of the $EDC_{i,j}$ over all pairs of nodes, {i,j}, with non-zero traffic in the network.

7.5 Qualitative Assessment of Network Survivability Techniques Other considerations beyond the GOF and ROF techniques are often important to assess network survivability techniques. This section defines qualitative assessment criteria for network survivability techniques.

Failure Types
This is defined to be the types of failures for which the network survivability technique can restore some or all signals. The general categories of failure types include:

- single link failure (i.e., single, partial, or total cable failure),
- two simultaneous (or near simultaneous) link failures,
- three or more simultaneous (or near simultaneous) link failures,
- single node failure (i.e., partial or total failure of a network element), and
- multiple node failure.

These categories can be used to assess the use of network survivability techniques.

Restoration Signal Rate
This is defined to be the rate or level at which the method can restore signals. For example, self-healing rings can restore signals at line rates (OC-48, etc.) or "path" rates, i.e., per channel, and DCS methods can restore at various signal rates (e.g., DS-1, DS-3, STS-n).

Stability
Stability is defined to be the response or ability to predict the response of the restoration method to variations or "perturbations" in the network parameters, such as type of failure, speed of data links, speed of hardware, database inconsistencies, data communication errors, or size of network.

Capacity Limitation
Capacity limitation is defined to be the inherent capacity limitations of a single "contiguous" configuration of the restoration method. For example, a SONET OC-48 self-healing ring can accommodate 48 STS-1/DS-3 signals that add/drop out of the ring before another ring is needed (each ring is in some sense "autonomous,"

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although some types of dual homing rings can interact); a DCS reconfiguration method has no hard limit because more DCSs can always be added to the contiguous self-healing network.

Ability to Inter-work
Each restoration method requires particular equipment and spare signal capacity to function. This ability to inter-work is defined as the ability of a given restoration method to inter-work with other restoration methods by sharing the same signal capacity or equipment.

Control Mechanisms
The general types of control mechanisms for restoration methods are *distributed* (done by the network elements or equipment) and *centralized* (done by an operations system or subnetwork controller). Each restoration method can go through different phases of execution, as broadly outlined in the beginning of Section 6. For a given restoration method, the control mechanism can differ across different phases. For example, a DCS reconfiguration method may use distributed control to find alternate paths, yet use centralized control to accomplish the "normalization" step.

Implementation Requirements
Implementation requirements are the systems, procedures, and equipment, needed to implement and maintain the restoration method in the network. These are categorized below:

- interfaces with centralized network operations support systems,
- interactions with network planning personnel, procedures, and systems,
- network design algorithms and methods (for example, a DCS reconfiguration method must determine the placement of spare signal capacity in the network to guarantee a prescribed restoration ratio over a defined possible set of failures), and
- software or hardware implementing the restoration method (including cost, size, speed, and complexity).

8. Suggestions to General Industry

1. Use the (U, D, E) triple to quantify and categorize service outages. This approach is more comprehensive than a single dimensional measure, such as the ULE.
2. The performance measures, definitions and terminology used in this document should become the standard when discussing network survivability, reliability, integrity and performance. For example, they can be used in joint IC - EC network survivability studies.

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3. Use the framework for classifying network survivability techniques to classify future network survivability analyses and performance techniques.

9. Recommendations to Standards Organizations

9.1 Recommendations for Committee T1

1. Review established performance objectives (e.g., restoral time objectives for SONET rings, utilization objectives for CCS network elements) to ensure they are appropriate for future applications (e.g., Broadband ISDN, or B-ISDN).
2. Use the performance measures and terminology introduced in this report in related standards work.

9.2 Recommendations for Future T1A1.2 Work

1. Quantify the qualifying regions for the (U, D, E) triple for service outage categories. Numerical limits, such as the FCC's existing outage reporting thresholds should be studied further to establish their validity for comparing network service outages.
2. Obtain additional user expectations on network survivability performance to meet current and future needs. Analyze impacts of service outages on user categories.
3. Develop planning, engineering and implementation guidelines for network survivability.

10. Summary

This Technical Report has addressed concerns of the Telecommunications Community about the issue of network survivability. This report provides a common approach to describe and assess network survivability. Terminology has been introduced. A framework for quantifying and categorizing service outages and a framework for classifying network survivability techniques have been built. Performance analysis techniques have also been characterized. Recommendations have been included for the interpretation and use of this report for continuing industry activities.

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12. Definitions

These definitions refer to network survivability and may be somewhat different from those of other documents.

Alternate Route	A second or subsequent choice path between two points.
Call Attempt	Any attempt to set up a connection for a call.
Connectivity	Node (or link) connectivity: minimum number of nodes (or links) whose removal results in losing all paths that can be used to transfer information from a source to a sink.
End User	Those who use telecommunications services; i.e., those who either originate or terminate telecommunications.
Fault Tolerance	The ability of a network element or system to continue to function under component failure(s).
Grade of Service (Traffic)	The proportion of calls, usually during the busy hour, that cannot be completed due to limits in the call-handling capability of a component in a network. For example, service objectives are defined on a per-link (per-trunk group) basis for the last-choice groups in a traffic network. Any performance objective or measure for the network. For example, the probability of a call being blocked or delayed more than a specified interval, expressed as a decimal fraction.

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Layer	One of the four network survivability layers into which network functionality is decomposed (as described in Section 5). Note, unless otherwise stated, these layers are not the same as those of the ISO OSI seven layer model [25].
Maintainability	The ability of an item under stated conditions of use, to be retained in, or restored to, a state in which it can perform a required function, when maintenance is performed under given conditions, and using stated procedures and resources.
Network Availability	The probability a network can perform its required functions.
Network Failure	A complete or partial failure of a component or components of a network because of malfunction or natural or human-caused disasters. Partial failures include degradation.
Network Failure Triple	A combination of the network's Unservability (U), Duration (D) and Extent (E) parameters exceeds a threshold.
Network Integrity	See Network Survivability.
Network Performance	The level at which a network fulfills its function.
Network Reliability	See Network Survivability.
Network Restoration	Automatic or manual methods to return a network to its normal function in response to a network failure.
Network Survivability	Network survivability is: (i) the ability of a network to maintain or restore an acceptable level of performance during network failures by applying various restoration techniques, and (ii) the mitigation or prevention of service outages from network failures by applying preventative techniques.
Network Survivability Model	The analytical processes defined in Section 7.2 for estimating how well network services will be impacted and restored with transparencies to the users as a result of a failure.

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Service Outage	The state of a service when network failure(s) impair the initiation of new requests for service and/or the continued use of the service and where the service outage parameters (U, D, E) do not fall into the "no outage" qualifying region.
SONET	North American Standard For Synchronous Fiber Digital Transmission [38,44].

13. Abbreviations and Acronyms

ABS	Alternate Billing System
ADM	Add-Drop Multiplexer
AEDC	Average Expected Downtime of Connection
AIS	Alarm Indication Signal
APS	Automatic Protection Switching
AT	Access Tandem
ATM	Asynchronous Transfer Mode
CCS	Common Channel Signaling, or Centa (Hundred) Call Seconds
CCSN	Common Channel Signaling Network
CCSSO	CCS Switching Office
CO	Central Office
DCS	Digital Cross-connect System
EC	Exchange Carrier (local)
EO	End Office
FDDI	Fiber Distributed Data Interface
GOF	Given Occurrence of Failure
GTT	Global Title Translation
IC	Interexchange Carrier
ISDN	Integrated Services Digital Network
ISO	International Standards Organization
MSU	Message Signaling Unit
MTBF	Mean Time Between Failure
MTBSO	Mean Time Between Service Outages
MTP	Message Transfer Part (SS7)
MTSO	Mobile Telephone Switching Office
MTTR	Mean Time To Repair
OA&M	Operations, Administration and Maintena
OMAP	Operations, Maintena.. id Administration Part
OSI	Open Systems Interconnection
OSS	Operations Support System
PCN	Personal Communications Network

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PDDC	Probability Distribution of Downtime of Connection
ROF	Random Occurrence of Failure
SCCP	Signaling Connection Control Part
SCP	Service Control Point
SEP	Signaling End Point
SHN	Self Healing Network
SHR	Self Healing Ring
SONET	Synchronous Optical NETwork
SPE	Synchronous Payload Envelope (SONET)
SS7	Signaling System Number 7
SSP	Service Switching Point
STE	Span Terminating Equipment
STP	Signaling Transfer Point
TCAP	Transaction Capabilities Application Part
TSI	Time Slot Interchange
ULE	User Lost Erlang
VT	Virtual Tributary (SONET)

Appendix A. Telecommunications Service Priority System

Background:
Since 1967, a system has been in existence for prioritizing the restoration of commercially supplied telecommunications for the U.S. Government. This system has been known as the Restoration Priority (RP) System.

Restoration priorities have been assigned to leased, intercity, private line circuits that are deemed critical to the National Security Emergency Preparedness (NSEP) posture of the nation. The assignment of these priorities has been administered by the National Communications System (NCS), in Arlington, Va., for the FCC (Federal Communications Commission).

In 1985, following the divestiture of AT&T, the NCS undertook to revamp the RP System. A joint effort by the telecommunications industry and the U.S. Government, under the auspices of the National Security Telecommunications Advisory Committee (NSTAC), a Presidential advisory body, developed the Telecommunications Service Priority (TSP) System.

TSP Rule:
On Dec. 1, 1989, the FCC issued Declaratory Ruling DA 98-1524 that set the effective date of the beginning of the TSP System to be Sept. 10, 1990. This date is referred to as the Initial Operating Capability (IOC) date by the government. This IOC date also marks the end of RP-type code assignments and the beginning of a transition period, during which all end users will be required to submit their current circuits with RP codes for recertification under the new TSP criteria. All

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existing RP circuit designations will remain in effect until March 1993 or until recertification by the user under the TSP criteria.

The TSP System officially replaces the RP System under Part 64, Appendix A, of the FCC Rules and Regulations, Chapter 1 of Title 47 of the CFR.

TSP Documents:
The supplemental documents that address the total TSP System include the TSP Service Vendor Handbook (NCSH 3-1-2), the TSP Service User Manual (NCSM 3-1-1) and NCS Directive 3-1 that covers the government's participation in the system.

TSP Requirements:
The TSP System requires all common carriers to provision new services and restore designated services on a priority basis. Since the FCC has approved and codified the TSP System, common carriers may now provide preferential treatment to specially designated user requests for service.

Priority levels will be assigned to NSEP telecommunications services that will specify the order in which provisioning or restoration of the services is to occur relative to other NSEP and non-NSEP services. The authorized priority levels are designated as follows, highest to lowest: E (Emergency), 1, 2, 3, 4 and 5 for provisioning and 1, 2, 3, 4 and 5 for restoration. The responsibility of any common carrier is to:

a. Provision NSEP telecommunications services before non-NSEP service requests, when NSEP treatment is properly invoked and a 12-character, TSP Authorization Code is provided by the user/contract officer. Allocate resources to ensure the company's best efforts to provide NSEP services according to and in order of the provisioning priority.

b. Restore NSEP telecommunications services before non-NSEP services and in order of priority level. Allocate available resources to restore as quickly as practical. Broadband or multiple service facilities restoration is permitted even though it might result in restoration of services with no priority or lower priority level.

Impacts of TSP:
The following is a list of the impacts of TSP:

a. Provisioning:

- The customer must provide a TSP Authorization Code to receive preferential treatment.
- A TSP Provisioning Priority must be assigned as the eleventh digit of the Authorization Code to receive accelerated service installation.

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Provisioning priorities are either EMERGENCY (designated by an "E") or ESSENTIAL (designated by a 1, 2, 3, 4 or 5). The FCC Order requires that service suppliers provision Emergency services before any Essential TSP service or non-TSP service.

- All common carriers must provide a 24 hour point-of-contact to receive properly-invoked provisioning requests.

b. Restoration:

- Network Operations must dispatch service personnel outside normal business hours to restore services
  - assigned priority 1, 2 or 3,
  - assigned 4 or 5, if the next business day is more than 24 hours away.
- Operations may preempt non-TSP or lower priority TSP circuits to restore higher priority TSP circuits.

c. Administrative:

- The TSP System allows state and local governments, together with private entities, to request TSP priority assignments through the use of Federal sponsorship.
- Industry must provide a separate notice to the NCS upon completion of a service installation, modification or cancellation in addition to any notification which is supplied directly to the customer/contract officer.
- All TSP records must be reconciled with the NCS annually and every three years with subcontractors.
- The TSP System provides the basis (via tariff or contract) for carriers to charge for record management, accelerated provisioning and restoration services.

Appendix B. Example Network Survivability Analyses and Assessments

Appendix B.1 Bidirectional Ring Survivability Example As an example at the GOF model, consider a bidirectional ring network with N=6 nodes connecting to a central node as shown in Figure B.1. Here S_a is the fraction of remaining nodes connected to a central node (CN) under a disaster causing N_u nodes to be destroyed. Depending on which nodes are failed, the value of S_a may be different.

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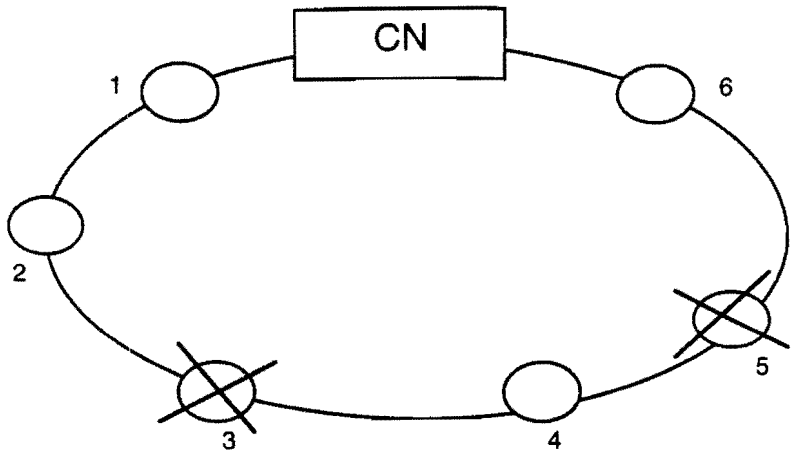

Figure B.1: Bidirectional Ring Example

It is clear that N_u is a random variable with values $N_u=0,\ldots,N$. In this example, the number of failed nodes and the number of ways $N_u=2$ can occur is tabulated in Table B.1. The set of nodes connected to the central node, $N_a=0,\ldots,N-N_u$, is also shown. Using this information, the fraction of nodes connected given two failed nodes can be easily obtained.

Assuming the two-node failure case (all equally probable), there are 15 ways of choosing the failed pair. For five failed pairs, the number of connected nodes is four, and for four failed pairs, the number of connected nodes is three, and so forth. The probability frequency function $P[S_a=y]$ is shown in Figure B.2 for $N_u=2$.

$\{N_u\}$ number of failed nodes	number of ways to occur	$\{N_a\}$ number of connected nodes (number of occurrences)
2	15	4(5),3(4),2(3),1(2),0(1)

Table B.1: Failure Categories

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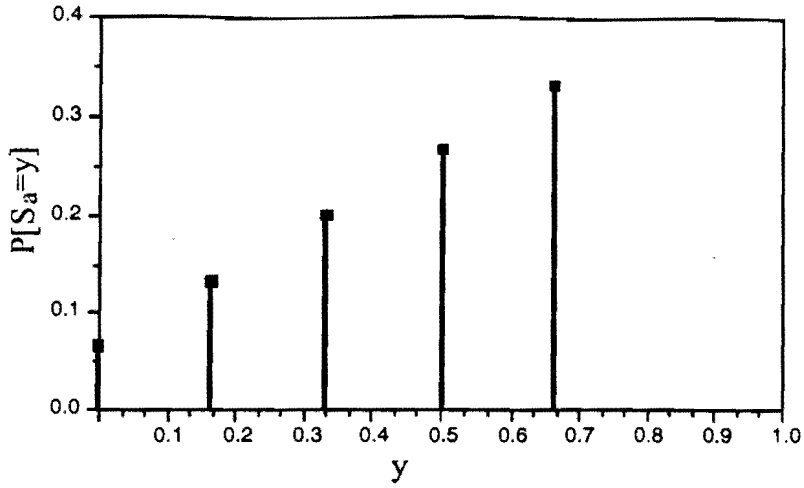

Figure B.2: Probability Frequency Function for N_u=2

The probabilistic nature of S_a is well demonstrated in Figure B.2. For the bidirectional ring network shown in Figure B.1, when two nodes are destroyed, there is a 33% probability that 66% of the nodes are connected to the CN, and there is about a 6% chance that no nodes are connected to the CN.

Appendix B.2 Network Survivability Assessment Example In an 8-node, 7-link, fixed route network, shown in Figure B.3, total D_t = 56 point-to-point DS-3 demands are distributed and routed over the links of the network prior to failure, as indicated in Table B.2. There are C_t = 10 demand pairs in this network.

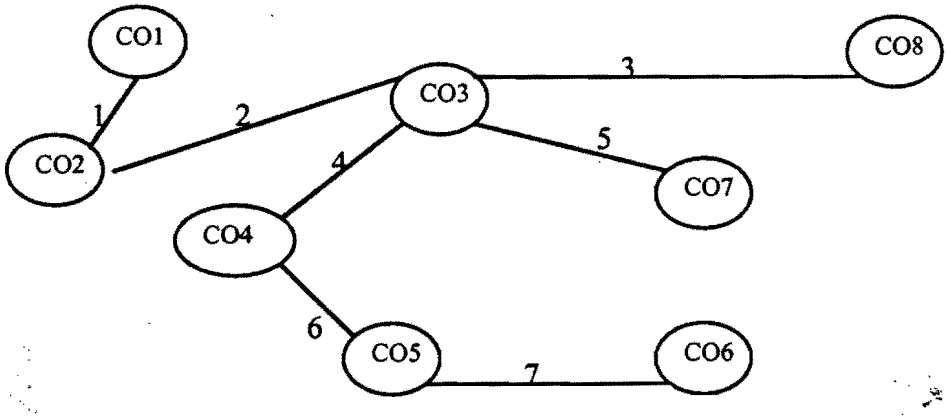

Figure B.3: 8-node, 7-link network example

For simplicity, we assume a sample space of a single link failure and that the set of states after failure is limited to $\{x_i\}$, where event x_i denotes the failure of link i. We want to assess the survivability of this network, in terms of three survivability measures, (i) average fraction of traffic (DS-3s) that remains after failure (or

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Average Traffic Survivability Ratio), S_a, (ii) average fraction of subscribers that remain connected after failure (or Average Connectivity Ratio), C_a and (iii) Average Time for single link Restoration, t_R.

Node Pair	Demand (DS-3s)	Routing plan
CO1 - CO3	5	1-2
CO1 - CO6	11	1-2-4-6-7
CO1 - CO8	8	1-2-3
CO1 - CO4	4	1-2-4
CO1 - CO7	5	1-2-5
CO6 - CO8	6	7-6-4-3
CO6 - CO7	4	7-6-4-5
CO5 - CO8	6	6-4-3
CO5 - CO7	3	6-4-5
CO4 - CO8	4	4-3

Table B.2: Point-to-point demand and routing table for Example B.2

By considering the network routing plan, aggregated load, L_i, on the i^{th} link can be found. If a given link fails, L_i DS-3s on that link would be lost, or

$$L_i = \text{sum of all demands going through link i}$$

and we have:

$$S_a(x_i) = (D_t - L_i)/D_t$$

Where $S_a(x_i)$ is the Traffic Survivability Ratio, assuming the i^{th} link has failed. For example for link 1, $L_1 = 33$ DS-3s and if this link fails 33 DS-3s out of 56 DS-3s would fail and only 23 DS-3s would survive. Thus $S_a(x_1) = 23/56 = 0.41$. The value of $S_a(x_i)$ for all links (i=1,2,...,7) are tabulated in Table B.3.

As indicated in Table B.2, there are $C_t = 10$ point-to-point "connections" in this network. Each link carries n_i of these connections and we have

$$C_a(x_i) = (C_t - n_i) / C_t$$

where $C_a(x_i)$ is the Connectivity Ratio, assuming the i^{th} link has failed. For example $n_1 = 5$ connections go through link 1. Therefore if link 1 fails, half of all network connections would be disconnected, or $C_a(x_1) = 5/10 = 0.5$. The values of $C_a(x_i)$, i=1,2,..,7 are also tabulated in Table B.3.

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Similar to example B.1, we can now attach a probability to each event, x_i. If we assume that each event, x_i, has equal probability, the expected values of the random variables are

$$E[S_a] = 1/K \sum_i S_a(x_i),$$

$$E[C_a] = 1/K \sum_i C_a(x_i),$$

$$E[t_R] = 1/K \sum_i t_r(x_i),$$

where K = total number of links (K = 7 in this example). $t_r(x_i)$ is the estimated Restoration Time for the i^{th} link using normal restoration methods and can be obtained using long term link outage data. Note that $t_r(x_i)$ is a function of the length of link i. Using Table B.3, we have:

$$E(S_a) = 0.51, \quad E(C_a) = 0.54 \quad \text{and} \quad E(t_R) = 70.7 \text{ minutes}$$

Link No.(i)	L_{gi} (DS-3s)	n_{ci}	$S_a(x_i)$	$C_a(x_i)$	$t_r(x_i)$ (minutes)
1	33	5	0.41	0.5	15
2	33	5	0.41	0.5	160
3	24	4	0.55	0.6	55
4	38	7	0.32	0.3	45
5	12	3	0.78	0.7	100
6	30	5	0.46	0.5	35
7	21	3	0.62	0.7	85

Table B.3: Link information for Example B.2

Appendix C. User Expectations

This section discusses the expectations of certain users or user groups with respect to service continuity and survivability.

Appendix C.1 U.S. Government User Expectations Government agencies have diverse and unique user expectations such as Telecommunications Service

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Priority[22] (TSP), security, interoperability, compatibility, redundancy, diversity, hardening, prevention of loss or corruption of critical data, measurable Reliability/Maintainability/Availability (RMA) performance parameters[23], and responsiveness. For example, the U.S. Federal Aviation Administration (FAA) and Department of Defense (DoD) define and require several types and scopes of communications services and are concerned about the causes of probable network failures shown in Table C.1. The users of the service types defined in Table C.1 depend upon these availability and restoration time requirements.

Service Types	Service Scope	Failure Causes	Expected Availability	Expected Restoration Time
Critical	Functions or services which, if lost, would prevent the network/system from exercising safe operation and control for the end users.	Earthquakes, floods, hurricanes, tornadoes, acts of war, hardware/software failures, electromagnetic pulse, etc.	0.9999987	< 6 seconds
Essential	Functions or services which, if lost, would reduce the capability of the network/system to exercise safe operation and control for the end users.	Terrorism, fires, power/battery failures, etc.	0.999	approximately 10 minutes
Routine	Functions or services which, if lost, would not significantly degrade the capability of the network/system to exercise safe operation and control for the end users.	Node and link failures, subsystem failures, equipment failures, etc.	0.99	approximately 2 hours

Table C.1: Government Communications Services[24]

[22] See Appendix A for details on TSP.

[23] Definitions of terms used here and in government acquisitions are provided in this report and by U.S. Federal Standard 1037B, Telecommunications Glossary.

[24] The expected availability values recorded here require information as to the population and interval over which they have been calculated.

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In national and international emergencies, the government expects networks/systems to be capable of providing survivable communications for national decision makers, executing crisis management control, offering distributed control of information, and restoring networks and systems. To provide for these expectations, networks/systems should, at a minimum, have the following survivability features and capabilities:

Connectivity: The DoD requires connectivity to provide the capability of connecting several networks. In order to react to rapidly changing environments and to be able to easily and quickly reconfigure networks, the ability to communicate facility status to network management centers must be provided.

Security: Systems that provide telecommunications services must be made secure from both internal and external threats such as unauthorized access, sabotage, hackers, and terrorism. Survivability must address and counter these threats through the use of security services and mechanisms such as: identification, authentication, and authorization of users, operators, and maintainers of the system; access control; database integrity; and encryption of network control messages. Multi-level security must not be impacted by network outages.

Endurability: The communications network must be capable of operating using commercial power, uninterruptable power, and back-up battery systems during failures. In addition to a network's capability to withstand hardship, stress, and adversity during given periods of time and levels of network performance. Network designs should also include counter measures for survivability against threats of nuclear and High-Altitude Electro-Magnetic Pulses (HEMP).

Interoperability: The communications network must be capable of operating with all agencies and commercial providers.

Compatibility: The communications network must have the ability to coexist and not interfere with the operations of other networks/systems.

Survivability Performance Parameters: Numerical values for these parameters should be provided because they are relevant to the network management of government long-haul and base-level networks. These parameters are a function of the following factors:

- the type of switching and transmission technology to be employed in the network under consideration (i.e., SONET, ISDN, ATM Switching, FDDI)
- the robustness of the network management technology used to control these network resources,
- network topology, and

- the required level of network throughput efficiency, based on economic constraints.

Appendix D. Tolerance Categories for Restoration Times

To design networks to meet user expectations, information is needed about the impact of failures on network services. This information can be used in standards activities for determining restoration times for network facilities as well as by network planners to deploy appropriate network survivability techniques for each category of customer. One of the most crucial parameters for determining the impact of a service outage is the outage duration (the outage duration here is defined to be the time interval between first loss of a particular unit of usage until that unit of service is fully restored). Note that actual service outage time will often exceed facility restoration time. More detail on this topic can be found in [35][25].

Different services have different outage duration tolerances. For example, voiceband call tolerances (i.e., the interval in which calls in progress are abandoned) can vary anywhere from 150 milliseconds (see Table D.2) to two seconds while data (packet) session timeout can vary from two to 300 seconds. Today, session dependent applications such as file transfer commonly use System Network Architecture (SNA) and TCP/IP protocol architectures. With SNA, in particular, a session dependent application has a software programmable session time-out of from 1.1 to 255 seconds [36] and can be specified by users based on file size, for example. Lost data from shorter interruptions is retransmitted, a process which in some applications, is triggered by receiver time-outs. Receivers may begin to time-out based on twice the round-trip delay.

X.25 packet networks often incorporate idle channel state condition timers that are settable from one to 30 seconds, in one second increments (with a suggested time of 5 seconds) [45]. When links are lost between switches, these timers may expire, and if they do, they will trigger the disconnection of all virtual calls that were up on those links. The customers must then restart their sessions. It is common (but not required) in these networks to feature a virtual circuit reconnect capability, through alternate routing around the failed links, but only after the call is reestablished.

In Asynchronous Transfer Mode (ATM) networks (e.g., those supporting Switched Multi-megabit Digital Service (SMDS) [37]), normal cell routing processes are interrupted and rerouting processes may be initiated after a certain interval. This interval can be estimated at 200 milliseconds based on SMDS objectives in [37].

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[25] A list of references is in Section 11.

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The objective in SMDS supporting networks for a switch/router to update its routing tables upon notification of a link set change through lower-layer OSI protocols is less than 100 milliseconds. It is reasonable to expect that within 200 milliseconds from the onset of the link outage, that the rerouting process should have been started, allowing time for topology updating information to propagate to all switches (50 milliseconds), and delay (50 milliseconds) for waiting on physical level protection, if any (e.g., point-to-point systems using Automatic Protection Switching). However, in large or more complex networks this interval may be longer than 200 milliseconds. The recovery of any lost data is handled through higher layer OSI data protocols.

Figure D.1 shows the im n various network services as a function of restoration times for SO ased architectures due to a network failure. Outage durations include restorat nes at the SONET level. The restoration times are classified into intervals as i rated in this figure. Restoration times within a given interval will have roughly the equivalent impact on services. Restoration times under 50 milliseconds will be transparent to most services. These time intervals are tabulated in Table D.1.

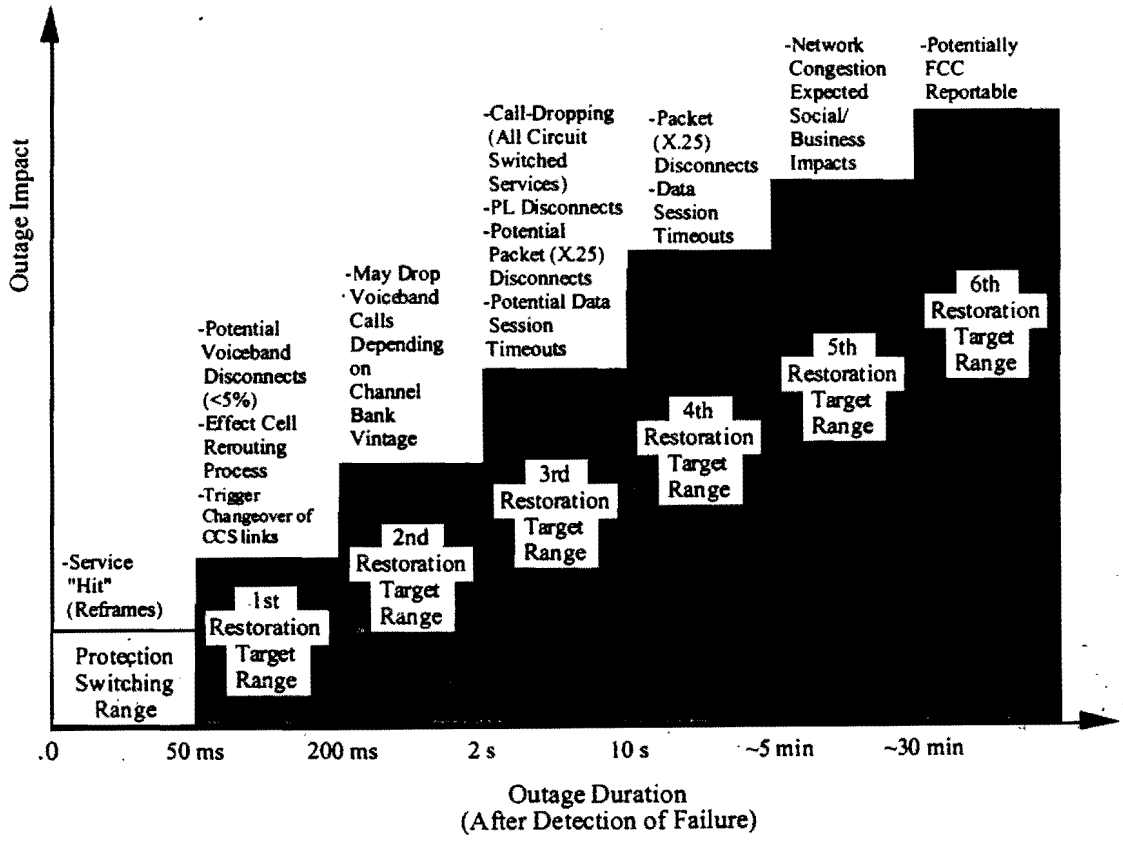

Figure D.1: Restoration Time Impact on Customers

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Time Interval	Range	
	From	To
1	50 milliseconds	200 milliseconds
2	200 milliseconds	~2 seconds
3	~2 seconds	~10 seconds
4	~10 seconds	~5 minutes*
5	~5 minutes*	~30 minutes[26]
6	~30 minutes[26]	unspecified

*These restoration time intervals and their impacts should be studied.

Table D.1: Restoration Time Intervals

Restoration times below 50 milliseconds will meet network protection switching time requirements at the SONET level [38,44]. Recovery within this time frame will be without interruption of service (a service "hit"). A "hit" is a temporary interruption of service that causes only a reframing of a distant terminal (e.g., digital channel bank) off of the SONET backbone. A "hit" does not cause a transmission failure alarm to be issued at the distant terminal.

For a circuit switched network, the minimum disconnect timing interval for a possible false disconnect to occur at a downstream switch trunk interface is 150 milliseconds [39] (i.e., 150 milliseconds on-hook supervisory signal state). A failure in the interoffice trunk network may cause the supervisory signal state to appear as on- hook, rather than off-hook, to the switch. The network allocation of this 150 milliseconds is as follows:

	+ 10 milliseconds	failure detection time
	+ 40 milliseconds	reframing of lower-rate multiplexes
	+ 50 milliseconds	reframing of distant terminal
Sub-total	100 milliseconds	
	+ 50 milliseconds	switching time (SONET level)
Total	150 milliseconds	

Table D.2: Minimum Trunk Disconnect Time

The time frame between 50 milliseconds to just under 200 milliseconds will have minimal impact to services. Any affected voiceband switched calls (voice or data) will have less than a 5% probability of being dropped (related to signaling freezing limitations with in-band signaling). Keeping the restoration time to under 200 milliseconds will prevent any affected voiceband circuit-switched calls that were

[26] This value is based on FCC outage reporting requirements and should be reviewed.

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on trunks associated with older channel banks from being dropped. Note that a 200 millisecond restoration time appears as a 300 millisecond outage to a channel bank (when including detection time and reframe times). Old channel bank types (e.g., D1A, D1D, D2, D3) exhibit carrier group alarm times of 300 milliseconds to 500 milliseconds. In this same time frame, the normal cell routing process in cell-relay networks (e.g., supporting SMDS) should have been interrupted, and the cell rerouting process started. Again, this estimated 200 millisecond interval for cell-relay networks may be longer in large or more complex networks.

The CCSN will provide better performance by virtue of being out-of-band and separate from the path of the call. The CCSN uses DS-0 circuits for signaling links that are bunched together on a DS-1 trunk (carrier). Calls only in the process of being set-up may be lost with an outage on the signaling links; established calls should not be affected. Note that according to SS7 specifications [22], a signaling link is considered failed and taken out of service when a loss of alignment (i.e., no signaling flags) lasts for approximately 146 milliseconds at the STP. A changeover to the alternate signaling link is then initiated. A restoration time in the time frame between 50 milliseconds to just under 200 milliseconds will trigger this changeover.

The second time frame is between 200 milliseconds to just under two seconds. Performance of the voice service is only slightly degraded in this range because only affected voiceband circuit-switched calls that are on trunks associated with old channel bank types will be dropped. Network data from one local exchange provider indicates that roughly 12% of DS-0 circuits that are carried on channel banks (including DS-0s that carry trunks of circuit switched networks as well as non-switched circuits) are in fact carried on older type channel banks. Thus, the total number of trunks in circuit switched networks that are carried on older type channel banks is less than 12% because significant numbers of DS-0 trunks do not route over channel banks (for example, DS-0 trunks that directly interface into digital switches at the DS-1 rate). Video services can become degraded in just 1/30 second (loss of one frame). Furthermore, restoration times greater than 100 milliseconds have been shown to have significant impact on the video codec reframe process and can become customer reportable impairments [46]. Nevertheless, an actual outage of less than two seconds is not critical for entertainment/educational type video services (one to two seconds is close to human reaction time). This observation applies to video services with no protocol for recovery of lost frames.

The third time frame is between two seconds to just under ten seconds. The ten second upper bound is consistent with the SONET carrier group alarm requirements [38,44]. When outages exceed two seconds, DS-0, n×DS-0, and DS-1 call-dropping will occur. Private line disconnects will also occur. Voiceband data modems will time-out (typically two to three seconds) after detecting a loss of

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incoming data carrier. The modems must then be resynchronized (usually a 15 second procedure) after the data carrier is restored.

B-ISDN calls in the future may have alarm thresholds set higher than two seconds (e.g., five seconds), but B-ISDN calls would still be dropped in this time range, assuming the outage lasts longer than five seconds. In this time range there is a potential for packet (X.25) virtual calls to be dropped depending on the idle link timer system setting. Disruption of data communications sessions (connection oriented, e.g., SNA) may occur in this range depending on the session termination time. High-speed, interactive applications (for example, video image) may be impacted in this time range since these applications are sensitive to delay. This time range is also unattractive for high-priority data applications, for example, transfer of funds using automated teller machines. Automated teller machines use private data communications networks based mostly on SNA and TCP/IP protocol architectures. Services that are less sensitive to delay such as electronic mail (e-mail) should not be greatly impacted. Frame relay data services may be sensitive to service outages because of their high-speed and lack of ability of the frame relay network layer protocol (roughly equivalent to the third layer of the OSI stack) to recover lost data.

The fourth time frame is between ten seconds to just under five minutes[27]. In this fourth time range, packet (X.25) calls and data communications sessions will be disrupted and customers would attempt to reinitialize their connections. The five minute upper bound is not meant to be a firm number based on particular software or hardware specifications, but rather an estimate based on general planning goals for various ECs. For example, the five minute restoration time is the goal for completing service restoration by some network management systems and is considered responsive to most customers. Also, the five minute upper bound covers the maximum SNA session timeout of 255 seconds.

In the fifth time frame, digital switches in switched networks may experience a buildup of network congestion. There may be minor social and business impacts with this outage event. The sixth time frame is based on the 30-minute FCC requirement on carriers that major outages (affecting at least 30,000 or 50,000 customers[28] and exceeding 30 minutes) be reportable.

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[27] Based on industry tradition and management systems. This value should be validated.

[28] The FCC required 50,000 lines [51,52], with 30,000 lines on a trial basis [53]. The unanimous recommendation of the Threshold Reporting focus team of the NRC on December 15, 1992 was 30,000 lines.

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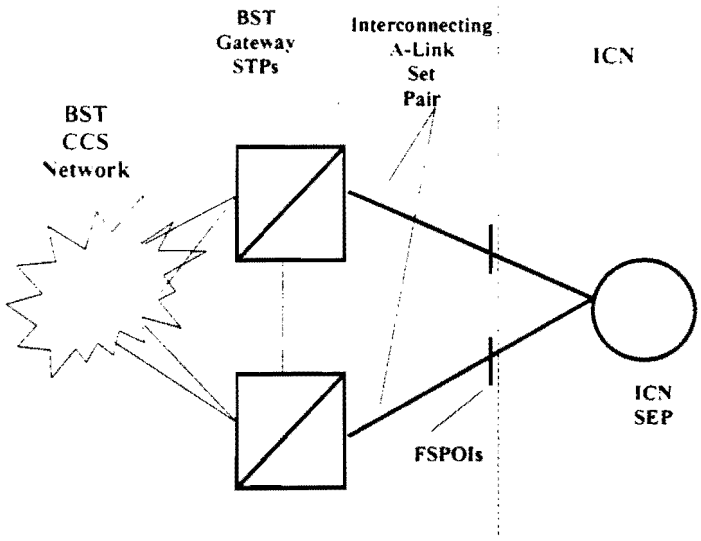

Figure 2 - BST STPs to ICN SEP Interconnection Architecture

2.2.2.3 A-Link Concentrators (ALCs)

In addition to the indicated conventional modes of CCS network interconnection, BST will also support the "atypical" signaling interconnection via A-Link Concentrators (ALCs) on an as-needed basis.

BST will not be implementing A-link Concentrator (ALC) architectures within its own CCS network; however, certain ECs are planning deployment of these devices in their networks. Thus, BST supports a policy of meeting with both the ECs and the ALC suppliers to discuss the requirements which must be in place prior to interconnecting the BST CCS network to an EC's ALC. ALCs emulate SEPs but support aspects of MTP level 3 functions for message transfer, like an STP.

In addition to architectural concerns, other relevant issues concerning ALCs include:

- Network reliability/performance/security
- Operations, Administration & Maintenance (OA&M) concerns
- Testing processes.

It is important to note that ALC devices typically do **not** meet all requirements of GR-82-CORE, the ST Generic Requirements. There are no applicable generic requirements defining their function. The necessary capabilities to perform full message handling, screening, and error monitoring may not be present in all versions of these devices. Only limited capabilities for routing, screening, and network management (NM) functions may exist.

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BST will meet with the ECs who are proposing implementation of these devices. BST will interconnect to an EC's ALC network with the following as considerations:

1. All issues relating to network reliability, testing, OA&M, etc., have been mutually agreed to and the necessary plans (e.g., test scripts) are developed to ensure successful interconnection.

2. BST *prefers* the dual mated arrangement with 3-way diverse links from the ALC to BST's interconnecting STPs and 2-way diverse links between the EC's ALC and its subtending offices; however,

3. In the interim, until vendor architectural and feature availability and now, BST *will* allow interconnection to the simplex mode ALC, but *strongly recommends* that the links between the ALC and the BST STPs (as well as between the EC's ALC and its subtending offices) be diverse.

2.2.3 Facility Signaling Points of Interconnection (FSPOIs)

BST offers facility "meet-points" or Facility Signaling Points of Interconnection (FSPOIs), at which interoffice transmission facilities supporting ICN signaling links to the BST STPs may be terminated. The FSPOI is the physical interconnection point between the ICN and BST networks. This can be viewed as basically where the dividing line lies between the two networks for the purposes of provisioning and maintaining the interconnecting signaling links. (However, care should be taken **not** to equate the FSPOI with the physical trunk interface or traditional Point of Interconnection (POI) situation.) The signaling link is merely the transport medium for the signaling information that is processed by the interconnected CCS network elements.

FSPOIs may or may not be co-located with the BST GSTPs. BST offers FSPOIs at sites within each of the served LATAs in its territory. BST then extends the link from the FSPOIs to the Gateway STPs (GSTPs) of BellSouth's choice. The choice of GSTP will be based on the customer's requested LATA access and on capacity considerations at the GSTP. An ICN must order to a minimum of two FSPOIs for physical diversity. For a complete list of FSPOI CLLI codes please refer to Appendix A.

Unless otherwise provided through specific business agreements, the ICN will be responsible for the cost and operation of the link facilities between its network elements and the BST FSPOIs. (See Section 8 for further discussion of operations responsibilities.)

2.3 Diversity Considerations

Link diversity is critical to the assurance of survivability of ICN interconnection arrangements. BST's goal is 2-way diversity for A-link pairs and 3-way diversity for B/D link quads. Two signaling links are considered fully diverse if they are physically and electrically separated, both inside and outside of the central office environment, such that a single failure cannot cause the failure of both links. A common building, entrance facility, carrier system, digital cross-connect system, power supply, timing source, cable, or supporting structure (e.g., conduit, poll, line, radio

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tower, etc.) should not serve them. Exceptions may be made for common entrance facilities, power supplies, intra-building tie cables and/or timing sources, where limitations exist in the CO environment.

Each ICN wishing to handle traffic from BST-served LATAs would be required to have either **four** links to (2 or more) FSPOIs (two from each of their STPs in the mated pair to the FSPOIs) or **two** links to 2 FSPOIs -- if the ICN has a connecting SEP. Assuming the four link arrangement, there would need to be three-way diversity among those four links. The links would be extended from the FSPOIs via diverse facilities to BST's mated GSTP pair.

There may be sections of the SS7 Network (either BST and/or ICN) where the diversity requirements would be difficult/prohibitive to achieve. In such cases, the network performance objectives outlined in current Telcordia documentation will, in all likelihood, not be met.

BST will support down-time objectives which are based on three-way route diversity between mated STP pairs (two-way diversity between an STP pair and an SEP) as described in Telcordia's GR-905-CORE. BST recognizes that this ultimate target will only be realized through a transition and will, in the interim, match the maximum diversity (up to three routes) provided by the ICN in the STP to STP quad.

Three-way diversity will, however, still be the desired objective between BST and the ICN. Transitional two-way diversity would be allowed in those cases where achieving 3-way diversity would have a high cost due to the need to build new facilities or even new buildings. In these cases, it would be desirable for BST and the ICN to have an indication of the risks involved if less than 3-way diversity is used.

Telcordia has concluded that the following are significant factors in examining interconnection diversity between networks of BST and an ICN:

1. If all CCS link sets pass through a single wire center, over a single facility route, and to a single ICN Signaling Point of Interconnection (SPOI), then the CCS backbone network downtime objective will not be met.

2. Even with optimal interconnection conditions such as an all fiber network and relatively short distances, at *least* two physically separated SPOIs are necessary in order to meet the CCS backbone network downtime objective.

2.4 CCS Link Engineering Considerations

Link engineering requirements specify a normal expected traffic load of 0.4 Erlangs (or lower) on each link and up to 0.8 Erlangs in the case of link failure conditions. It is also assumed that signaling traffic at each node is characterized by fully random and uniformly distributed Signaling Link Selection (SLS) codes for proper load sharing. For proper interconnection at least four random bits of [illegible]e bit SLS codes should be assured at each STP. The SLS field is used to facilitate load sharing. This field exists in all messages and is always in the same position in their labels. BST STPs support 8-bit SLS codes and 5-to-8-bit SLS code mapping.

BST engineers its B/D link quads to an objective busy hour load of 0.20 Erlangs and its A-links to 0.34 Erlangs (allowing a 15% margin for peakedness in traffic on A-links). BST expects its ICN customers to monitor traffic on its interconnecting links, maintain comparable engineering objectives, and to augment ICN link set sizes, so as to limit the risk of transmit congestion upon link failures or excessive loads, and ensure the highest reasonable quality of service. Overloaded links can result in transmit congestion and the throttling and discarding of message traffic via the SS7 Transfer Controlled (TFC) mechanism in both the BST and ICN CCS networks. It is BST's policy to monitor the usage on all ICN links. If the average usage begins to exceed 0.2 Erlangs (for D-Links) or 0.4 Erlangs (for A-Links) in the busy hour, BST's Regional Planning and Engineering Center (RPEC) will notify the ICN customer (via BST's ICN Account Team), recommending link augmentation be considered. If the usage continues to rise in the absence of augmented capacity, BST reserves the right to take appropriate steps to reduce the congestion risk and adverse network impacts on their other customers.

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3 GR-905-CORE CAPABILITIES SUPPORTED BY BST

In addition to the capabilities outlined in Telcordia's GR-905-CORE, BST is providing some additional information on the following capabilities.

3.1 Description of the Initial Address Message (IAM)

The Initial Address Message (IAM) includes all information required to setup a call through the network. The six parameters listed below are mandatory as defined by Integrated Services Digital Network User Part (ISUP) protocol, and are always included in the ISUP IAM. These parameters include the following.

1. Message Type - This parameter identifies the message as an IAM.
2. Nature of Connection Indicators - This parameter contains information about the circuit being established such as satellite connection, continuity check, and echo suppressor indicators.
3. Forward Call Indicators - This parameter contains information about the SS7 signaling path used and ISDN information. It contains indicators such as national/international call, end-to-end method, interworking, IAM segmentation, ISUP usage, ISUP preference, ISDN access, SCCP method, and translated call (for LNP).
4. Calling Party's Category - This parameter distinguishes between ordinary and test calls.
5. User Service Information - This parameter contains information on the circuit being established such as the information transfer capability, information transfer rate, and the transfer mode for the information (e.g., circuit or packet).
6. Called Party Number - This parameter contains the dialed digits.

Some IAM parameters are optional as defined by ISUP protocol. By "optional" it is meant that they do not need to be included in every IAM; however, for some types of calls, these parameters do need to be included in the IAM. BellSouth will send these parameters to an ICN and will be prepared to receive these parameters from an ICN. These parameters include the following:

1. Transit Network Selection (TNS): As described above, the TNS must be included in the IAM for some types of calls and must not be included on other types of calls, as follows:

   - **End office to access tandem (destined for ICN)** - The IAM must always contain the TNS for this type of call. The TNS must include Carrier Identification Code and Circuit Code fields which are used by the access tandem for selecting the proper trunk group to the ICN. The TNS also indicates if the call is an international call.

   - **End office to ICN directly** - For this type of call, the TNS is necessary only on international calls, and it will include the Carrier Identification Code and Circuit Code fields. The TNS indicates that it is an international call and whether or not an operator has been requested.

   - **Access tandem to ICN** - The access tandem will always receive a TNS, but must pass it to the ICN only on international calls, as described in the "End office to ICN direct" case.

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- **EO to ICN direct, not internationally** - TNS not included.

2. Originating Line Information (OLIP): This parameter contains information equivalent to the II digits of inband exchange access signaling (indicates hotel, inmate, Toll-Free (8XX) call, coin call, etc.).

3. Charge Number: This parameter contains information equivalent to Automatic Number Identification (ANI) information. It contains the billing number for the particular call.

4. Calling Party Number: This parameter identifies the calling station number, as opposed to the charge number for the calling party, which is ANI. **Although the Calling Party Number parameter is optional in a protocol sense, this parameter should be sent on every call**.

5. Carrier Selection: This parameter transmits information on whether the calling party is presubscribed to the IXC and whether the calling party dialed 101XXXX to route the call to the IXC.

6. Service Code: This parameter allows individual calls to be identified and routed based on specific service characteristics. It is used to carry information from the MF facility code digits.

7. Carrier Identification: This parameter provides information sent in the forward direction to the transit network indicating the transit network selected by the originating subscriber.

8. Hop Counter: This parameter is used to detect the presence of call routing loops caused by translating errors in the switch. The parameter is inserted into an outgoing IAM by an intermediate switch which gives it an initial value, and it is normally decremented by each succeeding switch until the call reaches the terminating switch, or the hop counter decrements to zero, at which the call is released. If the call is forwarded, the hop counter will be reset to its provisioned initial value.

9. Generic Address: This parameter is used, in a Local Number Portability (LNP) environment, to carry the "ported dialed number", when the number has indeed been ported. The parameter will be present if the number has been ported and will not be present if the number has not been ported.

10. Jurisdiction Information (JIP): This parameter contains six binary coded decimal digits (NPA-NXX) that represent the jurisdiction information (geographic location) of the calling party. In an LNP environment, this parameter will be populated with the first six digits of the ten-digit Location Routing Number (LRN) of the switch serving the calling party. **LNP is now available within BellSouth. It is expected that the JIP parameter will be included in the IAM for all calls.**

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11. Generic Name (GN): This parameter is used to deliver information about whether a customer has altered his or her calling name presentation status for the particular call in which the GN parameter was received in the IAM.

12. Original Called Number (OCN): This parameter is used in call forwarding to carry the redirecting number value, nature of address, numbering plan, and the presentation information associated with the user who initiated the first redirection.

13. Redirecting Number (RN): This parameter is used in call forwarding to carry the redirecting number value, nature of address, numbering plan, and the presentation and screening information associated with the latest instance (when there is more than one instance) of call forwarding.

14. Redirection Information (RI): This parameter is used in call forwarding to convey the reason for redirection values associated with the original instance of call forwarding, and redirection values associated with the latest instance of call forwarding (if multiple call forwardings have occurred).

15. Redirect Capability: This parameter alerts a subsequent switch in the call path that a call is eligible for Release to Pivot (RTP) routing.

16. Redirect Counter: This parameter limits the number of times a call will undergo RTP redirection.

17. Access Transport: This parameter is used to transport ISDN information elements transparently though the SS7 network from an originating ISDN access to the terminating switch, and vice versa if the terminating switch also supports ISDN.

3.2 ISUP Messages

This section will describe the ISUP messages that may be passed between BellSouth and the ICN. This section is divided into Call Setup messages and Non-Call Setup messages.

3.2.1 Call Setup messages

This section lists call setup messages which may be passed between BellSouth and the ICN.

1. Address Complete Message (ACM): This message is sent in the backward direction when the called party number information is complete and any continuity checks required throughout the connection have been successfully completed.

2. Answer Message (ANM): This message is sent in the backward direction to indicate that a call has been answered.

3. Circuit Reservation Message (CRM). This message is sent in the forward direction to reserve an outgoing SS7-supported circuit and initiate any required continuity check. This message is used when there is an interLATA call using inband Exchange Access

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North American signaling to BellSouth's SS7 access tandem (AT).

4. Circuit Reservation Acknowledgement Message (CRA): This message is sent in the backward direction in response to a CRM indicating that a circuit has been reserved for an incoming call.

5. Continuity Check Message (COT): This message is sent in the forward direction to indicate either the success or failure of the continuity check performed on an SS7 circuit in the connection.

6. Exit Message (EXM): This message is sent in the backward direction from an access tandem (AT) to indicate that SS7 call setup information has successfully progressed to the adjacent ICN.

7. Initial Address Message (IAM): This message is sent in the forward direction to initiate seizure of an outgoing circuit and to transmit address and other information relating to the routing and handling of a call. Refer to Section 3.1 of this document for the IAM parameters supported by BellSouth for internetwork call control. To support ISDN access, the IAM will contain the access transport parameter if needed. For ISDN access, the user service information parameter information transfer capability field coding that may be used is speech, 3.1 kHz audio, 64 Kbps unrestricted digital information, or unrestricted digital information rate adapted from 56 Kbps as described in GR-905-CORE. In addition, the user service information parameter information transfer rate field coding that may be used is 384 Kbps, 1536 Kbps, or multirate (nx64 Kbps) as described in GR-1357-CORE.

8. Release Message (REL): This message is sent in either direction to indicate that the specified circuit is being released from the connection. The specified circuit is released before the REL is sent, but the circuit is not idled (i.e., available to be used for the next call) until a Release Complete (RLC) message is received for the specified circuit.

9. Release Complete Message (RLC): This message is sent in either direction in response to a Release (REL) message.

10. Resume Message (RES): This message is sent in the backward direction after a Suspend (SUS) message has been sent, to indicate that the called party has reconnected. The RES informs the network that the call that had been suspended, is being resumed.

11. Suspend Message (SUS): This message is sent in the backward direction to indicate that the called party has disconnected before receipt of a Release (REL) message.

12. Call Progress Message (CPG): Certain features may cause a switch to receive an Address Complete Message (ACM) for a call for which it has previously transmitted an ACM. Under these conditions, it is expected that the switch sends a CPG message in the backward direction. The sent CPG should contain the mandatory event information parameter and all the parameters received in the ACM as its optional parameters. The CPG is also sent in the backward direction from the terminating switch to indicate call progress information for a call terminating to an ISDN access subscriber. The cause

indicators parameter is included in the CPG if the CPG is sent because the call is cleared at the terminating ISDN interface and an inband tone or announcement has been generated. The cause indicators parameter contains information on why the call was cleared at the terminating ISDN interface.

13. Confusion Message (CFN): This message may be sent in either direction to inform the adjacent switch in a call connection that an unrecognized ISUP message has been received (from the adjacent switch).

3.2.2 Non-Call Setup Messages

This section lists call setup messages which may be passed between BellSouth and the ICN.

1. Blocking Messages (BLO, BLA): The Blocking message (BLO) is sent to a switch to block transmission from that switch on the specified circuit. The BLO may be sent in the forward or backward direction. The Blocking Acknowledgement message (BLA) is sent in either direction in response to a BLO message and indicates that the specified circuit has been blocked.

2. Unblocking Messages (UBL, UBA): The Unblocking message (UBL) is sent to a switch to unblock or enable transmission from that switch on the specified circuit. The UBL may be sent in the forward or backward direction. The Unblocking Acknowledgement message (UBA) is sent in either direction in response to a UBL message and indicates that the specified circuit has been unblocked.

3. Circuit Group Blocking Messages (CGB, CGBA): The Circuit Group Blocking message (CGB) is sent to a switch to block transmission from that switch on a specified group of circuits. To actually block a group of circuits, the CGB must be sent twice within 5 seconds. The Circuit Group Blocking Acknowledgement message (CGBA) is sent in response to a CGB message. The CGBA indicates that the specified group of circuits has been blocked.

4. Circuit Group Unblocking Messages (CGU, CGUA): The Circuit Group Unblocking message (CGU) is sent to unblock or enable transmission on a specified group of circuits. The Circuit Group Unblocking Acknowledgement message (CGUA) is sent in response to the Circuit Group Unblocking message. The CGUA indicates that the specified group of circuits has been unblocked.

5. Reset Circuit Message (RSC): This message is sent to reset a circuit for which the status is unknown or mutilated. The RSC resets the circuit to the idle condition, making the circuit available for traffic.

6. Circuit Group Reset Messages (GRS, GRA): The Circuit Group Reset message (GRS) is sent to reset a specified group of circuits. In order to reset the group of circuits, the GRS must be sent twice within 5 seconds. The Circuit Group Reset Acknowledgement message (GRA) is sent in response to a GRS message. The GRA is sent when two GRS messages have been received within 5 seconds. The GRA indicates that the specified group of circuits has been reset.

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7. Circuit Query Messages (CQM, CQR): The Circuit Query message (CQM) is sent in either direction to request the state of a single circuit or group of circuits. The Circuit Query Response message (CQR) is sent in response to a CQM. The CQR indicates the states of the requested circuits.

8. Circuit Validation Test Messages (CVT, CVR): The Circuit Validation Test message (CVT) is sent to indicate that the sending end of an SS7-supported circuit has sufficient and consistent information about the circuit and to initiate testing of the other end. The Circuit Validation Response message (CVR) is sent in response to a CVT. The CVR indicates whether or not this end of the SS7-supported circuit has sufficient and consistent information to use the circuit in a call connection.

9. Continuity Check Request Message and Loop Back Acknowledgement Message (CCR, LPA): The Continui' Check Request message (CCR) is sent after a circuit has failed a continuity check du. g call setup. The CCR initiates a continuity check within 1 to 10 seconds after the determination that the first continuity check has failed. The Loop Back Acknowledgement message (LPA) is sent in response to a CCR message. The LPA indicates that a check-loop or transponder has been connected to the circuit.

10. Unequipped Circuit Identification Message (UCIC): The Unequipped Circuit Identification Code message (UCIC) is sent if a message is received with an unequipped TCIC. A circuit is unequipped if no valid SS7 message can be received or transmitted on that circuit (with the exception of the Circuit Query Message, Circuit Query Response Message, and the UCIC message).

3.3 Other ISUP Related Capabilities

3.3.1 Dual Seizure (Glare) on Two-Way Trunks

Dual seizure (glare) is a problem which occurs on 2-way trunks when the switches on each side of the trunk simultaneously seize that trunk for subsequent use in a call. When this occurs, procedures must be followed to determine which side of the trunk can proceed with the outgoing call and which side should release the switch path. The side of the trunk that is in control will receive overriding control assignment for all calls. Tables controlling "dual seizure control" can be settable in the SP.

The solution that is followed by BellSouth when dual seizure occurs is described by the following (this applies to all calls).

1. For offices with different ranks, the higher ranked office should always have control of the circuit; the lower ranked office should yield the circuit.

2. For offices with the same rank, the offices are given control in accordance with their alphabetical rankings in the CLLI code listings.

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3.3.2 Continuity Check

As described in the section on ISUP messages, the Continuity message (COT) is sent in the forward direction to indicate either the success or failure of the continuity check performed on an SS7 circuit in the connection. If a continuity test is to be performed on a circuit and it fails, another circuit is selected. If the continuity test fails on the second circuit, the call is aborted and the customer receives reorder tone. The continuity test is performed on a per circuit basis and its frequency can be set for 1 out of 'n' calls, with 'n being an integer from 1 to 16.

BellSouth's position on the frequency of continuity checks is the following: A continuity check shall be performed for 1 out of 8 calls, for both analog and digital trunks, except for the following.

BellSouth requests that 100% of 9-1-1 calls receive continuity checks. This may be accomplished by routing all 9-1-1 calls over a particular trunk group and setting the continuity test frequency on each circuit of that trunk group to be 1 out of 1. If the trunk group is a dedicated trunk group that only carries 9-1-1 traffic, then only 9-1-1 calls routed over the trunk group will always receive a continuity check. However, if the trunk group a shared trunk group, then all calls (including non 9-1-1 traffic) routed over the trunk group will always receive a continuity check.

3.4 Tones and Announcements

There are a number of events which will necessitate the playing of a tone or announcement by one of the switches in the call path. The twelve (12) events requiring treatment are shown below:

1. Unallocated Number
2. No Route to Destination
3. User Busy
4. Number Changed
5. Destination Out of Order
6. No Circuit Available
7. Temporary Failure
8. Switching Equipment Congestion
9. Resource Unavailable – Unspecified
10. Call Rejected
11. Protocol Error
12. Exchange Routing Error

The switch that will provide the treatment varies depending upon what event occurred, and whether interworking has occurred for the call, as described below.

BST proposes that for SS7 all the way (no interworking encountered) all events shown above will be released back with the exception of Unallocated Number, Number Changed, and Destination Out of Order. The announcements for the three events not released will be played at the terminating switch, as shown in the table below.

BST proposes that when interworking is encountered, User Busy and Switching Equipment Congestion be released back, all others will be played at the terminating switch, as shown in the table below.

The following table summarizes these events.

EVENT	SS7 ALL THE WAY	MF/SS7 INTERWORKING IN CALL PATH
Unallocated Number	T	T
No Route to Destination	R	T
User Busy	R	R
Number Changed	T	T
Destination Out of Order	T	T
No Circuit Available	R	T
Temporary Failure	R	T
Switching Eqpt Congestion	R	R
Resources Unavailable-Unspecified	R	T
Call Reject	R	T
Protocol Error	R	T
Exchange Routing Error	R	T

The R shown on the above table stands for *Release Back*, and the T stands for *Play at the Terminating End.*

For the cases in which the event calls for a *Release Back* to occur, the call should be released all the way back to the originating switch if the call was SS7 all the way (no interworking), or back to the MF-SS7 interworking point if interworking was encountered along the call path. An intermediate switch which is not an MF-SS7 interworking point should be able to pass any cause value that it receives.

BST would like to emphasize that these guidelines will be implemented as long as our terminating switch has the capability to set these parameters as shown. In the event that a switch in our network does not contain these capabilities, BST reserves the right to negotiate with the interconnecting network a solution to this problem and to set a different Tone/Announcement treatment consistent with the terminating switch capabilities and the interconnecting network capabilities. This treatment would be given until BST negotiates with its vendor a fix to bring the switch on line with these guidelines. Once the fix becomes available, BST would expect to set the treatment of Tones and Announcements in accordance with the above guidelines.

3.5 Special Considerations for Intermediate Tandems

A current incompatibility exists within the public switched telephone network between Intermediate Tandems (ITs) and Access Tandems (ATs). Specifically, an IT-AT arrangement cannot perform SS7 interLATA call set-up involving an Interexchange Carrier (IC).

The specific needs that must be addressed to remove the incompatibility between ITs and existing requirements for SS7 interLATA call set-up are as follows:

1. The objective is to make ITs compatible with an all-SS7, GR-394-CORE call set-up arrangement. MF-SS7 interworking at the IT is not possible without modification to either the AT or EO. In addition, interworking is inconsistent with the fundamental purpose of an IT.

2. The IT must conform to GR-905-CORE at the IT-AT interface. Therefore, the IT must emulate an EO when communicating with an AT (since this is the only LEC switch that a GR-905-CORE-compliant AT expects to communicate with).

3. The IT must be capable of passing the Carrier Identification Code (CIC) with Circuit Code in the Initial Address Message (IAM) to the AT. The CIC is normally carried in the Transit Network Selection (TNS) parameter of the IAM from the EO and, without IT modification, would be dropped at the IT (assuming GR-394 software).

4. Recording of the Carrier Connect Time (CCT) must be addressed. CCT is normally recorded at the end office and is used to determine access time in order to bill the IC. GR-394 specifies that CCT coincide with the receipt (at the EO) of the Exit Message (EXM) from the AT, which indicates that the IAM has been sent to the IC. The IT should not initiate an EXM after sending an IAM to the AT (except as described in (6)). Rather, in order to properly trigger CCT in the EO, it should accept an EXM from the AT and forward it to the EO.

5. The IT may also perform 800 Service Switching Point (SSP) functions. If the IT is performing the SSP function for an 800 call, it must populate the TNS parameter in the IAM sent to the AT, generate an EXM (per GR-394) to the EO and record CCT based upon receipt of the EXM from the AT.

6. The IT may also perform AT functions for some calls. If the IT is acting as a combination IT/AT switch, it must be able to determine which function it is performing for a particular call and act accordingly.

7. To remain compatible with future capabilities, the IT must pass unrecognized SS7 parameters and messages on to the next switch.

4 SIGNALING CONNECTION CONTROL PART (SCCP) PROTOCOL

This section describes, at a high level, the compatibility information required for interconnecting with BST's network to support the Signaling Connection Control Part (SCCP) of the SS7 protocol. Detailed compatibility information, including message formats, is provided in GR-1432-CORE.

The SCCP provides additional functions to the Message Transfer Part (MTP) to transfer non-circuit-related signaling information. The SCCP protocol, as described in ANSI T1.112, consists of four major functional components:

- SCCP connection-oriented control
- SCCP connectionless control
- SCCP routing
- SCCP management.

BST does not currently support connection-oriented control and does not expect to send or receive internetwork SCCP messages related to SCCP connection-oriented procedures.

4.1 Connectionless Service

SCCP connectionless controls provide efficient routing of messages that are independent of voice network connections without the establishment of a signaling connection. There are two types of connectionless transport that can be used for SCCP message exchange. They are identified by the protocol class assigned to the message.

1. Class 0 (basic connectionless service) which provides transport of message signal units (MSUs) without establishing any relationship between two or more messages originating from the same node. SCCP messages sent using connectionless Class 0 are transported independently of each other.
2. Class 1 (MTP sequenced connectionless service) which maintains message sequencing under normal circumstances by encoding related messages with identical Signaling Link Selection (SLS) code values.

BST will send messages using SCCP Class 0, and expects to receive messages from ICNs that interconnect to BST network using SCCP Class 0.

4.2 SCCP Routing

SCCP routing may be required at BST's and/or the ICN's STP(s) for certain service applications. (See Section 5 for more detail regarding service applications that BST offers or intends to offer that utilize internetwork SCCP message transport.) SCCP functionality at an STP should only be invoked if the STP receives a message in which the destination point code (DPC) in the routing label is one of the STP's addresses, and the Service Information Octet directs the message to the

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SCCP. SCCP routing procedures consist of performing a Global Title Translation (GTT) to determine a DPC (and possibly a subsystem number and/or routing indicator) for the message. While the SCCP routing procedures described in GR-1432-CORE currently include the Intermediate Signaling Network Identification (ISNI) capability, BST does not currently support the use of ISNI routing for those applications identified in Section 5, and has no plans to implement the ISNI capability. BST plans to support the Intermediate Network Selection (INS) capability in the near future. This feature will be included in the December 1999 update to GR-1432-CORE. BST should be consulted regarding specific plans for deploying the INS capability.

BST will only accept internetwork SCCP-routed messages that are routed to a BST gateway STP for GTT. BST will not allow messages that undergo SCCP routing (i.e., GTT) in an ICN to be routed directly to BST end nodes. In addition, BST will only accept internetwork SCCP messages routed to a BST gateway STP for GTT that use a Global Title Indicator value of "2." BST will accept SCCP messages (e.g., LIDB, CNAM and CLASS response messages) that are routed on the basis of Destination Point Code (DPC) and Subsystem Number (SSN) via an ICN to a CLASS switch or Operator Services System in BST's network.

There are two types of non-circuit related messages that may be transported as part of normal SCCP connectionless service: the Unitdata (UDT) message and the Extended Unitdata (XUDT) message. XUDT messages differ from UDT messages in that XUDT messages contain optional SCCP parameters. At this time, BST supports UDT messages only. Future plans may include support of XUDT messages by the BST network. BST should be consulted regarding specific plans for deploying the XUDT capability. See Section 2.3.1 and Appendix A of GR-1432-CORE for details regarding the encoding of SCCP UDT and XUDT messages.

If BST sends a UDT to an ICN STP, and that message requests SCCP routing, the ICN STP is expected to perform a GTT on the SCCP Called Party Address of that message. If the ICN STP is unable to perform a GTT, the ICN STP is expected to fail the message and perform the following procedures:

- If the message return option has been specified in the SCCP portion of the message, the ICN STP is expected to create a Unitdata Service (UDTS) message, with the return cause field set to indicate the reason that the ICN STP failed the UDT message. The ICN STP is expected to MTP-route the UDTS message.

- If the message return option is not specified in the SCCP portion of the message, the ICN STP is expected to discard the UDT message.

The ICN STP should not expect to receive a UDTS message that requests SCCP routing. However, if it does receive such a message, the ICN STP is expected to perform a GTT on the SCCP Called Party Address of the UDTS message.

If a BST STP receives a UDT message that requests SCCP routing, the BST STP will perform a GTT on the SCCP Called Party Address of the message. If the BST STP is unable to perform a global title translation, it will fail the message and perform the following procedures:

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- If the message return option has been specified in the SCCP portion of the message, the BST STP will create a UDTS message, with the return cause field set to indicate the reason that the STP failed the UDT message. The BST STP will MTP-route the UDTS message.

- If the message return option is not specified in the SCCP portion of the message, the BST STP will discard the UDT message.

The BST STP does not expect to receive a UDTS message that requests SCCP routing. However, if it does receive such a message, the BST STP will perform a GTT on the SCCP Called Party Address of the UDTS message.

It is expected that the ICN STP will not route an XUDT message into the BST network until such time as the IC' as verified that the node that will receive the message (i.e., the node identified by the DPC i message) is capable of processing such a message. If the ICN does not verify the receiving 's ability, and the receiving node cannot process the XUDT message, the receiving node will discard the received XUDT message due to an unrecognized message type.

4.3 SCCP Management

BST will not send SCCP management messages to the ICN and does not expect to receive SCCP management messages from the ICN except where specifically included in bilateral agreements. In the absence of such bilateral agreements, SCCP management messages received by the BST interconnecting STP will be ignored.

4.4 Translation Type Values

The translation type values currently supported by BST are summarized below:

Service	Translation Type
CLASS^{SM}	251
LIDB	2, 253
CNAM	5
Toll Free (8XX Service)	240, 254
LNP	11
Wireless Services/LNP	14

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5 TRANSACTION CAPABILITIES APPLICATION PART (TCAP) PROTOCOL

This section describes, at a high level, the compatibility information required for interconnecting with the BST network to support the Transaction Capabilities Application Part (TCAP) of the SS7 protocol. The TCAP protocol provides procedures that are used in a number of services that BST offers or intends to offer, and that may require interactions with ICNs. These services are described in more detail in Section 6.

TCAP is an application layer protocol. In the BST network, TCAP is transported using the MTP and SCCP layers of the SS7 protocol. TCAP supports the transfer of non-circuit-related information between signaling nodes via a signaling network. TCAP provides a framework for a common approach to services within a network, as well as a framework for internetwork services. In its interactions with BST's network to support internetwork service operation, an ICN is expected to conform to the SS7 TCAP protocol, as described in ANSI T1.114.

5.1 General Description of TCAP Procedures

A TCAP transaction consists of one or more TCAP messages between two application processes. TCAP transactions can be one-way (i.e., unidirectional) or two-way (i.e., interactive). The application process that initiates the transaction indicates which case applies, from its point of view, at the start of the transaction. The Transaction Capabilities protocol format is separated into three portions, namely, Transaction, Dialogue, and Component. The Transaction Portion is composed entirely of protocol control information and identifies whether the TCAP transaction is expected to consist of a single or multiple messages. It also provides a means for associating messages related to the same transaction. The Component Portion contains protocol-related information as well as data concerning the application process. It consists of zero, one or more Components. The Dialogue Portion is used to pass information related to the version of TCAP being used, the application context, and security. A general description of TCAP processing at the transaction level and the component level is described below. BST conforms to these procedures, and an ICN is expected to conform as well. BST does not support the Dialogue Portion of the TCAP protocol at this time.

5.1.1 General Transaction Procedures

The transaction portion of a message identifies the status of the transaction (i.e., is the transaction beginning, continuing, or ending) and whether the transaction between two nodes is expected to consist of a single message (i.e., one way communication) or multiple messages (i.e., interactive communication). This is reflected in the transaction portion of the message in the Package Type field. In addition, the information in the transaction portion of the message and the transaction-level procedures are responsible for maintaining an association between all of the messages that are associated with a transaction.

If an application process needs to send information to another application process without expecting a response from the receiving application process, the message will contain a Package Type of "Unidirectional."

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If an application process has a need for interactive communication with another application process, it will initiate the interaction by sending a message with one of the Query Package Types. If the sending application process does not anticipate needing to send additional messages, it will send the initial message with a Package Type of "Query with Permission." The concept of "permission" refers to the fact that the sending application process gives the responding application process permission to terminate the transaction if it wishes to (i.e., by returning a message containing a "Response" Package Type). If the sending application has a need to send multiple messages, it will use a Package Type of "Query without Permission" in its initial message, to indicate to the responding application process that it should not terminate the transaction when it responds (i.e., it should use one of the Conversation Package Types rather than a Response Package Type).

If the responding application process has a need to send multiple messages, it will use a "Conversation Without Permission" Package Type when it responds to the Query message. If the responding application process does not anticipate having to send more than one message in response to the Query, it will either send a Response message to terminate the transaction (assuming a Package Type of Query with Permission was received), or a Conversation with Permission to continue the transaction.

If a responding application process receives a message containing a protocol error in the transaction portion of the message, the TCAP protocol allows the responding application to send an "Abort" Package Type to indicate that the protocol error was encountered. BST should be consulted regarding the use of the "Abort" Package Type for AIN services. Note that for the services described in Section 5 of this document, BST uses a Response or Unidirectional message containing a Reject component (see below) to report protocol errors.

The transaction portion of a TCAP message also contains a Transaction ID which is used to correlate messages that are related to the same transaction.

5.1.2 General Component Procedures

Components provide information that either requests an action or responds to a previous request. The component portion of a message can consist of zero, one or more components. There are four main component types: Invoke, Return Result, Return Error and Reject.

An application uses an Invoke component to request that an operation be performed. Depending on the service being supported, an application process may report the success or failure of an invoked operation, success only, failure only, or neither success nor failure. If an operation is successful, the application process that performed the operation will respond with a Return Result component or, possibly, another Invoke component. If a response to an operation is segmented among more than one component (Invoke or Return Result), then the component type also carries an indication of which is the last of the responding components. Therefore, there are actually two Invoke component types that can be used for responding Invoke components (i.e., Invoke (Last) and Invoke (Not Last) and two Return Result components (i.e., Return Result (Last) and Return Result (Not Last).

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If an operation is unsuccessful due to an application error, the responding application process will send a Return Error component. The Return Error component will contain the reason for the failure.

If an operation fails due to a protocol error at the component level, the responding application process will report the protocol error in a Reject component. If an operation fails due to a protocol error in the transaction portion of the message, the protocol allows the responding application process to either report the protocol error in an Abort Package Type, as discussed above, without any components, or by sending a Reject component in a Unidirectional or Response Package Type. At this time, the BST services described in Section 5 use a Reject component in a Unidirectional or Response Package Type to report a protocol error in the transaction portion of the message.

5.2 General Formatting Principles

This section provides a high-level description of the formatting principles used in coding TCAP messages and the data elements within them. BST conforms to these formatting principles, and the ICN is expected to conform to them as well. See ANSI T1.114 for details related to the formats and codes associated with TCAP messages.

A TCAP message consists of a number of data elements. Data elements within a TCAP message can be classified as protocol control information or parameters. The presence of protocol control information (e.g., Transaction IDs, Component IDs) is determined based on the Package Type and Component Type Identifiers in the message. Parameters provide information that is significant to the application process. Each data element in a TCAP message has a standard representation that consists of a sequence of octets containing an Identifier, a length indicator, and, finally, the content of the data element. The rules related to the formatting of the Identifiers and length indicators are described in detail in ANSI T1.114.3.

As described above, the data elements within a TCAP message are associated with either the transaction portion or the component portion of a TCAP message. The transaction portion of all TCAP messages should explicitly indicate the Package Type (e.g., Query, Response). The value of the Package Type implicitly indicates the number of Transaction IDs that should be present, as well as providing the status of the transaction (i.e., beginning, middle, end) and includes information needed to coordinate the termination of the transaction and the release of the Transaction IDs.

The Package Type is followed by an octet that indicates the total length of the remainder of the TCAP message.

Transaction ID information may or may not be present after the Total TCAP Message Length, depending on the value of the Package Type. The transaction portion can either contain one Transaction ID (i.e., an Originating Transaction ID if the Package Type is a Query, or a Responding Transaction ID if the Package Type is a Response), two Transaction IDs (i.e., Originating and Responding if the Package Type is a Conversation), or no Transaction IDs (if the Package Type is "Unidirectional"). A Transaction ID Identifier and Length Indicator will always

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be present after the Total TCAP Message Length, even if no Transaction ID value is present (in which case the Transaction ID Length = 0).

While ANSI T1.114 allows for a Dialogue Portion to optionally be present after the Transaction ID information in a TCAP message, BST does not currently support this option and does not expect to send or receive internetwork TCAP messages that contain a Dialogue Portion at this time.

For Query, Conversation, Response and Unidirectional Package Types, the next and last field in the transaction portion of a TCAP message is the Component Sequence Identifier. This field indicates that the component portion is to follow and specifies its length.

The component portion of a TCAP message may contain any number of components. Each component contains a Component Type Identifier that identifies the component as an Invoke, a Return Result, a Return Error, or a Reject. As described above, the Component Type Identifier field also indicates whether this is the last responding component in a series of logically linked components.

The Component Type Identifier field is followed by a length indicator that specifies the length of the entire component. After the Component Length is the Component ID information. This is used to correlate components with their responses. The two types of Component IDs are Invoke IDs, which are assigned by the node that is originating the Invoke component, and Correlation IDs that reflect the Invoke IDs assigned by the node that originated the Invoke component. A component can contain zero, one or two Component IDs. The number of Component IDs present will depend on the type of component and the point in the transaction at which the component is sent.

If the component is an Invoke, the Component ID information should be followed by an Operation Code. This field identifies the operation to be performed and indicates whether this operation requires a reply. The operation code field is preceded by an octet that identifies that the information to follow is an operation code, and a length indicator.

If the component is a Reject, the Operation Code is replaced by a 2-octet Problem Code. If the component is a Return Error, the Operation Code is replaced by a 1-octet Error Code.

The Operation Code, Problem Code or Error Code (if present) is followed by the Parameter Set/Sequence Identifier. A Parameter Sequence Identifier indicates that a specific sequence of parameters is to follow. The Parameter Sequence Length specifies the total length of all the parameters in the sequence. A Parameter Set Identifier indicates that a set of parameters will follow (in any order). The Parameter Set Length specifies the total length of all the parameters in the set.

If parameters are to be included in the component of a TCAP message, the data associated with each parameter should be preceded by Identifier and Length Indicator octets.

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6 SERVICE OFFERINGS

6.1 CLASS℠

CLASS℠ Services are a set of call management features that utilize the capability to transport a calling party's number between switching offices with Common Channel Signaling (CCS) call set-up messages. Some CLASS℠ services use the TCAP protocol to allow a switching office to obtain information from another switching office, such as the busy/idle status of a line, without setting up a call between the switching offices. Automatic Callback and Automatic Recall are examples of CLASS℠ services.

GR-1429-CORE provides ICNs with compatibility information required for interconnecting with BST's CCS network for Automatic Callback, Automatic Recall, and the list building capability (i.e., Screening List Editing) that is used with the Selective Call Rejection and Distinctive Ringing/Call Waiting features.

ICNs that wish to interconnect to BST's network for the purpose of obtaining information in support of CLASS℠ services are required to use a Translation Type (TT) value of 251 for messages requiring Global Title Translation.

Since the routing of Automatic Callback, Automatic Recall and Screening List Editing queries is currently based on the NPA-NXX in the GTA field of the SCCP Called Party Address parameter of the query message, this service has been impacted by the introduction of Local Number Portability in BST's network. See Section 7.2 for a discussion of the impact of LNP on interconnection requirements related to the routing of TCAP queries.

6.2 Line Information Data Base (LIDB) Access

Gaining access to BST's Line Information Data Base (LIDB) for services such as Alternate Billing Service (ABS) provides real time billing validation for customers placing intraLATA calls billed to a telecommunications calling card, billed to a third party number, or placed collect. Operator Services Systems (OSSs) use TCAP messages to access information stored in the LIDB. GR-954-CORE provides information related to the interconnection of BST's CCS network with ICNs to support LIDB access.

ICNs that access BST's LIDB are required to use a TT value of 2 or 253 in their queries.

Since the routing of LIDB queries is currently based on the NPA-NXX in the GTA field of the SCCP Called Party Address parameter of the query message, this service has been impacted by the introduction of Local Number Portability in BST's network. See Section 7.2 for a discussion of the impact of LNP on interconnection requirements related to the routing of LIDB queries.

6.3 Toll-Free (8XX) Service

Toll-Free Service is a service in which special treatment is applied to a call if the call is dialed using a Service Access Code (SAC) or Interchangeable NPA (INPA) code that is assigned for use with Toll-Free Service (e.g., "800," "888"). If a BST switch equipped with Service Switching

Point (SSP) functionality receives such a call, it will query a network database to determine the ICN associated with the dialed toll-free number and, in some cases, the actual POTS number to which the call should be routed. BST currently supports Toll-Free Service using both Intelligent Network (IN) and Advanced Intelligent Network (AIN)-based queries/protocol. Detailed requirements for IN-based Toll-Free Service are described in TR-NWT-000533. Detailed requirements for AIN-based Toll-Free Service are described in GR-2892-CORE. Additional information for interconnection of BST's CCS network with ICNs to support IN-based Toll-Free Service is provided in GR-1428-CORE, and support for interconnection using AIN-based queries/protocol is provided in GR-2902-CORE.

ICNs that access BST's Toll-Free Service Data Base to translate a Toll-Free SAC/INPA to a dialable telephone number are required to use a TT value of 254 in their queries.

7 LOCAL NUMBER PORTABILTY (LNP)

This section describes, at a high level, the compatibility information required for interconnecting with the BST network to support call setup and vertical service operation in a Local Number Portability (LNP) environment. Detailed switch requirements for supporting call setup in an LNP environment are provided in the T1S1.6 Working Group on Number Portability Technical Requirements No. 2, *Number Portability Switching Systems*. Detailed SCP and GTT function requirements are presented in the T1S1.6 Working Group on Number Portability Technical Requirements No. 3, *Number Portability Database and Global Title Translation*.

LNP refers to the ability of local exchange subscribers to change their local service providers, physical locations and/or type of service within a defined geographic local number portability area, without having to change their geographic North American Numbering Plan (NANP) telephone numbers. These three types of LNP are referred to as local service provider portability, location portability, and service portability, respectively.

Initial deployment of LNP capabilities in BST includes support of Local Service Provider Portability (LSPP).

7.1 Call Setup in an LNP Environment

This section describes the following interfaces between an ICN that is not an IXC or International Carrier (INC) and BST's CCS network:

1. the call control interface when the ICN sets up an LNP call (i.e., a call in which the NPA-NXX of the dialed number is a portable NPA-NXX) to BST prior to querying the LNP database
2. the call control interface when the ICN sets up an LNP call to BST's network after querying an LNP database
3. the interface when the ICN queries BST's LNP database.

In addition to the above interfaces, this section also describes the call control interface that enables BST to route an LNP call to an appropriate intermediate network (e.g., IXC or INC) or to a terminating network.

7.1.1 ICN to BST Originating Access

An ICN switch may need to setup an LNP call to BST's AT/SSP for originating access, when the ICN is not an IXC or INC. The ICN switch is expected to use the following procedures, which vary based on the capabilities of the ICN switch and the business arrangements that exist between the ICN and BST.

7.1.1.1 BST Provides Transport for ICN LNP Call Setup

For local LNP calls, where the BST CCS network is a transient network (i.e., BST is responsible for transporting an LNP call to an appropriate intermediate or terminating network), the ICN is

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obliged to perform any LNP processing associated with the call, unless a specific business agreement exists with BST which specifies that BST will provide LNP processing for the ICN.

7.1.1.2 BST AT/SSP Queries LNP Database

A. ICN Switch Equipped with GR-317-CORE Capability

In this case, the ICN switch is not LNP-capable and cannot, therefore, launch a query to an LNP database. Using the GR-317-CORE capability, the ICN switch is expected to formulate an IAM and proceed with call setup to an LNP-capable SSP in BST's network, as described in Section 4.1 of GR-905-CORE.

If, based on the dialed number in the Called Party Number parameter of the received IAM, an LNP-capable switch in BST's network recognizes an incoming call as one that requires LNP processing, the BST switch will proceed with LNP processing as described in Section 5 of the T1S1.6 Technical Requirements No. 2, *Number Portability Switching Systems*.

B. ICN Switch Equipped With GR-394-CORE Capability

As in the previous case, the ICN switch is not LNP-capable. Using GR-394-CORE signaling, the ICN switch is expected to formulate an IAM and proceed with call setup to BST's LNP-capable AT/SSP as described in Section 4.1 of GR-905-CORE.

If, based on the dialed number in the Called Party Number parameter of the received IAM, an LNP-capable switch in BST's network recognizes an incoming call as one requiring LNP processing, the BST switch will proceed with LNP processing as described in Section 5 of the T1S1.6 Technical Requirements No. 2, *Number Portability Switching Systems.*

C. ICN Switch Not Equipped with GR-317-CORE or GR-394-CORE Capability

In this case, the ICN sets up the call to an LNP-capable switch in BST's network using MF signaling. Once again, if an LNP-capable switch in BST's network recognizes an incoming call as one requiring LNP processing, based on the dialed digits that are received, the BST switch will proceed with LNP processing, as described in Section 5 of the T1S1.6 Technical Requirements No. 2, *Number Portability Switching Systems.*

7.1.1.3 ICN SSP Queries BST LNP Database

In this case, the ICN LNP-capable SSP launches an LNP query to BST's SCP before setting up the LNP call. It is expected that the query to BST's LNP database will follow the requirements in Section 5.1.1.1 of the T1S1.6 Technical Requirements No. 2, *Number Portability Switching Systems*. ICNs that query the BST LNP database are required to use a TT value of 11 (for internetwork AIN-based LNP queries). If, upon receipt of the response from BST's LNP database, the ICN determines that the call should be set up via/to a switch in BST's network, the ICN SSP is expected to set up the call as descri[illegible]ection 4.1 of GR-905-CORE, and Section 5.1.1.2.1 of T1S1.6 Technical Requirements No. 2.

7.1.2 BST to ICN Originating Access

If BST determines that an IXC is needed to carry an LNP call, and a business agreement exists between BST and the IXC specifying that BST will perform NP queries on calls destined for that IXC, BST's SSP will proceed with LNP processing as described in Section 5.1 of T1 Requirements No. 2, *Number Portability Switching Systems.*

If the ICN is an INC, or an IXC that BST has not agreed to perform NP queries for, BST will use the GR-394-CORE capability, as described in Section 4.1 of GR-905-CORE, to set up the call to the ICN that will carry the call. In this case, the BST switch will not apply LNP processing to that call prior to it being routed to the IXC. Therefore, the signaling that the ICN should expect to receive from a BST switch will be the same as for a non-LNP call.

7.1.3 ICN to BST Terminating Access

It is expected that an ICN will follow the procedures in Section 4.1 of GR-905-CORE when routing an LNP call to BST with the following modifications. BST expects that an LNP query will be done in a prior network if an LNP call is routed to BST for termination processing. Therefore, BST expects to receive the Location Routing Number (LRN) of a BST switch in the Called Party Number parameter, and the dialed digits in the Generic Address Parameter (if the number is ported), or the dialed digits in the Called Party Number parameter (and no "ported number" GAP), if the number is not ported in the incoming IAM. In addition, Bit M of the Forward Call Indicators should be set to "number translated".

7.1.4 BST to ICN Switching Office

When an LNP call terminates in an ICN (i.e., not an IXC or INC), BST's switch (end office or AT) sets up the call to the terminating ICN switch as described in Section 4.1 of GR-905-CORE, with the following modification. If the call has undergone LNP processing in a prior network, the ICN should expect to receive Bit M of the Forward Call Indicators parameter of the received IAM set to "number translated," and either the LRN of an ICN switch in the Called Party Number parameter and the dialed digits in the GAP (if the number is ported), or dialed digits in the Called Party Number parameter (if the number is not ported).

7.2 Routing of Service-Related Messages in an LNP Environment

This subsection addresses the interconnection of the BST CCS network with other ICNs to support the internetwork routing of service-related TCAP messages in an LNP environment. The NP GTT function will be used by BST to accurately route messages for affected services to the appropriate network element when the NPA-NXX in the Global Title Address (GTA) of the service query is no longer sufficient to uniquely identify the targeted network element (e.g., CLASS switch, LIDB). The NP GTT function involves the application of STP-like GTT processing on a 10-digit basis to a service query without modifying the TCAP information or the SCCP Calling Party Address information in the query. Detailed requirements for the NP GTT function are specified in the T1S1.6 Working Group on Number Portability Technical Requirements No. 3, *Number Portability Database and Global Title Translation.* The BST services that will be impacted by LNP include CLASS^{SM} and LIDB. (See Section 6 for details related to network interconnection procedures as they apply to these services.)

To the greatest degree possible, the NP GTT function allows interactions with LNP to be transparent to the originating service node (e.g., CLASS switch, Operator Services System). Therefore, BST expects that when a service node launches a service-related TCAP query toward the node that is currently serving the ported user, and it encounters a node in the BST CCS network, the query should contain, whenever possible, the same MTP, SCCP and TCAP information as in a pre-LNP query environment. BST will apply the NP GTT function to incoming queries when it determines it is appropriate to do so based on the information in the SCCP Called Party Address field of the received query message.

If the LNP GTT processing within the BST network determines that the destination for a service-related query is outside of the BST network, the NP GTT functionality within a BST node will use information populated in the NP GTT translation tables to determine a new DPC for the query message. A service-related query will contain the same information in the SCCP Calling Party Address and TCAP portions of the outgoing message as were present in the received message. BST expects the GTA and Translation Type in the SCCP Called Party Address parameter to be encoded in the outgoing message as received. The subsystem number and the routing indicator in the routing label are also expected to be unchanged unless BST has a specific business arrangement with the destination network provider to do final translations on their behalf.

BST should be contacted regarding specific details associated with the application of the NP GTT function to service-related messages. BST expects an ICN to route internetwork queries that have undergone NP GTT processing in BST's network, if those queries originate in BST's network.

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8 OPERATIONAL GUIDELINES

Guidelines for the operations, testing and maintenance of the CCS interfaces between BST and an ICN will follow the processes defined in Telcordia GR-905-CORE, Section 8 (Interface Provisioning, Operations, and Maintenance) and in BellSouth's BSP190-130-421, but may be supplemented or superseded by other BST-ICN mutual agreements.

BST reserves the right to test any ICN equipment for protocol conformance prior to allowing it to interconnect to its network.

The following present additional guidelines regarding the ordering and maintenance of signaling interconnection arrangements.

8.1 CCS Link Ordering/Provisioning

8.1.1 General

To ensure that the appropriate facilities – CCS-capable trunks and STP ports - are available for ICN anticipated service dates, it is requested that CCS7 forecasts be provided to BST at least 18 months in advance. If that information is not provided in accordance with this request, the ICN will run the risk of not having service availability by the desired timeframe.

8.1.2 Cross-LATA Link Ordering/Provisioning

Exchange carrier (EC) ICNs, e.g., facilities-based CLECs, independents, intraLATA toll providers, etc., wishing to interconnect to BST's CCS network in support of SS7 exchange-access trunk signaling with BST switches in a given LATA are expected to provide the link facilities to BST's FSPOIs serving that LATA. BST will then extend those link circuits from the FSPOI to the GSTP pair of BST's choice.

It is likely that many ICNs will use Interexchange Carriers (IXCs) or other third-party facility providers for long links, links physically crossing LATA boundaries, or to ensure meeting diversity requirements to the FSPOI. (Previously the use of an IXC facilities to transport signaling messages physically crossing LATA boundaries was required by regulation. While this is no longer the case, it remains likely that facilities for cross-LATA links will involve IXCs or other third-party facility providers.) BST is not obligated to provide cross-LATA transport for ECs' interLATA signaling links terminating to its FSPOIs. There are a number of cases for which such cross-LATA links may be used by ICNs to interconnect to BST's network. For these cases, BST has identified some procedures that will allow for the correct ordering, provisioning, administration, and maintenance of such cross-LATA links.

Examples of these a. ctural scenarios include the following:

- An EC's EO is in a different LATA from BST's switch but appears to be terminating local or intraLATA toll calls due to an Extended Areas of Service (EAS) waiver. This requires EC EO A-link-set pair interconnection to a BST-designated GTSP pair serving the LATA.
- An EC's EO and STP are in a different LATA from BST's switches but appear to be terminating local or intraLATA toll calls to BST due to an EAS waiver. This also requires EC either EO A-link-set-pair interconnection or STP B/D-link-set-quad interconnection to the BST-designated GTSP serving the LATA.
- An EC's EO is in the same LATA as the BST switch but the EC's STP is physically located in another LATA. The involved switched calls are local or intraLATA toll in nature. This requires EC STP B/D-link-set-quad interconnection to the BST-designated GTSP pair serving the LATA.

In these scenarios, the call involves either local or intraLATA toll or exchange-access call set-up (by actual definition or according to EAS waivers). For the cases where the EC chooses to use an IXC facility network for cross-LATA links, BST has determined procedures for handling the EC request. The EC must make use of a new CLLI code suffix, (X)KD, for naming the facility upon which the link will be associated at the IXC's facility Point of Presence (POP). (X)KD, (X being an alphanumeric character), identifies the link termination at the IXC facility POP as a "Local Exchange Carrier acting as an IXC Point of Presence". It requires that the IXC authorize this link termination on its network transport elements; therefore, the EC will be required to obtain a written Letter of Authorization from the involved IXC prior to BST provisioning the link. This will allow BST to treat the link as an intraLATA link.

It is important to note that provisioning and maintenance of the link segments from the EC switch or EC STP to the IXC facility POP will be the responsibility of the EC. BST will have responsibility for the link only from the BST GSTP through the FSPOI to the IXC POP. The EC is the party with whom BST will be interacting (not the IXC providing the given leg of the link facility). It will be through the BST/EC joint planning meetings along with the IXC's Letter of Authorization that BST will be directed to turn up these links. It will be with the EC and not the IXC that BST will perform testing and exchange maintenance correspondence.

8.2 Link Maintenance Coordination

The ICN and BST will establish clear assignments of responsibilities for signaling link maintenance and testing, based on the following definitions.

OCO: (Overall Control Office)

The OCO is responsible for all provisioning/installation activity for any special services circuit within a given area or that extends to "out of area" regions. The OCO coordinates work activity with Circuit Control Offices (within a certain territory) and is responsible for the turn-up of service to the customer. It is also responsible for follow-up activity on jeopardy conditions and escalation when necessary.

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MCO: (Maintenance Control Office)

BellSouth's Link Maintenance Center (LMC) is the MCO for ICN links, however, this center does not proactively monitor all ICN links at all times and will therefore not always know when a customer's link fails. For this reason the LMC cannot always contact the customer immediately upon a link failure. The LMC must generally wait for a trouble report from the Network Reliability Center (NRC) (or from the customer) before action can be taken.

The MCO is responsible for coordinating the maintenance activity for all special service circuits within an area or that extend to "out of area" regions. The MCO will keep complete OSSCHU (Circuit History), coordinate chronic programs, and provide pro-active status updates to the customer until the trouble condition has been satisfactorily resolved, and the customer has been notified of trouble resolution.

For an interconnection between BST and an ICN, the issue over which company will be the OCO and the MCO for the involved CCS links has been clarified as follows: for all links terminating at BST's GSTPs, the LMC will be the MCO/OCO and will control from the ICN point of interconnection (POI) through the FSPOI, all the way to the BST GSTP. The customer will be control from the customer's side of the POI back toward the customer's SEP or STP.

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9 PERFORMANCE

9.1 CCS Network Objectives – General

CCS network availability objectives have been published as standards. However, the interpretation of the standards has not been uniform and has been questioned by ICNs and the industry, as well.

BST offers the following clarifications regarding the interpretation of signaling availability objectives:

1. For trunk signaling, the published CCS downtime objective of 10 minutes per year between Signaling End Points (SEPs) applies only to single trunk groups and their terminating SEPs. For trunk groups in tandem, the signaling downtime is 5 minutes times the number of switches (SEPs) in the connection, provided that STP quad architectures are used for signaling between consecutive switches.

2. For non-trunk signaling (TCAP-based) applications, the downtime objective is 10 minutes between any pair of SEPs provided that quad architectures are used for the interconnecting STPs (i.e., no intermediate switches are involved in call-set-up prior to signaling).

3. The overall trunk signaling network downtime between two BST SEPs interconnected by an ICN with only one ICN trunk should not exceed 30 minutes per year on average with currently proposed interface architectures.

4. From an ICN perspective, at a signaling interface into the BST CCS network, current trunking and signaling arrangements for interconnection should result in 10 minutes or less average downtime per year in the BST CCS network.

9.2 Access Downtime - Interconnection Architecture Model

Using the BST STP to ICN SEP interconnection architecture as a model, access downtimes are depicted in a block diagram arrangement in Figure 3. In this diagram, trunking is shown from a BST end office, through an access tandem switch, and then to an ICN switch. Many ICNs will use this method of exchange access and others will use direct end office trunking. The BST end office and tandem switch signaling A-links are assumed to be connected directly to the BST GSTPs as shown. Other interface architectures are also possible.

The access downtimes shown in Figure 3 fully meet the basic signaling network downtime objective, and by adding the values shown, it is clear that the downtime is 15 minutes from the BST EO to the first ICN switch, including both switches. Signaling network dov for longer connections between end offices could realistically be 30 minutes per year in the case of one ICN trunk.

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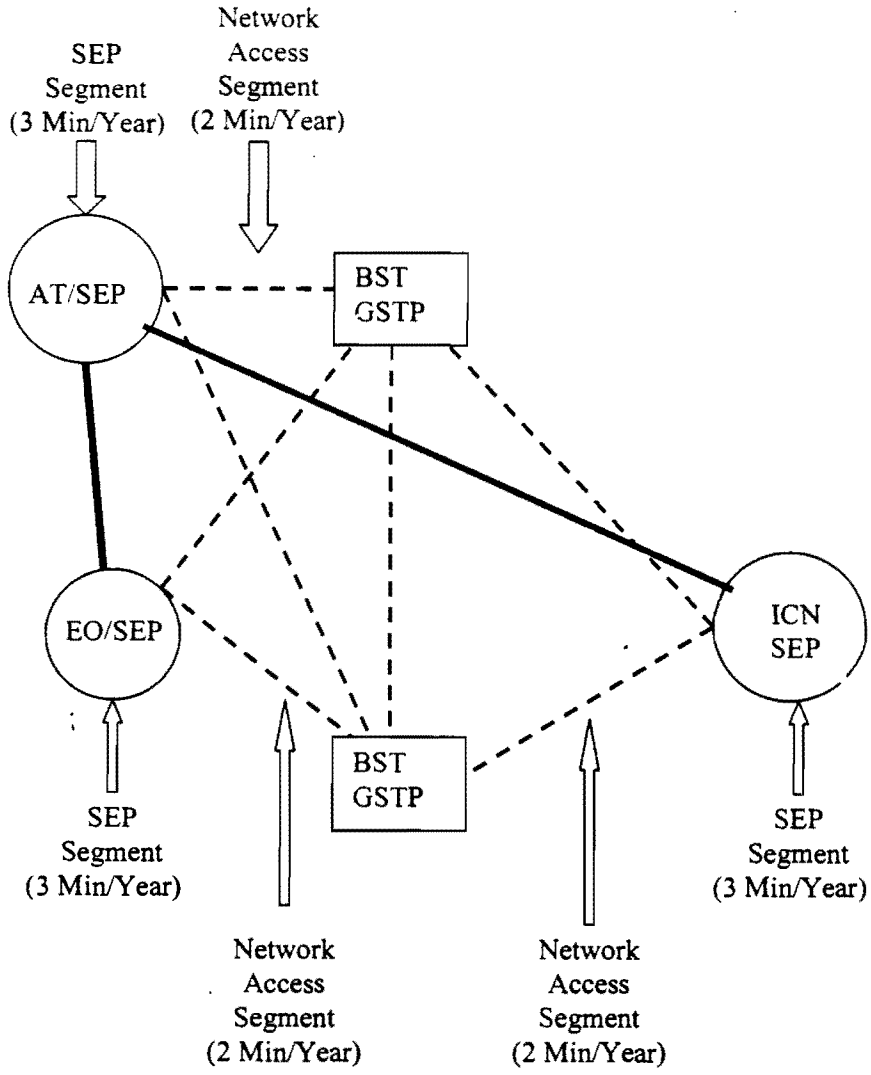

Figure 3 – Access Downtimes for BST STP to ICN SEP Interconnection Architecture

This example was chosen because it is one of the simplest interface architectures demonstrating that with interconnected CCS networks, it is not reasonable to impose a 10-minute downtime per year objective for signaling messages transported between two arbitrarily-selected SEPs.

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GLOSSARY

ABS	Alternate Billing Service
ACM	Address Complete Message
AIN	Advanced Intelligent Network
ALC	A Link Concentrator
ANI	Automatic Number Identification
ANM	Answer Message
ANSI	American National Standards Institute
AT	Access Tandem
CAP	Competitive Access Provider
CCS	Common Channel Signaling
CCSNIS	Common Channel Signaling Network Interface Specification
CdPA	Called Party Address
CFN	Confusion Message
CgPN	Calling Party Address
CLASS	Custom Local Area Signaling Services
CLEC	Competitive Local Exchange Carrier
COT	Continuity Message
CPG	Call Progress Message
CPN	Calling Party Number
CRA	Circuit Reservation Acknowledgement
CRM	Circuit Reservation Message
DPC	Destination Point Code
DS-0(A)	Digital Signal Level 0A (64 Kbps)
DS-1	Digital Signal Level 1 (1.544 Mbps)
EC	Exchange Carrier
EO	End Office
EXM	Exit Message
FSPOI	Facilities Signaling Point of Interconnection
GAP	Generic Address Parameter
GR	Generic Requirements
GTA	Global Title Address
GTT	Global Title Translation
HSL	High Speed Links
IAM	Initial Address Message
ICN	Interconnecting Network (Interexchange, Independent, Reseller, etc)
IN	Intelligent Network
INC	International Carrier
INPA	Interchangeable Numbering Plan Area
IXC	Interexchange Carrier
ISDN	Integrated Services Digital Network
ISDNUP	Integrated Services Digital Network User Part

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ISUP	Integrated Services User Part
JIP	Jurisdiction Information Parameter
kbps	kilobits per second
kHz	kiloHertz
LATA	Local Access and Transport Area
LEC	Local Exchange Carrier
LIDB	Line Information Data Base
LNP	Local Number Portability
LRN	Location Routing Number
LSPP	Local Service Provider Portability
MF	Multifrequency
MSU	Message Signal Unit
MTP	Message Transfer Part
NANP	North American Numbering Plan
NI	Network Identifier
NIIF	Network Interconnection/Interoperability Forum
NP	Network Provided Number
NPA	Numbering Plan Area
NP GTT	Number Portability Global Title Translation
OCN	Original Called Number
OLC	Other LATA Carriers
OLIP	Originating Line Information Parameter
OPC	Originating Point Code
OSS	Operator Services Systems
POP	Point of Presence
POTS	Plain Old Telephone Service
REL	Release Message
RES	Resume Message
RLC	Release Complete Message
SAC	Service Access Code
SCCP	Signaling Connection Control Part
SCP	Service Control Point (Database)
SEP	Signaling End Point
SLS	Signaling Link Selection
SPOI	Signaling Point of Interface
SS7	Signaling System 7
STP	Signal Transfer Point
SSP	Service Switching Point
SUS	Suspend Message
SWF-DS1	Switched DS1/Switched Fractional DS1 Service
TC	Telecommunications Carrier
TCAP	Transaction Capability Application Part
TFC	Transfer Control
TNS	Transit Network Selection
TR	Technical Reference
TT	Translation Type
UDT	Unitdata Message

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UDTS	Unitdata Service Message
WSP	Wireless Service Provider
XUDT	Extended Unitdata Message

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Following is a list of the CLLIs that identify the FSPOIs currently defined in BST's SS7 Network --

BRHMALMT28W	BRHMALVA27W
HNVIALMT27W	HNVIALUN27W
MOBLALAZ27W	MOBLALOS27W
MTGMALMT27W	WTMPALMA27W
DYBHFLMA27W	DYBHFLPO27W
BKVLFLJF27W	GSVLFLMA27W
JCVLFLCL27W	JCVLFLSM27W
PNSCFLBL27W	PNSCFLWA27W
ORLDFLCL27W	ORLDFLSA27W
LYHNFLOH27W	PNCYFLMA27W
WPBHFLGR27W	WPBHFLHH27W
MIAMFLCA27W	NDADFLGG27W
ATLNGATH27W	ATLNGAWD27W
MACNGAGP27W	MACNGAMT27W
SVNHGABS27W	SVNHGADE27W
ALBYGAMA27W	THVLGAMA27W
AGSTGAFL27W	AGSTGAMT27W
LSVLKYAP27W	LSVLKYBR27W
MDVIKYMA27W	OWBOKYMA27W
DAVLKYMA27W	WNCHKYMA27W
BTRGLAGW27W	BTRGLAMA27W
LFYTLAMA27W	LKCHLADT27W
NWORLABM27W	NWORLAMA27W
MONRLAMA27W	SHPTLAMA27W
GLPTMSTS27W	PSCGMSMA27W
JCSNMSCP27W	JCSNMSMB27W
CHRLNCBO27W	CHRLNCCA27W
GNBONCEU27W	WNSLNCFI27W
RLGHNCHO27W	RLGHNCMO27W
LRBGNCMA27W	WLMGNCFO27W
AHVLNCOH27W	HNVLNCCH27W
GNVLSCDT27W	GNVLSCWR27W
CLMASCAR27W	CLMASCSW27W
DRTNSCMA27W	FLRNSCMA27W
CHTNSCDT27W	CHTNSCNO27W
CHTGTNBR27W	CHTGTNNS27W
KNVLTNMA27W	KNVLTNWH27W
JCSNTNMA27W	MMPHTNOA27W
NSVLTNDO27W	NSVLTNMT27W

The six GSTP pairs are --

BRHMALMT21W	BRHMALVA21W

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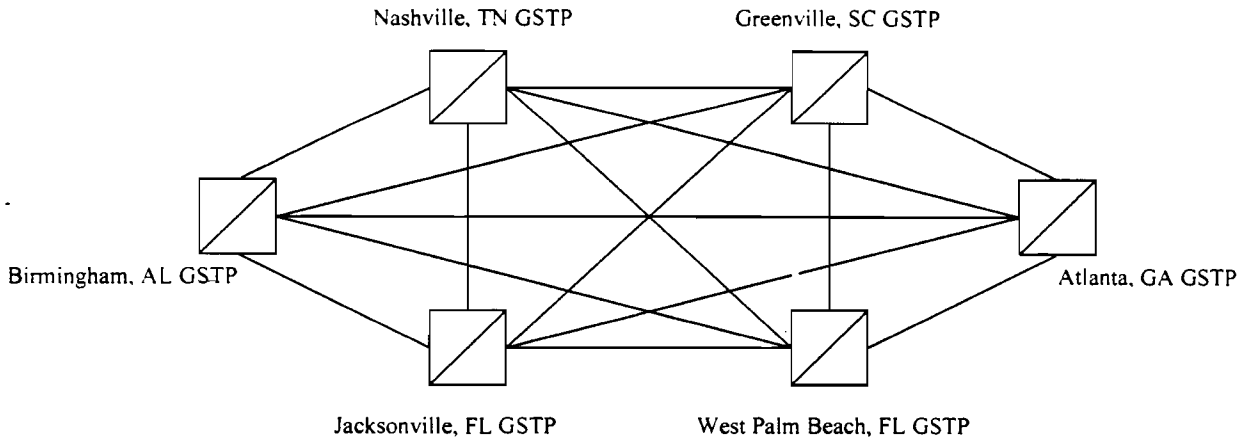
▪ WPBHFLGR21W	WPBHFLHH21W
▪ JCVLFLCL21W	JCVLFLSM21W
▪ ATLNGATH21W	ATLNGAWD21W
▪ GNVLSCDT21W	GNVLSCWR21W
▪ NSVLTNDO21W	NSVLTNMT21W



Above is a diagram of BST's Gateway STP architecture. All ICN links will be terminated at one or more of these GSTPs. SS7 signaling access for call set-up to any BST central office in any of BST's 38 LATAs is available from any one of these GSTPs.

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BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-19

Transmittal Cover Sheet for Hendrix Exhibit JDH-19

Which consists of 2 pages

Jordan, Parkey

From: Medacier, Adenet [AMedacier@STIS.com]
Sent: Tuesday, June 05, 2001 3:14 PM
To: Parkey Jordan (E-mail)
Subject: follow-on Agreement

Letter to P Jordan ICRB.doc

Issues for ICRB.doc

Attached please find the issues to be discussed at the Inter-Company Review Board Meeting, proposed for Wednesday, June 6, 2001 at 4:00 p.m.

<<Letter to P.Jordan ICRB.doc>> <<Issues for ICRB.doc>>

Regards,

Adenet Medacier
Assistant General Counsel
2620 S.W. 27th Avenue
Miami, FL 33133
Telephone: (305) 476-4240
Facsimile: (305) 443-9516

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Supra Telecom

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June 6, 2001

VIA FACSIMILE (404)335-0794 and U.S. MAIL

Parkey D. Jordan
General Attorney
BellSouth Telecommunications, Inc.
Suire 4200
675 West Peachtree Street
Atlanta, Georgia 30375-0794

RE: FOLLOW-ON AGREEMENT
ICRB

Dear Ms. Jordan:

After further consideration, and although the parties already have held two Inter-Company Review Board meetings, Supra is willing to have another Inter-Company Review Board meeting tomorrow, Wednesday, June 6, 2001, starting at 4:00 p.m., to attempt to resolve a number of the issues which have previously been identified and narrowed before the FPSC. The parties will address all the issues in terms of the Arbitrators' award of June 5, 2001.

Supra does not waive its right to identify additional issues as a result of its review of network information to be provided by BellSouth. As Supra is still waiting for BellSouth to produce BellSouth's network information, Supra is only willing to discuss the following issues, as previously identified by the parties, and attached thereto.

Call me if you have any question.

Truly,

Adenet Medacier

Enclosure
cc: Brian Chaiken
Olukayode Ramos

BellSouth Telecommunications, Inc.
FPSC Docket No. 001305-TP
Exhibit JDH-20

Transmittal Cover Sheet for Hendrix Exhibit JDH-20

Which consists of 3 pages

Attachement to Letter of June 5, 2001

Issue 1:	**Should the Parties be required to submit disputes under this Agreement to an Alternative Dispute Resolution Process (Commercial Arbitration) or alternatively should the parties be allowed to resolve disputes before any Court of competent jurisdiction and should at least mandatory mediation (informal dispute resolution) be required prior to bringing a petition?**
Issue 2:	**What is the scope of the ability to use the other party's Confidential Information that is obtained pursuant to this Interconnection Agreement?**
Issue 3:	**What is the appropriate amount of general liability insurance coverage for the Parties to maintain under the Interconnection Agreement?**
Issue 4:	**Should the Interconnection Agreement contain language to the effect that it will not be filed with the Florida Public Service Commission for approval prior to an ALEC obtaining ALEC certification from the Florida Public Service Commission?**
Issue 7 and 8:	**Should Supra be required to pay the end user line charged requested by BellSouth?**
Issue 9:	**What should be the definition of "ALEC"?**
Issue 11:	**Should the Interconnection Agreement allow either party (first party) offset from the other party (second party) disputed charges and other amounts due to the first party, from sums due to the second party?**
Issue 13:	**What should be the appropriate definition of "local traffic" for purposes of the parties' reciprocal compensation obligations under Section 251(b)(5) of the 1996 Act?**
Issue 16:	**Should the Interconnection Agreement be a complete agreement or should BellSouth be allowed to keep issues open in order to preclude providing service until the negotiation of subsequent? – As narrowed: Should BellSouth be obligated to provide services for which no price is listed in the agreement, such price to be determined at a later date and applied retroactively?**

Issue 17: **Should Supra Telecom be allowed to engage in comparative advertising using BellSouth's name and marks?**

Issue 21: **What does "currently combines" mean as that phrase is used in 57 C.F.R. § 51.315(b)?**

Issue 22: **Should BellSouth be permitted to charge Supra Telecom a "glue charge" when BellSouth combines network elements.**

Issue 23: **Should BellSouth be directed to perform, upon request, the functions necessary to combine unbundled network elements that are ordinarily combined in its network?**

Issue 24: **Should BellSouth be required to combine network elements that are not ordinarily combined in its network?**

Issue 35: **Is conducting a statewide investigation of criminal history records for each Supra Telecom employee or agent being considered to work on a BellSouth premises as security measure that BellSouth may impose on Supra Telecom?**

Issue 39: **Should BellSouth provide Supra Telecom access to EDI interfaces Which have already been created as a result of BellSouth working with other ALECs?**

Issue 41: **Should BellSouth be required to continue providing Supra Telecom the right to audits BellSouth's books and records in order to confirm the accuracy of BellSouth'' bills?**

Issue 42: **What is the proper time frame for either party to render bills for overdue charges?**

Issue 45: **Should BellSouth be required to permit Supra Telecom to substitute more favorable terms and conditions obtained by a third party through negotiation or otherwise, effective as of the date of Supra Telecom's request. Should BellSouth be required to post on its web-site all BellSouth interconnection agreements with third parties within fifteen days of the filing of such agreement with the FPSC?**

A. What criteria should be used to determine which are the available terms of a filed and approved interconnection agreement which may be adopted by Supra?

B. What should be the effective date of such an adoption?

Issue 52: **Should the resale discount apply to all telecommunication services BellSouth offers to end users, regardless of the tariff in which the service is contained?**

Issue 63: **Should BellSouth be permitted to disconnect service to Supra Telecom (or a Supra Telecom customer) while a payment dispute is pending?**

Issue 64: **Should the Interconnection Agreement contain a provision establishing that BellSouth will provide services in any combination requested by Supra Telecom?**

Issue 65: **Should the parties be liable in damages, without a liability cap, to one another for their failure to honor in one or more material respects any one or more of the material provisions of the Agreements?**

Issue 66: **Should Supra Telecom be able to obtain specific performance as a remedy for BellSouth's breach of contract?**

Added Issue: Should the agreement provide for punitive damages where the parties are found to have acted with malice or in an egregious manner?