ORIGINAL

BELLSOUTH TELECOMMUNICATIONS, INC.

DIRECT TESTIMONY OF W. KEITH MILNER

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 000649-TP

AUGUST 17, 2000

Q. PLEASE STATE YOUR NAME, YOUR BUSINESS ADDRESS, AND YOUR POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC. ("BELLSOUTH").

A. My name is W. Keith Milner. My business address is 675 West Peachtree Street, Atlanta, Georgia 30375. I am Senior Director - Interconnection Services for BellSouth. I have served in my present role since February 1996, and have been involved with the management of certain issues related to local interconnection, resale, and unbundling.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.

A. My business career spans over 30 years and includes responsibilities in the areas of network planning, engineering, training, administration, and operations. I have held positions of responsibility with a local exchange telephone company, a long distance company, and a research and development company. I have extensive experience in all phases of telecommunications network planning, deployment, and

operations (including research and development) in both the domestic and international arenas.

I graduated from Fayetteville Technical Institute in Fayetteville, North Carolina, in 1970, with an Associate of Applied Science in Business Administration degree. I later graduated from Georgia State University in 1992 with a Master of Business Administration degree.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE ANY STATE PUBLIC SERVICE COMMISSION, AND IF SO, BRIEFLY DESCRIBE THE SUBJECT OF YOUR TESTIMONY?

A. I have previously testified before the state Public Service Commissions in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi and South Carolina, the Tennessee Regulatory Authority, and the Utilities Commission in North Carolina on the issues of technical capabilities of the switching and facilities network regarding the introduction of new service offerings, expanded calling areas, unbundling, and network interconnection.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY BEING FILED TODAY?

A. In my testimony, I will address the technical aspects of certain unresolved network related issues that have been raised by MCImetro

Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (collectively referred to as "MCIW") in its Petition for Arbitration filed with the Florida Public Service Commission ("FPSC" or "Commission") on May 26, 2000. Specifically, I will respond to the following issues, in whole or in part: Issues 5, 8, 11, 15, 19, 29, 37, 56, 59-61, 63-66, 66D, 68, 92, 96, 97, and 99 through 103.

Issue 5: Should BellSouth be required to provide OS/DA as a UNE?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth is not required to provide operator services (OS) or directory assistance (DA) as unbundled network elements because BellSouth provides customized routing in accordance with the FCC's rules.

Q. WHAT DO THE FCC RULES SAY ABOUT THE UNBUNDLING OF OS/DA?

A. The FCC's Rule 319(f) makes clear that BellSouth is not required to unbundle OS/DA where it provides Alternative Local Exchange Carriers (ALECs) "with customized routing or a compatible signaling protocol."

Q. WHAT IS CUSTOMIZED ROUTING?

A. Customized routing (which has also been referred to as selective routing) allows calls from ALEC customers served by a BellSouth switch to reach the ALEC's choice of operator service or directory assistance service platforms instead of BellSouth's operator service and directory assistance service platforms. Customized routing can be provided when an ALEC acquires unbundled local switching from BellSouth or resells BellSouth's local exchange services.

Q. DOES BELLSOUTH PROVIDE CUSTOMIZED ROUTING TO REQUESTING ALECS?

A. Yes. BellSouth has a Line Class Code (LCC) solution for customized routing as well as an Advanced Intelligent Network (AIN) solution. Thus, BellSouth has met the FCC's requirements and is not obligated to provide operator services and directory assistance services on an unbundled basis.

Q. BRIEFLY DESCRIBE THE METHODS AVAILABLE FOR CUSTOMIZED ROUTING?

A. The Line Class Code solution uses end office switch translations capabilities to effect customized routing for requesting ALECs. BellSouth has made custom routing operationally available utilizing the LCC method to an ALEC in Georgia. Availability of customized routing capability using LCCs is offered on a first-come, first-served basis. To

date, BellSouth has not denied any request for selective routing based on lack of LCC capacity.

Q. IS THERE A LIMITATION ON THE AVAILABILITY OF CUSTOMIZED ROUTING FOR ALECs?

A. ALEC demand for customized routing to date suggests there is no imminent risk of exhaustion of LCCs even though BellSouth had previously thought this risk existed based on ALEC representations as to the quantity of LCCs they would require. Under the AIN solution, however, only a very limited number of LCCs would be necessary. The AIN method therefore eliminates any potential exhaust concerns about the LCC method of customized routing.

Q. PLEASE DESCRIBE THE SECOND METHOD YOU MENTIONED.

A. A second method for providing customized routing is through the use of BellSouth's Advanced Intelligent Network (AIN) platform. A technical trial of customized routing using BellSouth's AIN platform commenced in Louisiana, in August 1998, and was successfully completed in September 1998. BellSouth conducted a second trial of its AIN method for customized routing. This trial commenced in May 1999 and successfully completed in August 1999. The AIN method of customized routing allows the use of the AIN "hub" concept, which yields several advantages. The AIN hubbing arrangement:

- Allows the use of appropriate AIN "triggers" for all call types rather than only a limited set of call types.
- Allows even those end office switches that are not AIN-capable to use the AIN customized routing solution.
- Optimizes the use of trunk groups by allowing the carriage of customized routing traffic over common trunk groups between the end office and the AIN hub.

The AIN method for customized routing is available to ALECs in addition to the LCC method. BellSouth is completing work on enhancements to its AIN Service Management System (SMS) which will facilitate ALEC's creating and updating routing information for the ALEC's end user customers. BellSouth conducted end-to-end testing (ETET) of this enhancement on June 5, 2000.

Q. HOW IS THE AIN METHOD DIFFERENT THAN THE LCC METHOD?

A. The AIN method also allows some use of common (shared) trunk groups for the ALECs using customized routing in a given end office. In contrast, the LCC solution requires a separate trunk group for each ALEC that wants custom branding of its calls. Because the AIN method is in essence a database lookup (a function that is not performed with the LCC method), a small amount of post dialing delay is introduced. The additional post-dialing delay in the AIN solution as compared to the LCC method, which results from querying the

database, may be a concern for some ALECs. While the amount of post dialing delay for customized routing via the AIN method is negligible (between a half-second and one-second) based on the tests, some ALECs may prefer the LCC method on these grounds. By providing ALECs a choice of methods, BellSouth better enables ALECs to compete based upon their own business plans and priorities.

BellSouth stands ready to develop contract language that will facilitate MCIW's use of customized routing functionality. However, whether or not MCIW is interested in doing so, BellSouth provides MCIW and other ALECs with customized routing consistent with the FCC's rules.

Issue 8: Should UNE specifications include non-industry standard BellSouth proprietary standards?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. Although industry standards provide useful guidance for the provision and maintenance of UNEs, there are no industry standards at present for every UNE. BellSouth has developed standards in cases where no industry standard exists which should be incorporated into the parties' interconnection agreement.

Q. WHAT IS YOUR UNDERSTANDING AS TO WHAT INDUSTRY STANDARDS MCIW BELIEVES BELLSOUTH SHOULD ADOPT?

A. My understanding is that MCIW wants BellSouth to commit to an as-yet undefined set of standards for unbundled loops. In the absence of industry standards for unbundled loops, BellSouth has developed definitions of unbundled loops and has given ALECs, including MCIW, access to its technical document via BellSouth's Internet website. Specifically, BellSouth has developed Technical Requirement 73600 (TR 73600) which provides details as to what BellSouth offers and how BellSouth's unbundled loops are related to any existing industry standards where industry standards exist. I have attached a copy of TR 73600 to this testimony as Exhibit WKM-1.

The standards bodies have not yet provided standards for unbundled loops. Despite the absence of such industry standards, BellSouth still is required to make certain unbundled loops available and offer them to all ALECs. If MCIW wants a certain specification for an unbundled loop or for any other UNE, MCIW is free to request such and MCIW should bear the cost of developing the specification.

Issue 11: Should MCIW access the feeder distribution interface directly or should BellSouth be permitted to introduce an intermediate demarcation device?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth will provide MCIW with unbundled access to BellSouth's loop feeder and loop distribution facilities. These sub-loop elements are accessible at the Feeder Distribution Interface (FDI), although not in the manner proposed by MCIW. MCIW has proposed that it have direct, unfettered access to BellSouth's FDI.

Allowing MCIW to have direct access to the FDI would adversely impact network reliability. The impact on network reliability is a legitimate consideration in determining technical feasibility pursuant to 47 C.F.R. §51.5. To reduce such adverse impacts, MCIW should access the feeder distribution interface through an access terminal established by BellSouth.

Q WHY WOULD DIRECT ACCESS ADVERSELY IMPACT NETWORK RELIABILITY?

A. With direct access, MCIW could intentionally or unintentionally disrupt BellSouth's end user customer's service. Also, service can be disrupted that is provided by ALECs using resale, unbundled loops, and unbundled sub-loop elements acquired from BellSouth.

Further, BellSouth would be at MCIW's mercy to tell BellSouth how/where/when MCIW has used BellSouth's facilities. Keeping inventory record databases accurate would be impossible if BellSouth were at MCIW's mercy to tell BellSouth how/where/when MCIW used

BellSouth's facilities. As a result, provisioning of customer service would be more error prone if inventories were not accurate.

Q. IN LIEU OF DIRECT ACCESS, HOW DOES BELLSOUTH PROPOSE TO GIVE ACCESS TO UNBUNDLED LOOP FEEDER?

A. To minimize adverse network reliability and security impacts, BellSouth will establish an access terminal by which MCIW can access BellSouth's loop feeder or loop distribution facilities. Use of an access terminal is a reasonable measure to protect network reliability when MCIW seeks access to loop feeder or loop distribution facilities.

Q. ARE YOU AWARE OF ANY STATE COMMISSION THAT HAS ADDRESSED THE ISSUE OF DIRECT ACCESS TO LOOP FEEDER?

A. No. However, this Commission has considered the issue of access to another sub-loop element referred to as Network Terminating Wire (NTW) in the arbitration proceedings between BellSouth and MediaOne in Docket No. 990149-TP. Also, the Georgia Public Service Commission has considered this same issue of access to NTW in the arbitration proceedings between BellSouth and MediaOne in Docket No. 10418-U.

This Commission denied MediaOne direct access to NTW and required an access terminal to be placed between BellSouth's network

and MediaOne's network. The access terminal gives MediaOne the access to NTW it desires without reducing network reliability and security. BellSouth believes the underlying issues here (that is, providing an ALEC unbundled access to the loop feeder while preserving network reliability and security) are the same as were addressed in the MediaOne arbitration cited above. This Commission determined that MediaOne and others could gain access to unbundled NTW without reducing network security and reliability by adopting BellSouth's proposed form of access. A portion of that Order follows:

> The record does not contain evidence of any case which would support a proposal where one party is seeking to use its own personnel to, in effect, modify the configuration of another party's network without the owning party being present. We find that MediaOne's proposal to physically separate BellSouth's NTW cross-connect facility from BellSouth's outside distribution cross-connect facilities is an unrealistic approach for meeting its objectives. Therefore, BellSouth is perfectly within its rights to not allow MediaOne technicians to modify BellSouth's network.
>
> ...Based on the evidence presented at the hearing, we believe that it is in the best interests of the parties that the physical interconnection of MediaOne's network be achieved as proposed by BellSouth.

The Georgia Public Service Commission likewise found that MediaOne should gain access through the use of an access terminal and BellSouth's facilities. In its Order, the Commission stated:

> As stated in the prior section, to the extent there is not currently a single point of interconnection that can be feasibly accessed by MediaOne, consistent with the FCC's Third Report and Order, BellSouth must construct a single point of interconnection that will be fully accessible and suitable for use by multiple carriers. Such single points of interconnection shall be constructed consistent with MediaOne's proposal such that MediaOne shall provide its own cross connect (CSX) facility in the wiring closet to connect from the building back to its network. MediaOne would then be able to connect its customers within the MDU [that is, the Multiple Dwelling Unit] by means of an "access CSX".

BellSouth believes the use of access terminals as ordered by the Florida Commission and the Georgia Commission gives ALECs the requested access to unbundled sub-loop elements while still maintaining network reliability and security. Such access should apply to all sub-loop elements, including access to loop feeder distribution.

Q. PLEASE SUMMARIZE WHAT IS WRONG WITH MCIW'S PROPOSED FORM OF DIRECT ACCESS TO THE BELLSOUTH FDI.

A. Allowing MCIW (or any other ALEC) to have direct access to BellSouth's FDI would adversely affect network reliability and security in several ways. First, MCIW's proposal needlessly increases the risk of customer service interruption, both to BellSouth's retail customers as well as to ALECs' customers who may be using unbundled loops or sub-loop elements acquired from BellSouth. Under MCIW's proposal, BellSouth's facilities could be used by MCIW without consent or notice and conceivably could result in service outages for the other ALECs' customers. While I am in no way disparaging MCIW's or any other ALEC's technicians, examination of MCIW's proposal immediately reveals that MCIW's or other ALECs' technicians could, intentionally or unintentionally, disrupt the service provided by BellSouth to its end user customers or the end user customers of ALECs using loops or unbundled sub-loop elements acquired from BellSouth.

Second, MCIW's proposal would make it impossible for BellSouth to keep accurate records of which pairs are spare, working, or defective, which is critical to ensuring high quality service, both in provisioning new or additional customer lines and in repairing existing customers' service. The loop facilities terminated at the FDI are inventoried in BellSouth's mechanized systems, which are not accessible by BellSouth's own field technicians. As inventoried records, individual assignments of cable pairs are made as orders for service are processed. Should particular cable pairs become unusable, a notation

is made in the records system so that the pairs are not assigned as the need for additional pairs arise. Thus, a field technician has no way of using particular cable pairs without risking disruption of service to existing end user customers. Using a test set to determine whether the cable pair is in use would disrupt an in-progress transmission. Utilizing cable pairs at random may result in taking an existing end user customer out of service, or in having the new end user customer's service be inoperable because of a faulty cable pair. Should a technician by chance choose a spare cable pair and successfully install the end user customer's service, there is no means of protecting that service from potential disruptions resulting from the next technician entering that work area, no matter whether that technician is employed by BellSouth, MCIW, or another ALEC. As subsequent technicians enter the work scene, the existing cable pair records would progressively deteriorate, creating an immediate and significant service problem that would be extremely costly and difficult to correct.

The FCC requires that "each carrier must be able to retain responsibility for the management, control, and performance of its own network." (First Report and Order 96-325, ¶ 203) MCIW's proposal, if allowed, would render BellSouth incapable of managing and controlling its network in the provision of service to its end user customers. How MCIW believes accurate records of cable inventory (that is, cable pairs in use, spare, or defective) might be maintained under its proposal is a mystery to me.

Issue 15: When a MCIW customer served via the UNE-platform makes a directory assistance or operator call, must the ANI-II digits be transmitted to MCIW via Feature Group D signaling from the point of origination?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth will provide Feature Group D signaling with customized routing to MCIW when MCIW acquires the so-called "unbundled network element platform" (UNE-P). The UNE-P includes unbundled local switching.

Q CAN BELLSOUTH PROVIDE THE SIGNALING THAT MCIW HAS REQUESTED?

A. Yes. As I discussed earlier, BellSouth has an AIN based selective routing offering. The database query is done via a Nortel DMS 100 AIN hub office rather than at BellSouth's access tandem. The ANI-II digits are not passed over to the AIN hub switch from the end office switch because that leg of the call uses Feature Group C signaling. The AIN hub switching arrangement was adopted region wide by BellSouth for two reasons:

1. The Nortel DMS 10 and Stromberg Carlson DCO (two end office

switch types BellSouth uses in its network) do not have the capability of Offhook Delay Triggers necessary to make the AIN customized routing method work.

2. The Offhook Delay Trigger would cause queries on calls that are not included in the customized routing offering thereby creating an unnecessary load on BellSouth's database.

Because of the technical limitations inherent in the switch manufacturers' designs, the only way to convert from conventional Feature Group C signaling to Equal Access Signaling (Feature Group D) in an end office to access tandem arrangement, is in the case of a Nortel DMS 100 end office switch. BellSouth has been able to convert the signaling in a Lucent 5ESS end office switch, but only with direct trunking to the carrier. In both of these cases, ANI-II digits are provided, which is what MCIW has requested.

BellSouth has identified a number of different ways to accomplish the Feature Group D signaling MCIW has stated it desires utilizing the Line Class Code version of selective routing. These methods are:

- For BellSouth end office switches subtending a Nortel DMS Access Tandem, the end office switch will prefix a pseudo code in front of the dialed digits to instruct the Nortel DMS Access Tandem switch which trunk group to select. The Nortel DMS Access Tandem will then convert the signaling to Equal Access

Signaling and route to the appropriate MCI Feature Group D trunk group.

- For all other BellSouth end office switches (that is, those subtending an Access Tandem other than a Nortel Access Tandem), BellSouth will designate one or more Nortel DMS switches in the LATA as the Operator Services office(s) for MCIW, and the end office switch will prefix the pseudo code as described previously.

- As an alternative to the second method described immediately above, the end office switch will add the pseudo code, send the call to its normal Access Tandem (if that tandem is a Nortel tandem), then the Access Tandem will forward the call to a designated Nortel DMS switch for the conversion to Equal Access Signaling and routing to the appropriate MCIW FGD trunk group.

BellSouth is willing to incorporate these methods in MCIW's interconnection agreement that will allow MCIW to use customized routing functionality with Feature Group D signaling including ANI-II digits. In summary, BellSouth has met its obligation of providing customized routing to MCIW. If MCIW wants Feature Group D signaling in conjunction with customized routing, it need simply order it, and BellSouth will provide it.

Issue 19: How should BellSouth be required to route OS/DA traffic to MCIW's operator services and directory assistance platforms?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth believes it does not have an obligation to route OS/DA traffic to MCIW's operator services and directory assistance platforms over shared transport via a BellSouth tandem or over dedicated trunks that overflow to shared transport since it does not use such arrangements for itself. Nevertheless, some sharing of transport is possible where MCIW uses BellSouth's AIN method of customized routing. The AIN method allows for sharing among the ALECs using the AIN method of customized routing the trunk groups between the end office switch and the AIN "hub". Further, if MCIW elects to acquire unbundled end office switching in conjunction with customized routing and requests conversion to Feature Group D signaling as I described earlier, MCIW can acquire unbundled tandem switching from BellSouth and route MCIW's traffic as MCIW has suggested.

Q. HOW DOES BELLSOUTH ROUTE OPERATOR SERVICES AND DIRECTORY ASSISTANCE TRAFFIC FOR ITS OWN END USER CUSTOMERS?

A. BellSouth routes its operator services or directory assistance traffic

directly to a BellSouth Traffic Operator Position System (TOPS) platform rather than via a tandem switch. The operator services or directory assistance end office functions offered by BellSouth require dedicated trunk groups from BellSouth end offices to its TOPS platform.

Finally, BellSouth does not overflow its operator services or directory assistance traffic. Thus, there is no requirement that BellSouth do so for MCIW's operator services or directory assistance traffic using transport facilities shared between BellSouth and MCIW.

Q. DO THE FCC RULES REQUIRE THAT OPERATOR SERVICES BE ROUTED OVER SHARED TRANSPORT?

A. No. BellSouth will provide all of the features, functions, and capabilities of tandem switching to MCIW. However, not every type of operator services traffic can be handled by a tandem switch, which is one reason BellSouth does not route its operator services traffic through the tandem.

Q. HAS BELLSOUTH PROVIDED EFFECTIVE SELECTIVE ROUTING TO MCIW's OS/DA TRAFFIC USING A COMPATIBLE SIGNALING PROTOCOL FROM THE POINT OF ORIGINATION?

A. BellSouth has identified a number of different ways to accomplish the signaling MCIW has stated it desires. Further, the FCC's Rule 319(f) makes clear that BellSouth is not required to unbundle OS/DA where it provides ALECs "with customized routing or a compatible signaling protocol." If MCIW wants to use the Feature Group D signaling protocol in conjunction with its use of unbundled end office switching and customized routing, MCIW is free to do so. MCIW need only make such a request of BellSouth and BellSouth will provide it. If MCIW elects to do so, it can acquire unbundled tandem switching from BellSouth and route MCIW's traffic as desired.

Issue 29: Should calls from MCIW customers to BellSouth customers served via Uniserve, Zipconnect, or any other similar service, be terminated by BellSouth from the point of interconnection in the same manner as other local traffic, without a requirement for special trunking?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth's UniServ® service utilizes operator services switching functionality, and as a result, MCIW must bring its own facilities, or lease facilities from BellSouth, to BellSouth's Traffic Operator Position System (TOPS) platform in order for MCIW customers to reach BellSouth's UniServ® service customers. This is consistent with what BellSouth and other telecommunications carriers are required to do.

Routing operator services and directory assistance traffic directly to the TOPS platform is precisely the manner in which BellSouth routes such traffic for its customers, and MCIW should do the same. How MCIW gets such traffic to BellSouth's TOPS platform is MCIW's decision. It could use direct trunking provided by itself, acquired from BellSouth on an unbundled basis, or acquired from a third party.

Q. IS BELLSOUTH IN VIOLATION OF THE PROVISIONS OF THE TELECOMMUNICATIONS ACT WHICH ALLOW MCI TO INTERCONNECT AT ANY TECHNICALLY FEASIBLE POINT?

A. No. BellSouth has violated neither the Act nor the FCC's rules regarding network interconnection by requiring that MCI gain access to customers using BellSouth's UniServ® service the same way as does BellSouth and other local service providers.

Issue 37: Should BellSouth be permitted to require MCIW to fragment its traffic by traffic type so it can interconnect with BellSouth's network?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. My understanding is that part of the dispute between BellSouth and MCIW relates to the provisioning of two-way trunking. BellSouth is not opposed to two-way trunking per se. Under MCIW's proposal in

Attachment 4, Section 2.2.6, however, BellSouth would be prohibited from having separate trunks that carry local and toll traffic, even though BellSouth maintains such separate trunk groups for itself. For example, when enough local traffic exists between two end office switches to justify a direct end office to end office trunk group (approximately one DS1 or 24 voice channels), BellSouth installs a direct end office local trunk group to unload the tandem switch of such local traffic. This is not only sound network engineering but also common industry practice. It unloads the tandem switch of local traffic that can and should be carried more efficiently by a direct end office trunk group. There are no valid engineering reasons to force BellSouth to transport all of MCIW's local traffic via the BellSouth tandem switches. To provide local traffic direct end office trunk groups requires traffic fragmentation, i.e., separating the local traffic from toll traffic. Although BellSouth prefers that MCIW place its local traffic on direct end office trunk groups when enough traffic justifies it for network efficiency reasons, BellSouth is willing to continue to switch MCIW's originated local traffic via the BellSouth tandems if MCIW continues to compensate BellSouth accordingly. However, BellSouth should be allowed to provision its trunks for its originating traffic to be terminated to MCIW in any technically feasible and nondiscriminatory manner without regard to the arbitrary conditions that MCIW seeks to impose.

MCIW proposes language in Attachment 4, Section 2.2.7, whereby

BellSouth should provision trunks without any user restrictions, such as no trunk group fragmentation by traffic types. BellSouth does not agree with MCIW's proposal because of both technical reasons and traffic congestion concerns. For example, signaling associated with platforms such as E911 and Operator Services/Directory Assistance (OS/DA) would be affected if there were no trunk fragmentation. Congestion could also occur that would adversely impact 911 calls if the traffic group were overloaded temporarily. Also, for technical reasons, there are certain two-way trunk groups that will automatically fail when used with specific switches in certain instances.

Q. WHEN SHOULD TWO-WAY TRUNKING BE USED?

A. BellSouth believes that the use of one-way trunking or two-way trunking is best determined by the parties on a case-by-case basis. Solely from a traffic engineering perspective, two-way trunks should be used when the traffic patterns in both directions will result in a significant reduction of switch trunk ports over separate one-way trunks.

Q. WHAT WOULD BE THE EFFECT OF MCIW's PROPOSAL ON BELLSOUTH?

A. MCIW's position is that BellSouth should be required to interconnect via two-way trunks whenever MCIW so requests. The net effect is that

MCIW would be in sole control of when and if BellSouth is able to use one-way trunking or two-way trunking to interconnect BellSouth's network with MCIW's network. Doubtless, MCIW would always choose the method that is economically beneficial to itself regardless of the effect on BellSouth.

Issue 56: Should BellSouth be required to provide DC power to adjacent collocation space?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. The FCC rules do not require BellSouth to provide DC power to an adjacent collocation arrangement. 47 C.F.R. 51.323 (k)(3) only requires that BellSouth provide a power source to an adjacent arrangement. It does not specify the type of power. In making adjacent collocation available, BellSouth will do so in a nondiscriminatory manner (that is, all ALECs obtaining adjacent collocation will be treated in the same manner) and at parity with itself. At all of BellSouth's remote terminal sites, AC power runs to the site and BellSouth then "converts" the AC power to DC power inside the remote terminal location. BellSouth has thousands of such arrangements in place across its nine-state region. Given that this is a normal business practice, BellSouth sees no safety concerns if the adjacent collocation construction complies with BellSouth design and construction specifications that will be provided. However, approval

must be obtained from the appropriate local authority given that Article 225 of the National Electrical Safety Code does not specifically allow power circuits to be run between buildings with different owners.

Q. DOES REQUIRING ALECS TO CONVERT AC POWER TO DC POWER DISCRIMINATE AGAINST THEM IN ANY MANNER?

A. No. As stated above, BellSouth performs the same function at all of its remote terminal sites and will likewise provision power to all adjacent collocation arrangements in a nondiscriminatory manner.

Issue 59: Should collocation space be considered complete before BellSouth has provided MCIW with cable facility assignments ("CFAs")?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth believes that the collocation space can be "completed" prior to providing Connecting Facility Assignments (CFAs). BellSouth will complete all work under its control, which includes the preparation of the requested collocation space. At that point, the collocation space is considered complete since it is available for use by MCIW, which can then have its vendor install its equipment and cable runs. If the space is not considered complete (and, hence, billing does not start) until after the CFAs are provided, MCIW would be able to occupy the space indefinitely without paying floor space charges until it actually gets

around to installing its equipment and provides BellSouth with the information necessary to assign the CFAs. Such an arrangement would be unreasonable, since BellSouth is entitled to be compensated for collocation as soon as the collocation space is available for use by MCIW, not when MCIW begins to actually use the space to provide end user service.

Q. WHAT ARE CFAs?

A. Connecting Facility Assignments (CFAs) identify the collocator's facilities connecting its collocation arrangement to BellSouth's distributing frame. For BellSouth to connect a service, (for example, an unbundled loop) to the collocator's space, the collocator must provide to BellSouth the cable and pair assignments it wants used on a given order.

Q. WHAT IS THE PRACTICAL EFFECT OF MCIW's PROPOSAL?

A. MCIW's proposal confuses any measure of BellSouth's performance in provisioning collocation arrangements and delays BellSouth's ability to bill MCIW, since it would preclude designating a collocation arrangement "complete" until MCIW had finished its own work, activities over which BellSouth has no control.

Issue 60: Should BellSouth provide MCIW with specified collocation information at the joint planning meeting?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. It appears to me that the area of disagreement is on what information is needed by MCIW. BellSouth has committed to providing MCIW, to the extent it is available, information that MCIW reasonably requires to begin its design plans for collocation space. If the information is not available at the joint planning meeting, BellSouth will provide such information within thirty (30) calendar days thereafter.

Q. PLEASE ADDRESS MCIW'S REQUEST INCLUDED IN ATTACHMENT 5, SECTION 7.17.2.

A. BellSouth assumes this request to be for cable assignment information for the cables that connect the collocation space to the frame in the central office. For the demarcation point at the BellSouth distributing frame, BellSouth will provide the exact cable location termination requirements (e.g., bay/panel and jack location) within the central office that should be used. If this information is not available at the joint planning meeting, BellSouth will provide it within 30 calendar days of the date of the meeting. For older collocation arrangements where the demarcation point is at the POT bay, BellSouth ran the cables from its frame to the POT bay. Thus, MCIW would not need this information

since the work was done by a BellSouth certified vendor rather than by MCIW.

Q. PLEASE ADDRESS MCIW'S REQUEST INCLUDED IN ATTACHMENT 5, SECTION 7.17.4.

A. BellSouth does not believe that MCIW reasonably requires BellSouth to provide this information to them to begin its design plans for collocation space. In the same manner as BellSouth's power cabling work is done, MCIW would use a certified vendor to perform all power cabling work. MCIW's BellSouth certified vendor has direct access to this information and would be responsible for making these assignments just as the certified vendor would do for BellSouth. If MCIW, out of curiosity, desires this information, they can easily request it from its vendor doing the work.

Q. PLEASE ADDRESS MCIW'S REQUEST INCLUDED IN ATTACHMENT 5, SECTION 7.17.10.

A. MCIW apparently believes that it should be able to designate the demarcation point within BellSouth central offices at any technically feasible point. There is simply no basis for this belief. Pursuant to 47 CFR 51.323 (d)(1), BellSouth must provide an interconnection point(s) at which the fiber optic cable enters the premises, provided that BellSouth must designate the interconnection point(s) as close as

reasonably possible to the premises. Consequently, when MCIW chooses physical collocation as the technically feasible method of interconnection, the point of interconnection is dictated by FCC Rule. Where MCIW's collocation arrangement is located within the BellSouth central office should be determined by BellSouth. The recent decision by D.C. Circuit Court of Appeals held that an ALEC may not select space for its collocation arrangement within an incumbent Local Exchange Carrier's (ILEC's) central office. BellSouth's right to designate the collocation site and where that collocation arrangement terminates falls squarely within BellSouth's responsibility and is essential if BellSouth is to control and manage the space within a central office in the most efficient manner and to the benefit of all ALECs.

Issue 61: What rate should apply to the provision of DC power to MCIW's collocation space?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. The rate for DC power should be calculated on a per amp basis at the rates established in BellSouth's physical collocation tariff. In addition, however, the issue raised by MCIW related to DC power addresses more than simply the rate. Rather, MCIW and BellSouth disagree on whether the per amp charge should be applied to the fused capacity which BellSouth is required to provide to MCIW or if it should be

applied only to the capacity used by MCIW. BellSouth maintains that the per amp charge should apply to the fused capacity (rated power consumption) for the equipment MCIW installs in its collocation spaces.

BellSouth's Collocation Handbook states "Charges for -48V DC power are assessed per ampere per month based upon the certified vendor engineered and installed power feed fused ampere capacity". Equipment manufacturers state the rated power consumption for its equipment and the power plant is built accordingly. Rather than measuring power consumption, BellSouth simply applies a factor to the rated power consumption provided by the equipment manufacturer in order to determine power costs. Unlike one's house, where appliances and lights are regularly turned on and off, central office equipment is normally turned on all the time, and BellSouth must build its power plant to assure that its needs and all collocators' needs are met.

Issue 63: Is MCIW entitled to use any technically feasible entrance cable, including copper facilities?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. Some copper cables currently enter BellSouth central offices. These older cables are associated with BellSouth's loop facilities. Entrance facilities for ALEC's, on the other hand, are a form of interconnection.

All of BellSouth's interconnection trunk cables entering BellSouth central offices are optical fiber facilities. The rules regarding an ILEC's collocation obligation under the Act established by the FCC in the First Report and Order clearly state that the ILEC has no obligation to accommodate non-fiber optic entrance facilities (that is, copper entrance facilities) unless and until such interconnection is first ordered by the state commission. This rule was not altered by the FCC's decision in its Advanced Services Order and Notice of Proposed Rulemaking (NPRM). Neither MCIW nor any other ALEC should be permitted to place copper entrance facilities since this would accelerate the exhaust of entrance facilities at BellSouth's central offices at an unacceptable rate. The only exception is in conjunction with adjacent space collocation arrangements as defined by the FCC in 47 CFR § 51.323(k)(3). This is because if space for collocation within the central office is exhausted, there would be no room for placement of the electronic equipment required to make the fiber optic cable functional. Thus, if a collocator uses adjacent collocation, it may place copper cables between its equipment in the adjacent collocation and distributing frame within the BellSouth central office.

Q. DO YOU HAVE ANY COMMENTS ON THE FLORIDA COMMISSION'S RULING ON THIS MATTER?

A. Yes, it should be noted that requests for reconsideration and clarification were made by several parties on this ruling by the Florida

Commission. The Florida Staff issued a recommendation to the Florida Commission on the request dated July 20, 2000. In the recommendation, the Staff writes:

> Staff recommends that the Commission make the requested clarification regarding the use of copper entrance cabling. The Order could be misconstrued, as the parties have indicated. As such, the Commission should clarify that the Commission's decision only addresses the use of copper entrance cabling within the context of collocation outside of a CO, but does not reach the issue of copper cabling in other situations. In rendering this clarification, the Commission should also clarify that only collocation between an ALEC's CEV and an ILEC CO was considered in this decision.

As seen from the above, the Florida Staff is recommending to the Florida Commission that they clarify that they were only addressing the cabling from the adjacent collocation arrangement on the ILEC's property to the ILEC's central office building.

Issue 64: Is MCIW entitled to verify BellSouth's assertion, when made, that dual entrance facilities are not available? Should BellSouth maintain a waiting list for entrance space and notify MCIW when space becomes available?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. The FCC's rule requires BellSouth to provide at least two interconnection points at a premises "at which there are at least two entry points for the incumbent LEC's cable facilities, and at which space is available for new facilities in at least two of those entry points." 47 C.F.R. § 51.323(d)(2). The right to tour a premises referenced in MCIW's Petition only applies when an incumbent LEC "contends space for physical collocation is not available" in a given central office. BellSouth is not denying physical collocation when BellSouth does not have dual entrance facilities available. BellSouth provides ALECs information as to whether there is more than one entrance point for BellSouth's cable facilities. In the event there is only one entrance point, MCIW can visually verify that another entrance point does not exist, which does not require a formal tour. In the event that dual entrance points exist but space for entrance facilities is not available, BellSouth will provide documentation, upon request and at MCIW's expense, so that MCIW can verify that no space is available for new entrance facilities.

Should the fact that there is no entrance space available be the reason for denying a request for collocation, BellSouth will include that central office on its space exhaust list as required. However, BellSouth should not be required to incur the time and expense of maintaining a waiting list simply because dual entrance facilities may not be available.

Issue 65: What information must BellSouth provide to MCIW regarding vendor certification?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth is permitted to approve vendors hired by an ALEC such as MCIW, provided that such approval is based on the same criteria that BellSouth uses in approving vendors for its own purposes. BellSouth has provided MCIW with precisely the same information that BellSouth provides its vendors concerning the vendor certification process. If MCIW has any questions regarding this process, MCIW may contact the BellSouth vendor certification group for further information.

Issue 66: What industry guidelines or practices should govern collocation?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth is willing to comply with generally accepted industry practices in the provision of physical collocation to the extent it has control over the subject matter thereof. While BellSouth strives to comply with all applicable standards, BellSouth does not have control over all the acts of ALECs collocated within its central offices and should not be expected to meet any standards to the extent BellSouth does not have such control. For example, BellSouth relies on the

ALEC to identify accurately in its collocation application the equipment it plans to install and specifications related thereto. If the ALEC does not install equipment in accordance with the information provided in its application BellSouth cannot be required to comply with any standards that may be violated as a result thereof.

Issue 66D: What provisions should apply to transitions from virtual collocation to cageless physical collocation in cases where no physical changes are required?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth will authorize the conversion of virtual collocation arrangements to physical collocation arrangements without requiring the relocation of the virtual arrangement where there are no extenuating circumstances or technical reasons that would make the arrangement a safety hazard within the premises or otherwise not be in conformance with the terms and conditions of the collocation agreement.

BellSouth considers the following prior to authorizing a virtual to physical conversion: (1) whether there is a change in the amount of equipment or a change to the arrangement of the existing equipment, such as re-cabling of the equipment; (2) whether the conversion of virtual arrangement would cause the arrangement to be located in the

area of the premises reserved for BellSouth's forecast of future growth; and (3) whether, due to the location of the virtual collocation arrangement, the conversion of said arrangement to a physical arrangement would impact BellSouth's ability to "take reasonable steps to protect its own equipment, such as enclosing the equipment in its own cage ...." (FCC 99-48, Paragraph 42).

In addition, BellSouth and the requesting collocator would need to have an agreement that is in compliance with FCC Order 99-48. Other considerations with respect to the placement of a collocation arrangement include cabling distances between related equipment, the grouping of equipment into families of equipment, the equipment's electrical grounding requirements, and future growth needs. BellSouth considers all these technical issues with the overall goal of making the most efficient use of available space to ensure that as many ALECs as possible are able to collocate in the space available.

Notwithstanding the foregoing, if the BellSouth premises is at or nearing space exhaust, BellSouth may, at its option, authorize the conversion of the virtual arrangement to a physical arrangement even though BellSouth could not longer secure its own facilities.

Issue 68: Should BellSouth require that payments for make-ready work be made in advance?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. MCIW should be required to pay in advance for any work MCIW requests BellSouth to perform as do other ALECs that have signed BellSouth's standard license agreement. BellSouth should not be required to finance MCIW's business plans.

Q. WHAT IS WRONG WITH MCIW's POSITION?

A. MCIW's position is that a requirement for advanced payment would create delays and is not commercially reasonable -- a position with which I do not agree. It is not unusual for contractors to require payment in advance. Furthermore there is no harm to MCIW, given MCIW's representation that it will pay BellSouth invoices promptly in any event.

Issue 92: Should the parties be required to follow the detailed guidelines proposed by MCIW with respect to LNP orders?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. MCIW's proposed language is actually the language that BellSouth proposed, except that MCIW's language contains erroneous intervals for LNP and INP. BellSouth agrees to the proposed language with the intervals set out in the BellSouth Products and Ordering Guide. MCIW's proposal is too general in nature and fails to outline both

parties' responsibilities for porting numbers from BellSouth to MCIW.

BellSouth proposes to use the guidelines set forth in a very detailed document known as the Local Number Portability Ordering Guide for CLECs that supports the process flows established in standard industry fora. MCIW may participate in such fora if it so desires. This document is attached as Exhibit WKM-2. This document has been used by BellSouth and most ALECs to effectively port end user numbers with little or no service interruption.

Q. WHAT IS YOUR UNDERSTANDING OF THE DISAGREEMENT BETWEEN BELLSOUTH AND MCIW REGARDING THIS ISSUE?

A. BellSouth is unclear as to why MCIW refuses to consider BellSouth's proposal to use the Local Number Portability Ordering Guide for CLECs, which outlines both parties' responsibilities for porting of end user numbers. BellSouth is willing to make the document an attachment to the parties' interconnection agreement or to include it by reference. Other ALECs have found this document sufficient and some ALECs have made it an attachment to their interconnection agreement with BellSouth.

Issue 96: Should BellSouth be required to give written notice when a central office conversion will take place before midnight or after 4 a.m.?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth agrees to provide notification to ALECs, including MCIW, concerning central office conversions via website postings. This method of carrier notification is used for all ALECs and ensures that BellSouth treats all ALECs in a nondiscriminatory manner. Central office conversions, whether additions to existing systems or complete replacements, are carefully coordinated events.

MCIW's proposal to have other forms of notification (in addition to website postings) would not improve the delivery of these notifications and would only drive up BellSouth's costs of making such notifications. Indeed, slow paper mail delivery or malfunctioning facsimile equipment could slow rather than speed up delivery of these notifications.

Issue 97: Should BellSouth be required to provide MCIW with notice of changes to NPA/NXXs linked to Public Safety Answering Points (PSAPs) as soon as such changes occur?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth provides notices to all ALECS when there is an NPA code change due to an NPA code split or overlay. In these notices BellSouth does not specifically address PSAPs. Further, BellSouth does not use its Operator Services platform for the provisioning of 911

service. This means BellSouth does not default any 911 calls to an Operator Services tandem. However, if an ALEC customer dials "0" (Operator) with an emergency instead of dialing 911, the BellSouth operator does have a list of 10-digit numbers to transfer the call to the correct PSAP.

Q. AS TO TELEPHONE NUMBER INFORMATION PERTAINING TO 911, WHAT ARE THE ALEC'S RESPONSIBILITIES?

A. Emergency Services (E911/911) are provided on a countywide basis. The owner of the 911 tandem in each county provides the trunks from its 911 tandem to the PSAP and is responsible for maintaining the associated database. When an ALEC interconnects to BellSouth in a territory where BellSouth provides the 911 tandem, BellSouth furnishes the ALEC with the E911 LOCAL EXCHANGE CARRIER GUIDE FOR FACILITY BASED PROVIDERS. This Guide provides the ALEC with the information necessary to submit their end user customer information for inclusion in the 911 database. The ALEC is also given the means to determine to which E911 tandem the ALEC needs to direct its calls to and where to connect its trunks.

The ALEC is responsible for getting its end user customers' 911 calls to the correct 911 tandem and for getting accurate end user customer information into BellSouth's 911 database in accordance with BellSouth procedures.

The ALEC is also responsible for making contact with the counties where the ALEC will have a presence. The BellSouth 911 CLEC Implementation Manager will provide to the ALEC a list of County Coordinators for each state in the BellSouth region. It is up to the ALEC to contact the County Coordinator and discuss any information that the ALEC feels it may need from the PSAPs. It is up to the County to decide what information it will disclose to the ALEC. BellSouth should not be required to do MCIW's work for free.

Issue 99: Should BellSouth be required to provide MCIW with 10 digit PSAP numbers?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. MCIW can and should obtain PSAP numbers directly from the local 911 or E911 authorities, as does BellSouth. The seven-digit or ten-digit "plain old telephone service" (POTS) number of each Public Safety Answering Point (PSAP) is a number that the PSAP requests through service order activity with the local exchange carrier providing local service to that PSAP (which may be a service provider other than BellSouth). These numbers are sometimes referred to as the "administrative lines". These lines may be dialed direct and would ring on a desk as opposed to being sent to the 911 or E911 operators. A PSAP may provide the ten-digit numbers to a local exchange carrier

for use in extraordinary situations. BellSouth gets these administrative line numbers directly from each PSAP, and MCIW should do likewise. Here again, BellSouth should not be required to do MCIW's work for free.

Issue 100: Should BellSouth operators be required to ask MCIW customers for their carrier of choice when such customers request a rate quote or time and charges?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth's operators may respond to customer inquiries concerning rates and time charges for BellSouth's retail services. However, BellSouth is not obligated to inquire about a customer's carrier of choice, as requested by MCIW.

Q. HOW DOES BELLSOUTH TREAT CUSTOMER REQUESTS FOR A LONG DISTANCE CARRIERS RATES?

A. Customers who inquire about long distance rates are advised they should seek that information from their long distance carrier. If that long distance carrier is an Operator Transfer Service (OTS) customer, BellSouth will offer to transfer the caller to that carrier so that the rate can be quoted immediately by the long distance carrier itself.

MCIW's proposed language would purport to require BellSouth's operators to inquire as to the customer's carrier of choice of long distance carrier and forward the call to that carrier every time a customer requests a rate quote or time and charges, regardless of whether the long distance carrier subscribes to BellSouth's Operator Transfer Service (OTS). BellSouth is not required to do for free as MCIW's has proposed. Moreover, while MCIW has offered to pay for any operator worktime on calls transferred to MCIW's long distance unit, MCIW's proposal ignores the fact that BellSouth would have to query the customer on every call but would be paid for only those queries actually transferred to MCIW's long distance unit. Thus, BellSouth would not recover its costs for queries that not result in a transfer to MCIW's long distance unit.

Issue 101: Is BellSouth required to provide shared transport in connection with the provision of custom branding? Is MCIW required to purchase dedicated transport in connection with the provision of custom branding?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. Whether shared transport is available between a BellSouth end office from which BellSouth provides unbundled local switching to MCIW depends upon the type of customized routing functionality requested by MCIW. With the Line Class Code method of customized routing,

dedicated trunk groups are required between BellSouth's end office switch and the ALEC's choice of operator services or directory services platform. With the AIN method of customized routing, trunk groups shared between ALECs may be used between the BellSouth end office switch and the AIN hub location. However, as I discussed earlier, if MCIW acquires unbundled local switching and customized routing from BellSouth and if MCIW acquires Feature Group D signaling for such calls, MCIW can acquire unbundled tandem switching from BellSouth and route the calls as MCIW prefers.

Issue 102: Should the parties provide "inward operator services" through local interconnection trunk groups using network routable access codes BellSouth establishes through the LERG?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. Dedicated trunks are required for inward operator services between the ALEC, or its operator services provider, and the BellSouth operator services platform (TOPS).

Q. WHY MUST DEDICATED TRUNKS BE USED BETWEEN THE TWO OPERATOR SERVICES PLATFORMS?

A. Inward operator traffic has for years been sent between operator services platforms by the operator dialing a special code. While these

codes are commonly used in operator platforms, they are not used in end office switches and tandems and there is no need to do so. MCIW has suggested that inward operator traffic be re-routed and sent over the interconnection trunk groups carrying voice communications between end user customers in cases where the trunk group between the two operator services platforms is congested or a failure condition exists. However, to do so would require that new trunk groups be created in each and every BellSouth end office switch and tandem switch (plus the switch translations required to effect the routing). Further, even if established, these trunk groups would rarely be used. More importantly, the net effect would be to make operator services tandem switches out of each and every BellSouth end office switch and tandem switch, something BellSouth is clearly not required to do. For these reasons, MCIW's proposal to route its operator services traffic through BellSouth's tandem switches and end office switches should be rejected.

Issue 103: Should BellSouth operators be required to connect MCIW subscribers dialing "0" and requesting directory assistance to any directory assistance platform designated by MCI WorldCom?

Q. WHAT IS BELLSOUTH'S POSITION ON THIS ISSUE?

A. BellSouth's operator services platform does not have the capability to connect to an ALEC's directory assistance platform and BellSouth is

not required to enable them to do so. If MCIW purchases unbundled local switching from BellSouth, MCIW may request and be provided customized routing by which MCIW can determine the operator services platform to which its customers' traffic will be sent.

Q. HOW DOES BELLSOUTH HANDLE CALLS FROM SUBSCRIBERS DIALING "0" AND REQUESTING DIRECTORY ASSISTANCE?

A. BellSouth can only connect the caller to BellSouth's directory assistance platform via operator transfer functionality because the operator services platform can have only one such trunk group and that one trunk group goes to BellSouth's directory assistance platform. This functionality does not allow the choice of multiple directory assistance platforms. Thus, unless the ALEC has requested and been provided customized routing, MCIW's customers whether served via resale provisions or via unbundled local switching who dial "0" and requesting directory assistance must be routed to BellSouth's directory assistance platform because of this technical limitation. With customized routing, MCIW is free to route its traffic to MCIW's choice of operator services and directory assistance platforms.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BellSouth Telecommunications, Inc.
FPSC Docket No. 000649-TP
W. Keith Milner
EXHIBIT No. WKM-1

BELLSOUTH TELECOMMUNICATIONS

TR73600
Issue C

UNBUNDLED LOCAL LOOP– TECHNICAL SPECIFICATIONS

Technical Reference

February, 2000

NOTICE

This Technical Reference describes Unbundled Local Loops provided by BellSouth Telecommunications (BST), Inc. An Unbundled Local Loop provides a transmission path between a BST central office and an end–user location. This document describes the signals as they appear at the associated interfaces. It also describes some aspects of the performance of the channel.

BST reserves the right to revise this document for any reason, including but not limited to, conformity with standards promulgated by various governmental or regulatory agencies, utilization of advances in the state of the technical arts, or the reflection of changes in the design of any equipment, techniques, or procedures described or referred to herein. Liability to anyone arising out of use or reliance upon any information set forth herein is expressly disclaimed, and no representations or warranties, expressed or implied, are made with respect to the accuracy or utility of any information set forth herein.

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UNBUNDLED LOCAL LOOP – TECHNICAL SPECIFICATIONS

CONTENTS

UNBUNDLED LOCAL LOOP – TECHNICAL SPECIFICATIONS

1. General

1.1 Scope

This document provides the technical specifications for the Unbundled Local Loops offered by BellSouth Telecommunications (BST). Unbundled Local Loops enable a Competitive Local Exchange Carrier (CLEC) to provide services to an end-user location. While Unbundled Local Loops supporting a wide variety of signaling schemes are available, the widespread use of Digital Loop Carrier (DLC) in the BST network requires that a particular signaling scheme be specified when an Unbundled Local Loop is ordered.

A CLEC may utilize an unbundled loop to provide any telecommunications service it wishes. However, BST will only provision, maintain, and repair the loops to the standards that are consistent with the type of loop ordered. For example, if a CLEC orders an ISDN-capable loop but wants to use the loop for a service other than ISDN, BST will only support that the loop is capable of providing ISDN service.

BST will not make modifications to any loop to make it perform at a particular service level if it was not ordered as such. For example, if a loop was ordered as a Unbundled Voice Loop, but intended to be used for ADSL, BST will not remove any existing load coils from the loop.

1.2 Availability

Unbundled Local Loops are provided subject to availability on a first-come first-served basis.

1.3 Revisions

This revision is issued to completely rearrange the order and content of this document to make the document consistent with the Unbundled Network Element services currently being offered to the CLECs by BellSouth. The changes to Issue B are too numerous to list individually here.

This revision does not reflect the work efforts surrounding the FCC's UNE (Rule 319) Remand Order. As changes are made to existing services and/or new services are added, BST will update this document accordingly.

BST recognizes that the industry is working toward standards concerning spectrum management that will define spectrum management classes. As standards are approved, BST will update this document to reflect those standards.

2. References

The following documents are referenced:

(1) ANSI T1.102–1993, *Telecommunications – Digital Hierarchy – Electrical Interfaces*

(2) ANSI T1.401–1993, *Telecommunications – Interface Between Carriers and Customer Installations – Analog Voicegrade Switched Access Lines Using Loop–Start and Ground–Start Signaling*

(3) ANSI T1.403–1999, *Telecommunications – Network and Customer Installation Interfaces – DS1 Electrical Interface*

(4) ANSI T1.405–1996, *Telecommunications – Interface Between Carriers and Customer Installation Interfaces, Direct–Inward–Dialing Analog Voicegrade Switched Access Using Loop Reverse–Battery Signaling*

(5) ANSI T1.407–1997, *Telecommunications – Interface Between Carriers and Customer Installations – Analog Voicegrade Special Access Lines Using Customer–Installation–Provided Loop–Start Supervision*

(6) ANSI T1.410–1992, *Telecommunications – Carrier–to–Customer Metallic Interface – Digital Data at 64 kbit/s and Subrates*

(7) ANSI T1.413–1998, *Telecommunications – Network and Customer Installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface*

(8) ANSI T1.510–1999, *Network Performance Parameters for Dedicated Digital Services for Rates Up to and Including DS3–Specifications*

(9) ANSI T1.601–1996, *Telecommunications – ISDN Basic Access Interface for use on Metallic Loops for Application on the Network Side of the NT*

(10) ANSI/IEEE 455–1985, *Standard Test Procedure for Measuring Longitudinal Balance of Telephone Equipment Operating in the Voice Band*

(11) ANSI/IEEE 743–1995, *Standard Equipment Requirements and Measurement Techniques for Analog Transmission Parameters for Telecommunications*

(12) Code of Federal Regulations, Title 47, FCC Rules and Regulations, Part 68, *Connection of Terminal Equipment to the Telephone Network.* Washington, D.C.: Federal Communications Commission.

(13) Committee T1 Technical Report No. 28, A *Technical Report on High–Bit–Rate Digital Subscriber Lines*

(14) Bellcore TA–TSY–000077, *Digital Channel Banks – Requirements for Dataport Channel Unit Functions, April 1986*

(15) Bellcore SR–TSV–002275, *BOC Notes on the LEC Networks* – 1994

(16) Bellcore GR–1089–CORE, *Electromagnetic Compatibility and Electrical Safety – Generic Criteria for Network Telecommunications Equipment – Issue 2, Revised Feb 99.*

3. Overview and Generic Requirements

3.1 Loop Topology

Unbundled Local Loops extend from the Main Distributing Frame (MDF) in BST's Central Office (CO) to the End User Network Interface. They may be composed in either of the following arrangements:

- entirely of paired metallic conductors, or
- the concatenation of a universal DLC channel with paired metallic conductors.

3.2 Digital Loop Carrier

The use of DLC brings up the following two considerations.

- Some technologies, such as High Bit-rate Digital Subscriber Line (HDSL), cannot be transported via DLC due to the bandwidth employed. When a customer is served by DLC, an Unbundled Local Loop providing such a wide bandwidth will not typically be available.
- Many dedicated voiceband circuits employ signaling that requires unique DLC line cards.

3.3 Inductive Loading

Of the loops employing only metallic facilities, significant percentages are loaded. Loading involves the placement of inductors, typically every 6000 feet, in the loop. These inductors introduce attenuation at frequencies above the voiceband, making wide bandwidth services unavailable.

3.4 Types of Unbundled Local Loops

Due to the above considerations, a number of types of Unbundled Local Loops have been developed in order to simplify the ordering and provisioning process. The different types of loops can be placed into the following categories:

- Unbundled Voice Loop (UVL)
- Unbundled Digital Loop (UDL)
- Unbundled Copper Loop (UCL)

Unbundled Voice Loops provide a two-wire or four-wire voiceband transmission channel with various signaling options.

Unbundled Digital Loops provide a channel that can support one of a described set of digital transmission schemes.

Unbundled Copper Loops provide an all-metallic, unloaded copper path to CLECs for use with any telecommunications service that can use this type of facility.

This document also covers some technical aspects of Unbundled Sub-Loops (USLs), Unbundled Network Terminating Wire (UNTW), Unbundled Sub-Loop Concentration (USLC) and Unbundled Loop Concentration (ULC).

3.5 Interfaces

Unbundled Local Loops are available with two-wire and four-wire interfaces, depending on the particular type. The same number of wires will be provided at both the MDF and the End User Interface. For two-wire interfaces, one conductor is denoted Tip and the other is denoted Ring. For four-wire interfaces, the conductors of one pair are denoted Tip and Ring; the conductors of the other pair are denoted Tip 1 and Ring 1.

The interface at the MDF is not accessible by the CLEC. Instead, it is connected to other BST unbundled elements, or it is connected-via tie cabling-to collocated CLEC equipment. The tie cabling is not part of the unbundled loop.

3.6 CLEC Equipment Requirements

Since a CLEC may utilize an Unbundled Local Loop to provide any telecommunications service it wishes and BST does not know what type of service is actually placed on the loop, regardless of how it was ordered, generic precautions must be specified for all local loop offerings.

Physical Requirements

In addition to applicable FCC, NEC, and UL requirements and orders, CLEC equipment shall also meet the following requirements:

- The dc voltage applied to either conductor shall be negative with respect to ground.
- The open-circuit dc voltage applied to any conductor shall be less than 80 Vdc when measured to ground or any other conductor.
- The power delivered to a load via BST facilities shall not exceed 2.5 watts.
- The current provided, via BST facilities, shall not exceed 150 mA.

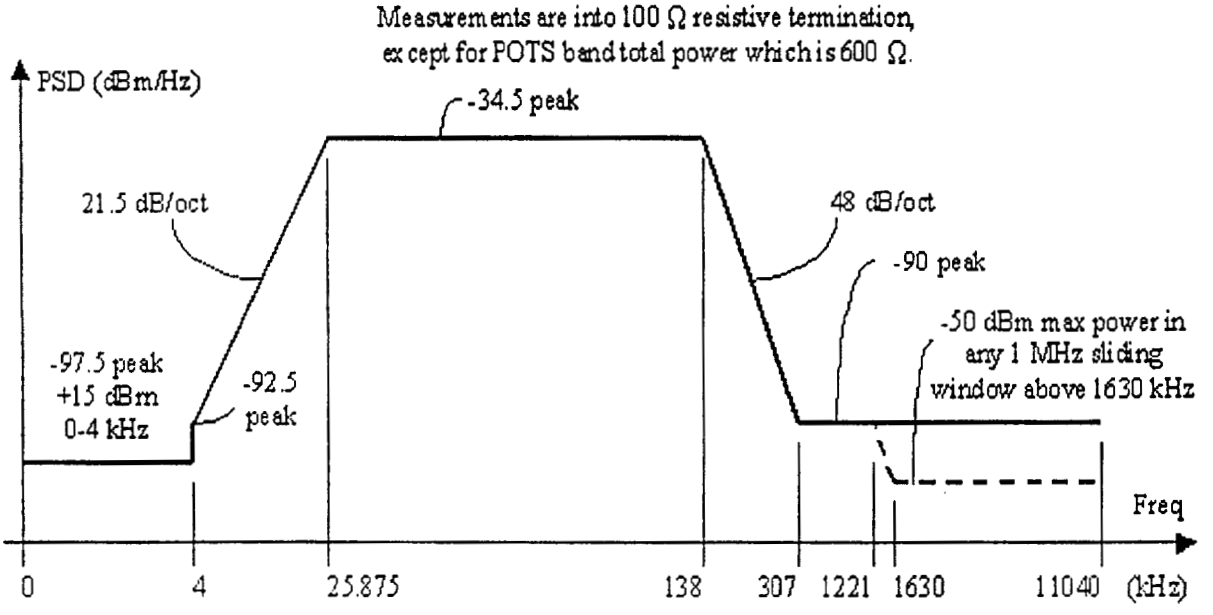
Spectrum Considerations

On any unbundled loop that a CLEC chooses to employ any Digital Subscriber Line (DSL)-based technology, crosstalk into other cable facilities is a concern. Accordingly, the CLEC is responsible for limiting the Power Spectral Density (PSD) of the signal transmitted at both the End User interface and at the MDF interface. The following requirements shall be met to minimize interference to voiceband and certain loop transmission systems:

- The "downstream" data path, as defined in ANSI T1.413, shall be in the MDF-to-NI direction.

- The "upstream" data path shall be in the NI-to-MDF direction.
- The PSD shall be limited to that specified in Figures 1 and 2.

Upstream Transmitter Spectrum



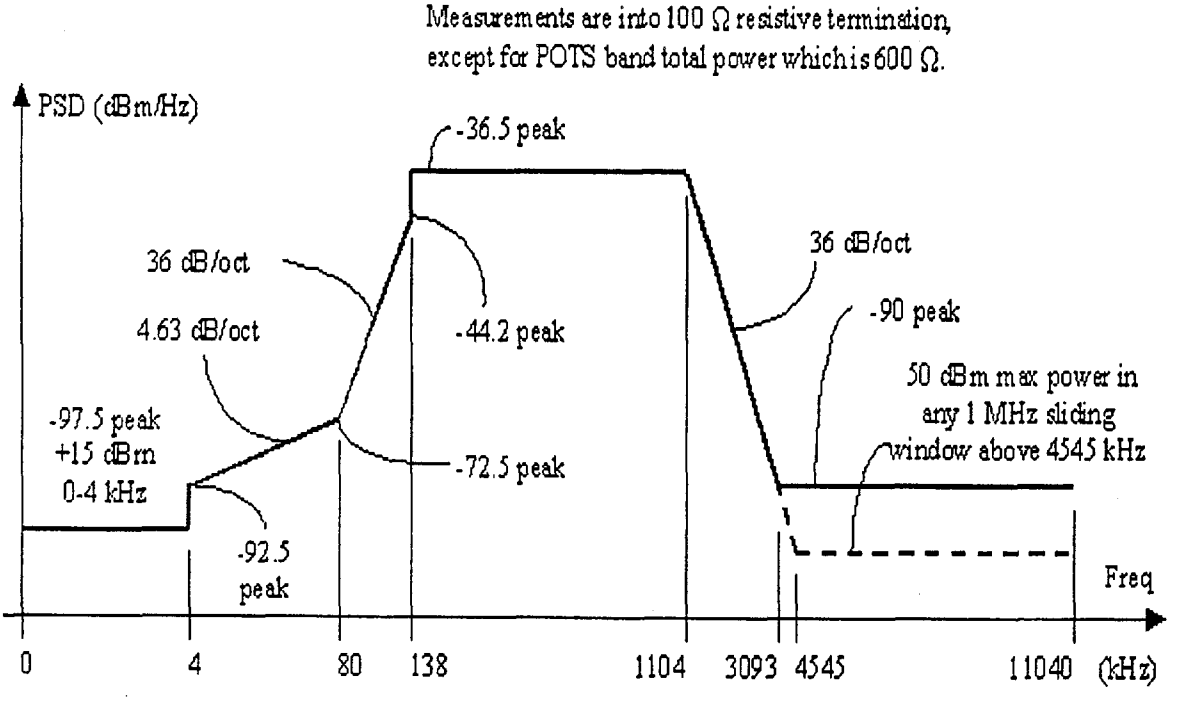
Note: The breakpoint frequencies and values are exact; the indicated slopes are approximate.

Note: The power in a 1 MHz sliding window is measured in 1 MHz bandwidths starting at the measurement frequency.

FREQUENCY BAND, kHz	EQUATION FOR LINE, dBm/Hertz
0 - 4	-97.5, +15 dBrn, 0-4 kHz
>4 - 25.875	-92.5 + 21.5*log(f/4)/log(2)
25.875 - 138	-34.5
138 - 307	-34.5 - 48*log(f/138)log(2)
307 - 1221	-90
1221 - 1630	-90 peak, with max power in 1 MHz sliding window of (-90 - 48*log(f/1221)/log(2) + 60) dBm
1630 - 11040	-90, with -50 dBm power in any 1 MHz sliding window above 1630 kHz

Figure 1 - Upstream Transmitter Spectrum (ADSL Applications)

Downstream Transmitter Spectrum for Reduced NEXT



Note: The breakpoint frequencies and values are exact; the indicated slopes are approximate.

Note: The power in a 1 MHz sliding window is measured in 1 MHz bandwidth starting at the measurement frequency.

FREQUENCY BAND, kHz	EQUATION FOR LINE, dBm/Hertz
0 - 4	-97.5, +15 dBrn, 0-4 kHz
>4 - 80	-92.5 + 4.63*log(f/4)/log(2)
80 - 138	-72.5 + 36*log(f/80)/f(2)
138 - 1104	-36.5
1104 - 3093	-36.5 - 36*log(f/1104)/log(2)
3093 - 4545	-90 peak, with max power in 1 MHz sliding window of (-36.5 - 36*log(f/1104)/log(2) + 60) dBm
4545 - 11040	-90, with -50 dBm power in any 1 MHz sliding window above 4545 kHz

Figure 2 - Downstream Transmitter Spectrum for Reduced NEXT (ADSL Applications)

3.7 Copper Connectivity

As described in Sections 7.5 and 8, BST provides loops that meet the characteristics of ADSL/HDSL industry standards with the Unbundled Digital Loops UDL-2W/EE and UDL-4W/EE and the Unbundled Copper Loop service offerings. However, a CLEC can attempt to run ADSL on any UNE loop, even though BST does not support it. Copper connectivity cannot be assured on any UNE loop except on the three mentioned above. For example, if ADSL is placed on a UVL loop, copper connectivity cannot be assured.

3.8 Right to Disconnect

BST reserves the right to disconnect a service or equipment connected to an unbundled local loop that either: (a) fails to meet the requirements of this document, or (b) is shown to be causing harm to other services or systems.

3.9 Foreign Voltage

The foreign voltage, when measured with a high impedance voltmeter on any UNE pair, shall be less than 6 Vdc between conductors or between either conductor to ground and 50 Vac_{rms} between either conductor to ground.

3.10 Noise

Due to the lack of a common means of testing for noise on facilities at higher frequencies, BST has chosen a common noise measurement requirement that is indicative of the power influence and balance of a facility. The idle-channel noise on any unbundled service offering shall be less than 20 dBrnC.

4. Unbundled Voice Loop - Description

Unbundled Voice Loops provide a two-wire or four-wire voiceband transmission channel with various signaling options. UVLs are offered in a single non-design version and several design versions. Copper continuity is not assured with this service.

4.1 Non-Design UVL 2-Wire/Service Level 1

This Unbundled Voice Loop provides a voice grade transmission channel suitable for loop-start signaling and the transport of analog voice grade signals. This loop, which is typically used to provide switched access telephone service, is non-designed. This offering does not have test points and does not come with Order Coordination.

This loop provides loop-start signaling, arranged-for battery-feed by the CLEC and loop closure by the end-user. This loop is only available via a 2-wire, loop-start interface.

4.2 Designed Unbundled Voice Loops

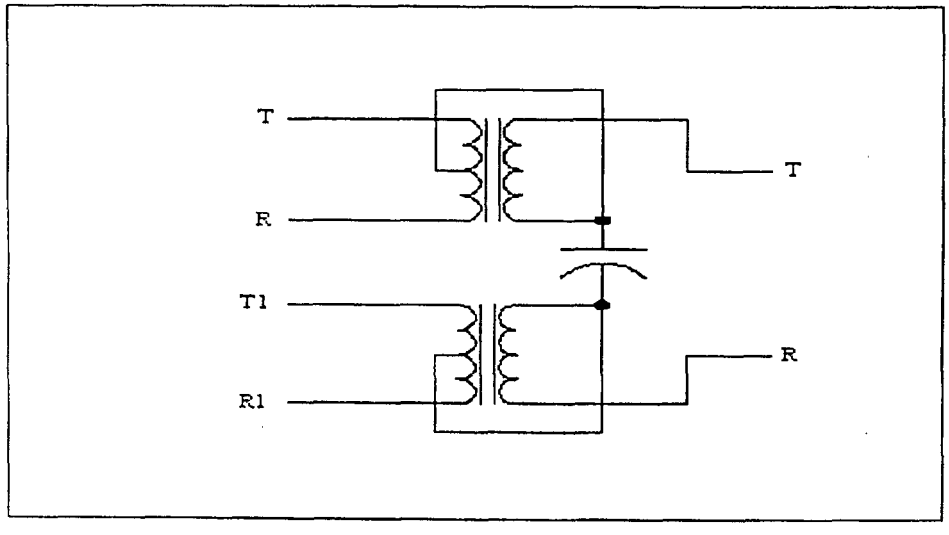
The following signaling and interface combinations are supported on Designed Unbundled Voice Loops:

Number of Wires	Signaling Options	Service Abbreviation
2	Loop-start signaling - office end at MDF	UVL-2W/SL2 (loop)
2	Ground-start signaling - office end at MDF	UVL-2W/SL2 (ground)
2	Reverse-Battery - originating end at MDF	UVL-2W/ (reverse battery)
4	Loop-start signaling - station end at MDF	UVL-4W (loop)
4	Ground-start signaling - office end at MDF	UVL-4W (ground)

These types of signaling are described briefly below. Bellcore SR-TSV-002275 contains a more thorough discussion. Section 5 contains detailed requirements for these types of signaling at both interfaces of each Designed Unbundled Voice Loop.

4.2.1 Two-wire and Four-wire Signaling

In the discussion below, a two-wire circuit is assumed. Four-wire circuits employ similar signaling, except that the dc signaling - instead of being applied directly to the tip and ring conductors - is applied to a center-taps of coupling transformer, so that the dc signals appear in the common-mode across both conductors of each of the four-wire pairs. A circuit suitable for the conversion of four-wire to two-wire is shown below.



4.2.2 Loop Start

The two ends of a loop-start circuit are denoted the office end and the station end. The office end provides a voltage across Tip and Ring. In the idle state, the station presents a high resistance across Tip and Ring. To request service, the station presents a low resistance between the conductors. The resultant current flow is detected by the office end. To alert an idle station of an incoming call, the office end applies ringing voltage, relative to ground, to the Ring.

Loop-start circuits arranged with the office end at the MDF interface are commonly used to provide exchange access service. Section 5.2 contains signaling requirements for both the MDF and End User interfaces.

4.2.3 Ground Start

Ground-start signaling is similar to loop-start, except that in the idle state, the office doesn't apply a voltage across Tip and Ring. Instead it applies a voltage, relative to ground, on only the Ring. This results in the following differences, relative to loop-start service:

- In order to request service, the station provides a low resistance from Tip to ground. Sensing current flow in the Ring, the office provides a (differential) voltage across both Tip and Ring. Upon the application of the differential voltage, the station places a low resistance across the Tip and Ring, and removes the shunt to ground.
- Upon alerting the station, the office applies differential voltage, even between bursts of ringing. If suitably arranged, the station can sense this differential voltage and detect the alerting signal, even before a ringing burst is sent by the office.

Ground-start circuits arranged with the office end at the MDF interface are often used to provide two-way trunks to a PBX. Section 5.3 contains signaling requirements for both the MDF and End User Interface in such an arrangement.

4.2.4 Reverse Battery

Reverse-Battery signaling is typically used on trunks, rather than lines. There is no "office end" or "station end" convention. Ringing is not employed. Reverse-battery signaling accommodates only one-way trunks[1]. For this reason, the ends of the circuit are usually denoted the originating and terminating end.

The terminating end of the circuit provides a voltage across Tip and Ring. In the idle state, the originating end presents a high resistance across Tip and Ring. To request service, the originating end places a low resistance across the conductors. The terminating end senses the resultant loop current. To signal that toward the originating that, for instance, it is ready to accept address digits, the terminating end reverses the polarity across Tip and Ring.

The originating end can return to idle by removing the low resistance across Tip and Ring. If properly equipped, the originating end can sense a reversal of polarity as an indication of return to idle by the terminating end.

Reverse-Battery circuits, with the originating end at the MDF, are often used to provide Direct Inward Dialing (DID) trunks to PBX's located behind the End User Interface. Section 5.4 contains signaling requirements for such an arrangement.

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[1] The term "one-way" indicates that a trunk can only be originated from one end. The voice-frequency capability is bi-directional.

4.3 Signaling Requirements

In practically all cases employing metallic facilities, the loop resistance (the sum of the resistance of both tip and ring) is less than 1500Ω .

In those cases where loop resistance exceeds 1500 Ω, it will never exceed 2800 Ω . In these cases, BST cannot meet the prescribed signaling requirements at the End User Interface unless the CLEC provides sufficient voltage at the office end of the circuit. The open circuit tip-to-ring dc voltage provided by the CLEC equipment shall be less than 80 Vdc.

4.4 Transmission Requirements

In those rare cases where the loop resistance exceeds 1500 Ω, the insertion loss at 1 kHz, measured with a 900 Ω termination at the MDF and a 600 Ω termination at the End User Interface will never exceed 15 dB.

5. Unbundled Voice Loop - Signaling Requirements

5.1 General

When metallic facilities are employed, signaling and supervision is dependent, of course, on the source voltage (provided by either the CLEC equipment or BST equipment to which the loop is connected), and the total circuit resistance. For all service offerings, in practically all cases, the loop resistance (the sum of the resistance of both tip and ring) shall be less than 1500 Ω . For some UVL loops, loop resistance may exceed 1500 Ω, but will never exceed 2800Ω. In these cases, BST cannot meet the prescribed signaling requirements at the End User Interface unless the CLEC provides sufficient voltage at the office end of the circuit. The open circuit tip-ring dc voltage provided by the CLEC equipment shall be less than 80 Vdc. For all service offerings, the dc resistance between the tip conductor and ground and the ring conductor and ground shall each be greater than 100 kΩ.

Except for instances within ringing burst (as described below), the CLEC shall not apply voltages to either conductor that are positive with respect to ground. Current supplied by CLEC equipment shall be less than 150 mA. Voltages from either conductor to ground shall be more positive than -80 Vdc.

When DLC is employed, both the DLC system and the CLEC must employ compatible signaling. The following requirements are intended to ensure such compatibility, both when the loop is provided via DLC and via metallic facilities.

The following requirements apply to both two-wire and four-wire interfaces. For purposes of clarity, the requirements are based on two-wire interfaces. When four-wire interfaces are employed, references and/or measurements to Tip apply to the common mode (simplex) path via both Tip and Ring. Similarly, references and/or measurements to Ring apply to the common mode (simplex) path via Tip 1 and Ring 1.

5.2 Loop-Start - Office End at MDF

5.2.1 General

A small percentage of Designed Unbundled Voice Loops provided via DLC may not be able to support the distinctive ringing or forward disconnect features.

5.2.2 MDF Interface - Idle State

In the idle state, the CLEC equipment shall provide an open circuit Tip-to-Ring voltage between 42.5 and 80 Vdc. The Ring shall be negative, relative to the Tip. No positive voltage - relative to ground - shall be applied to either conductor.

In the idle state, the loop shall provide a dc resistance at the MDF meeting either of the following requirements:

- A dc resistance between Tip and Ring $\geq$ 10,000 Ω (loop provided via DLC), or
- A dc resistance between Tip and Ring $\geq$ the parallel combination of the following:
    - the series combination of the on-hook dc resistance of connected equipment at the End User Interface and the dc resistance of the loop, and
    - a leakage resistance of 100,000 Ω .

5.2.3 MDF Interface - Alerting State

In the alerting state, the CLEC equipment shall alternately apply a ringing signal and the normal idle-state potential. The ringing signal shall be applied to the Ring conductor. The voltage on the Tip conductor, relative to Ground shall be between 0.0 and -5.0 Vdc. In any six-second period, there shall be at least three continuous seconds of the normal idle-state voltage. The ringing signal shall consist of an ac signal superimposed on a dc signal.

The requirements of the ac component are as follows:

- The frequency shall be 20 $\pm$ 3 Hz.
- The magnitude shall be between 84 and 104 V_{rms}.
- The waveform shall have a peak-to-rms ratio between 1.35 and 1.45.
- The ac current into a line shall be limited to less than 220 mA.

The potential of the dc component shall be between -36 and 56.6 Vdc, relative to ground.

The ringing signal (ac component + dc component) shall be applied to the Ring, with a source impedance $\leq$ 500 Ω . Ground shall be applied to the Tip, with a source impedance of $\leq$ 500 Ω.

The ringing signal shall be removed within 200 milliseconds after the line has gone off-hook, as defined below. The ringing signal shall not be 'tripped' when ringing into the parallel combination of the following:

- 10,000 Ω of dc resistance
- a 2 μF capacitor and the series combination of 1386 Ω and 20 μF (simulating 5 bridged ringers)
- the series combination of 1386 Ω and 20 μF (simulating 5 bridged ringers)

5.2.4 MDF Interface - Off-Hook State

The CLEC equipment shall recognize a resistance of 1900 Ω applied between Tip and Ring at the MDF as off-hook. For interoperability with loops with resistance greater than 1500 Ω, the CLEC equipment shall recognize a resistance of 3200 Ω applied between Tip and Ring at the MDF as off-hook. In either case, the CLEC must provide at least 20 mA through the limiting resistance.

The CLEC shall also meet the following requirements:

- The power delivered to any load via Tip and/or Ring shall not exceed 2.5 W.
- The current provided, via Tip and/or Ring, shall not exceed 150 mA.

In the off-hook state, the loop shall provide a dc resistance at the MDF meeting one of the following requirements:

- A dc resistance between Tip and Ring $\leq$ 1150 Ω (loop provided via DLC), or
- A dc resistance between Tip and Ring $\leq$ the series combination of the off-hook dc resistance of connected equipment at the End User Interface and the dc resistance of the loop.

5.2.5 End-User Interface

Signaling provided by connecting equipment at the End User Interface shall meet the Customer Installation requirements in ANSI T1.401-1993. The loop shall meet the network requirements in ANSI T1.401-1993.

5.3 Ground-Start - Office End at MDF

5.3.1 General

This arrangement is commonly used to support two-way trunks providing switched access to PBX's.

A small percentage of Designed Unbundled Voice Loops provided via DLC may not be able to support the distinctive ringing or forward disconnect features.

5.3.2 MDF Interface - Idle State

In the idle state, the CLEC equipment shall provide an open circuit Ring-to-ground voltage between 16 and 55 Vdc. The Ring shall be negative, relative to ground. The dc resistance from Tip to ground shall be ≥ 50,000 Ω.

In the idle state, the loop shall provide a dc resistance at the MDF meeting one of the following requirements:

- A dc resistance from Ring to Ground ≥ 10,000 Ω ((loop provided via DLC), or
- A dc resistance from Ring to Ground ≥ the parallel combination of the following:
    - the series combination of the dc resistance from Ring to Ground at the End User Interface and ½ of the dc resistance of the loop, and
    - a leakage resistance of 100,000 Ω .

5.3.3 MDF Interface - Alerting State

The CLEC shall meet the requirements of 5.2.3.

5.3.4 MDF Interface - Service Request State

When the end user initiates a call by placing a low resistance (≤ 580 Ω) from Ring to Ground, the loop shall provide a dc resistance at the MDF meeting one of the following requirements

- A dc resistance from Ring to Ground ≤ 900 Ω (loop provided via DLC), or
- A dc resistance from Ring to Ground ≤ the series combination of the dc resistance from Ring to Ground at the End User Interface and ½ of the dc resistance of the loop.

5.3.5 MDF Interface - Off-Hook State

Upon application of the Ring ground in the Service-Request State, the CLEC equipment shall provide a current-feed interface meeting the requirements of 5.2.4.

The loop shall present a dc resistance across Tip and Ring meeting the requirements of 5.2.4.

5.3.6 End-User Interface

Signaling provided by connecting equipment at the End User Interface shall meet the Customer Installation requirements in ANSI T1.401-1993. The loop shall meet the network requirements in ANSI T1.401-1993.

5.4 Reverse-Battery - Originating End at the MDF

5.4.1 MDF Interface - Idle State

In the idle state, the CLEC equipment shall maintain a dc resistance from Tip to Ring, Tip to Ground, and Ring to Ground $\geq$ 22,500 Ω.

If the loop is provided via Digital Loop Carrier, the loop shall provide at least 36 Vdc between Tip and Ring, with the Tip positive with respect to the Ring, in the idle state.

5.4.2 MDF Interface - Seizure

The Originating end signals an off-hook (seizure) by placing a low resistance between Tip and Ring. In this state, the CLEC equipment shall provide a dc resistance between Tip and Ring $\leq$ 670 Ω.

The current provided by the loop (with CLEC equipment attached that meets the above requirement) shall meet the following requirement:

- If the absolute value of the Tip to Ring voltage is $\geq$ 33.8 Vdc, the current shall be at least that produced by a 36 Vdc source in series with 135 Ω .
- If the absolute value of the Tip to Ring voltage $\geq$ 29.5 Vdc, but < 33.8 Vdc, the current shall be at least that produced by a 41.7 dc source in series with 489 Ω .
- If the absolute value of the Tip to Ring voltage < 29.5 Vdc, the current may be as low as 0 mA.

5.4.3 MDF Interface - Reverse-Battery State

The Terminating end signals an off-hook by reversing the polarity of the voltage applied across Tip and Ring. In this state, the CLEC equipment shall maintain a dc resistance of $\leq$ 670 Ω across Tip and Ring. In this state, the loop shall meet the requirements of 5.4.2.

5.4.4 End User Interface

Signaling provided by connecting equipment at the End User Interface shall meet the Customer Installation requirements in ANSI T1.405-1996. The loop shall meet the network requirements in ANSI T1.405-1996.

6. Unbundled Voice Loop - Voice-Frequency Transmission Requirements

6.1 General

When Loop-Start or Ground-Start signaling is employed, the following specifications are supported only during the off-hook state. These specifications apply to all Designed Unbundled Voice Loops, regardless of the signaling state, except where specified. ANSI/IEEE 743-1995 contains requirements for instrumentation necessary to measure compliance with the following requirements.

6.2 Insertion Loss

The following specifications apply to all Unbundled Voice Loops when measured with a 900 Ω ac impedance at the MDF and a 600 Ω ac impedance at the End User Interface:

- The actual measured insertion loss at 1 kHz shall be 10 dB or less. (See note below.)
- The actual measured insertion loss at 2.8 kHz shall be no greater than 9 dB above that at 1 kHz.

BST does not support transmission on any Designed Unbundled Voice Loop at frequencies below 300 Hz, or above 3.0 kHz.

NOTE: **In those rare cases where a UVL loop resistance exceeds 1500 Ω, the insertion loss at 1 kHz will never exceed 15 dB.**

6.3 Noise

The idle-channel noise shall be less than 20 dBrnC.

The Signal to C-Notched Noise Ratio shall be at least 32 dB, when measured with a -13 dBm holding tone.

6.4 Noise-to-Ground

The Noise-to-Ground parameter has two specifications. When measured with a C-message weighting filter, it should be less than 90 dBrnC. When measured with a high-impedance voltmeter, it shall not exceed 50 V (126 dBrn).

NOTE: **While dBrn is in units of power, both of these requirements involve voltage measurement, with results displayed in units of power, assuming that the voltage is across a 600 Ω resistor.**

The longitudinal balance (longitudinal to metallic conversion loss) of any metallic component of the loop shall be at least 50 dB for frequencies up to 1 kHz. The longitudinal balance of interconnected CLEC equipment shall exceed 60 dB at any frequency up to 1 kHz. This parameter may be measured using ANSI/IEEE 455-1985.

6.5 Voiceband Data

BST does not guarantee that an Unbundled Voice Loop (non-designed or designed) will be suitable for analog data or Facsimile transmission. If a customer is able to send and receive data, BST does not guarantee a data rate.

6.6 Signal Power

The power of the voiceband signal, at either the End User Interface or the MDF, shall not exceed -9 dBm, when averaged over any 3-second period.

The out-of-band signal power shall meet the out-of-band signal power limits in Section 68.308 of FCC Part 68 requirements. In the event that connected equipment is not registered under Part 68, this requirement shall still apply.

7. Unbundled Digital Loop

7.1 General

An Unbundled Digital Loop provides a channel intended to support one of a described set of digital transmission schemes. These schemes include the following:

- Digital Baseband at 2.4, 4.8, 9.6, 19.2, 56 and 64 kbps
- Basic Rate Access ISDN
- High-Bit-Rate Digital Subscriber Line (HDSL)
- Asymmetrical Digital Subscriber Line (ADSL)
- DS1

Requirements for each of these services are described below.

7.2 Digital Baseband at 2.4, 4.8, 9.6, 19.2, 56 and 64 kbps

7.2.1 Interfaces

The interface at the MDF is a 4-wire interface, described as a DS-0A interface in Bellcore TA-TSY-000077. The End User Interface is a 4-wire interface described in ANSI T1.410-1992. Signals applied at either interface shall meet the requirements of these documents.

7.2.2 Transport

The loop facility may be provided via metallic facilities, DLC, or both. Where metallic facilities are employed, loops measuring less than the insertion loss specified for each service in Table 7.2 will be served directly on copper. This loss should be measured between 135 Ω terminations at the insertion loss frequency specified for each service in Table 7.2. Loops measuring over the specified limit in Table 7.2 but less than 50 dB at 13.3 kHz may be served with range extension devices. Loops measuring more than this second limit will be considered out of range for metallic-only service but may be served if DLC exists in the area. Where spare DLC facilities exist, only the length of the copper extension from the DLC to the customer is an issue. DC signaling, in the simplex path, is only supported to the extent necessary to provide maintenance functions as described in Bellcore TA-TSY-000077 and ANSI T1.410-1992.

Table 7.2 Maximum Allowable Digital Baseband Service Insertion Losses

Service	Insertion Loss Frequency	Max Allowable Insertion Loss
2.4 kbps	1.2 kHz	34
4.8 kbps	2.4 kHz	34
9.6 kbps	4.8 kHz	34
19.2 kbps	9.6 kHz	40
56 kbps	28.0 kHz	40
64 kbps	36.0 kHz	40

7.3 Basic Rate Access ISDN

7.3.1 Interfaces

The interface at both the CLEC (collocated or elsewhere) and the End User Interface is a 2-wire interface as defined in ANSI T1.601-1996. The supported arrangement involves an NT at the end-user and an LT provided by the CLEC. No other arrangements are supported. Signals applied at either interface shall meet the requirements of this document.

7.3.2 Transport

The loop facility may be provided via metallic facilities, DLC, or both. Where metallic facilities are employed, loops measuring less than 42 dB at 40 kHz will be served directly on copper. Loops measuring over this limit but less than 52 dB at 20 kHz may be served with range extension devices. Loops measuring more than this second limit will be considered out of range for metallic-only service but may be served if DLC exists in the area. Where spare DLC facilities exist, only the length of the copper extension from the DLC to the customer is an issue. No dc specifications are supported. Sealing current - even if not provided by the CLEC equipment (LT) - may be provided, but is not guaranteed. The noise requirements in Sections 6.3 and 6.4 apply to this service.

7.4 HDSL-capable

7.4.1 Availability

This channel is not available when DLC is employed. This channel is not available if the loop facilities do not meet Carrier Serving Area (CSA) guidelines as described in Committee T1 Technical Report No. 28.

7.4.2 Interfaces

At the CLEC's request, either a 2-wire or 4-wire channel will be provided. The signal applied at either interface shall meet the following specifications:

- The average signal power shall not exceed +15.0 dBrn across 100 Ω.
- The PSD shall be limited to that specified in Figure 3.

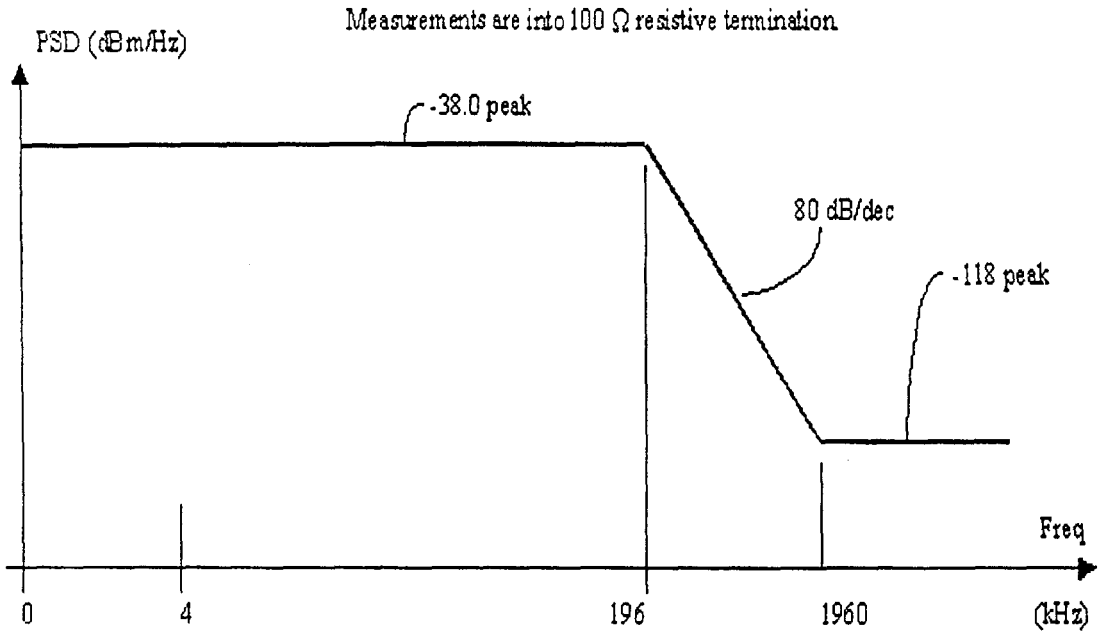

Figure 3 - HDSL Transmitter Spectrum

7.4.3 Transport

The loop facility consists of only metallic facilities meeting CSA design guidelines as documented in Committee T1 Technical Report No. 28. The dc resistance of a single wire pair should not exceed 850 Ω. The insertion loss of a pair at 100 kHz, measured between 135 Ω terminations, shall not exceed 35 dB. No industry-wide standard exists for a designed loss maximum for HDSL. Different HDSL equipment vendors may use different design parameters. The loss specified above was developed through extensive modeling of CSA loops at BST and represents the worst-case CSA loop loss.

7.5 ADSL-capable

7.5.1 Availability

This channel is not available when DLC is employed. This channel is not available if the loop facilities do not meet Carrier Serving Area (CSA) guidelines as described in Committee T1 Technical Report No. 28.

7.5.2 Interfaces

This offering is available as a 2-wire channel only. The signal applied at each end shall conform to the PSD diagrams as shown in Figures 1 and 2.

7.5.3 Transport

The loop facility consists of only metallic facilities meeting CSA design guidelines as documented in Committee T1 Technical Report No. 28. The dc resistance of a single wire pair should not exceed 850 Ω. The insertion loss of a pair at 100 kHz, measured between 135 Ω terminations, shall not exceed 35 dB, the worst-case CSA loop loss.

This UDL offering is limited to CSA loops and is intended to conform with the ANSI standard T1.413 document's ADSL performance objective of 6.14 Mb/s. However, BST does not make any bit-rate performance guarantee with this offering.

NOTE: BST recognizes that ADSL will work on loops built beyond the CSA design guidelines. BST offers other Unbundled Network Elements that are consistent with the T1.413 objective for 1.536 Mb/s performance.

7.6 DS1

7.6.1 Availability

This channel is available where DS1-capable facilities exist.

7.6.2 Interfaces

One balanced twisted pair shall be used for each direction of transmission.

The physical layer of the DS1 NI is consistent with the interface requirements delineated in the following specifications:

TR 73572	*Expanded Interconnection Service DS1 and DS3 Level Network Interface*
ANSI T1.403	*Network-and-Customer Installation - DS1 Metallic Interface*

TR 73572 defines the central office interface for Collocated transmission equipment with BST services. CLEC equipment that is connected to this offering shall meet the DSX-1 signal power limits specified in ANSI T1.102. BST will designate a meet point location within the central office where BST DS1 services will be terminated at the NI for interconnection to the CLEC transmission equipment.

ANSI T1.403 applies to end-user interfaces. End-user CPE that is connected to this offering shall meet the DS1 signal power limits in ANSI T1.403 and Part 68 of the FCC Rules. Interconnection at the DS1 End-User NI is through one of four Universal Service Order Code (USOC) connectors, RJ48C, RJ48X, RJ48M, RJ48H, as shown in ANSI T1.403 and Part 68 of the FCC Rules and Regulations as revised by Public Notice Numbers 4609 (September 21, 1988) and 4572 (October 3, 1988). The RJ48C or RJ48X jack is used for single DS1 line installations, and the RJ48M (8 DS1s) or RJ48H (12 DS1s) may be used for multiple circuit installations. These have a jack to the network and a plug from the CI installation. Alternatively, an appropriate DS1 rate digital cross connect panel may function as the interconnection arrangement at the NI.

7.6.3 Transport

This service enables full duplex 1.544 Mbps digital transmission and supports either Superframe (SF) or Extended Superframe (ESF) framing formats as specified in ANSI T1.403-1999. The service is available with either the AMI or B8ZS line codes as specified in ANSI T1.403-1999. This DS1 offering may be provisioned via a variety of loop transmission technologies, including, but not limited to, metallic facilities without signal regeneration, metallic facilities with signal regeneration, metallic facilities with HDSL-based technology or fiber optic transport systems. The technology used will be based upon existing capacities and distance from the central office.

BST will conduct short-term bit-error-rate stress testing, as outlined in ANSI T1.510-1999, on each DS1 circuit during installation to insure proper circuit performance.

8. Unbundled Copper Loop

An Unbundled Copper Loop provides a dedicated, all-metallic transmission facility from the BST Serving Wire Center MDF to the end user. A UCL will consist of a copper pair that BST records indicate is non-loaded and under 18 kf in length. In addition, up to 6 kf of bridged tap may be included on the facility.

The loop is not intended to support any particular service and may be utilized by the CLEC to provide a wide-range of telecommunications services, so long as those services do not adversely affect BST's network.

8.1 Availability

This channel is not available when DLC is employed. This channel is not available if the loop facilities do not meet Resistance Design (RD) guidelines as defined in Bellcore SR-TSV-002275. With this service, metallic copper continuity is assured. BST will provide UCLs where they already exist in the BST network. BST is not obligated to provision UCL service in a non-copper area.

8.2 Interfaces

This service offering is only available in a 2-wire interface. If any DSL-based service is employed on the loop, the signals applied at each interface shall conform to the appropriate PSD diagrams in Figures 1 and 2.

8.3 Transport

The loop facility consists of only unloaded metallic facilities which BST records indicate meet Resistance Design guidelines. The loop resistance must not exceed 1300 Ω. The total allowable length of the loop is 18 kf. An additional 6 kf of bridged tap is allowed. BST will guarantee electrical continuity and capacitive balance.[2] The insertion loss of a pair meeting the RD guidelines shall not exceed 46 dB at 40 kHz, measured between 135 Ω terminations.

[2] BST considers a capacitive unbalance as high as 5% to be acceptable.

This UCL offering is limited to RD loops and is intended to conform with the ANSI standard T1.413 document's ADSL performance objective of 1.536 Mb/s. However, BST does not make any bit-rate performance guarantee with this offering.

At special request from the CLEC, and subject to BellSouth's Special Construction process, BST will unload a copper pair longer than 18 kf. This modified circuit must be ordered as a UCL. These circuits will not meet the UCL specs of loop resistance or insertion loss; therefore, BST will only provide electrical continuity and balance.

9. Unbundled Sub-Loop

An Unbundled Sub-Loop (USL) is a non-design service providing a dedicated voice-frequency transmission facility from a customer's premise to a BST cross-connect device. The cross-connect device may be located within a remote terminal or a stand-alone cross-box in the field or in the equipment room of a building. This facility does include a Network Interface Device (NID) at the customer's location for the purpose of connecting the loop to the customer's inside wire. This facility, which may be loaded, will allow an end user to send and receive telecommunications traffic when it is properly connected to a CLEC loop/feeder facility. The CLEC must provide a cable from its feeder system to the BST cross-connect device.

9.1 Availability

This service is available anywhere a CLEC chooses to place a feeder facility and connecting cable in proximity to an existing BST cross-connect device.

9.2 Interfaces

This service offering is available as a 2-wire or 4-wire interface.

9.3 Transport

This service will provide a copper pair capable of voice-frequency transmission from the feeder/distribution interface to the customer. This pair may contain load coils. BST does not provide any specific telecommunications services associated with a Sub-Loop. The requirements in Sections 3.6 apply to these loops. The loop resistance shall be less than 2800 Ω.

10. Unbundled Network Terminating Wire

An Unbundled Network Terminating Wire (UNTW) is a dedicated transmission facility that BST provides from the Wiring Closet/Garden Terminal, or other cross-connect type, at the point of termination of BST's loop distribution facilities, to the end user premises.

When properly connected to the CLEC's loop distribution and CLEC's Network Interface Device facilities, the offering will provide a communication pathway from the CLEC to the end user's inside wire.

This service does not include a Network Interface Device (NID).

10.1 Availability

In the states where BST has been ordered to provide sub-loop unbundling, this service is available anywhere a CLEC chooses to place a feeder distribution cable in proximity to an existing customer served by BST.

10.2 Interfaces

This service offering is available as a 2-wire or 4-wire interface.

10.3 Transport

This service will provide a copper pair from the BST distribution terminal to the customer. BST does not provide any specific telecommunications services associated with the UNTW. The requirements in Sections 3.6 apply to these loops.

11. Network Interface Device (NID) Access

NID Access is designed to allow a CLEC the opportunity to connect its loop to the inside-wiring portion of BST's Network Interface Device (NID). It is expected that the CLEC will provision a loop and a NID to the customer's location. The CLEC will perform a physical cross-connect of the inside wire to its loop, through BST's NID.

Where spare NID capacity does not exist, the CLEC will be allowed to disconnect the BST loop from the BST NID in order to connect the CLEC loop. In these cases, the CLEC accepts all liability associated with the process and the CLEC holds the responsibility of leaving BST's pair open (no dc continuity between conductors) with the conductors not exposed.

12. Unbundled Sub-Loop Concentration

Unbundled Sub-Loop Concentration (USLC) will allow a CLEC to concentrate loop distribution elements provided by the CLEC on to multiple DS1s for the purpose of connecting the loop distribution elements, at a concentrated level, to BST's feeder facilities. This concentration will take place at an existing BST remote terminal where spare capacity exists. BST will transport the DS1s carrying the distribution circuits back to the Serving Wire Center for termination on a BST DSX panel and will ultimately terminate to the CLEC's collocation space in that SWC.

12.1 Availability

BST will offer this capability in all locations where capacity is available. If no capacity exists in the BST RT or cross-box, BST will utilize its special construction process to determine if an additional RT or cross-box can be placed near the existing RT or cross-box for increased capacity. If this cannot be done, BST will not be able to provide USLC in that area.

12.2 Interfaces

This service can be provisioned with either a TR008 or a TR303 interface. Each USLC will be dedicated to a single CLEC.

12.3 Transport

In order for the BST loop concentration system to perform properly, certain interface requirements into the concentration system must be observed.

The interface requirements into a loop concentration system are service dependent. For each CLEC-requested service to be placed through the concentration system, BST will provision appropriate channel units. All dc voltage, current and signal powers applied to each channel unit by the CLEC shall comply with extant industry documents related to that service.

The optional test circuit, commonly referred to as a dc test pair, offered with this service shall comply with the appropriate system (TR008 or TR303) testing requirements. The maximum dc voltage allowed on the test pair is 120 Vdc, with a maximum resulting current of 15 mA. The maximum allowable ac voltage is 60 Vac. This test circuit will be emulated with Tollgrade channel units using two channels of the concentrated carrier system.

13. Unbundled Loop Concentration

Unbundled Loop Concentration (ULC) will be offered as an expandable unit that concentrates unbundled loops up to a DS1 level circuit within the BST Serving Wire Center where the loops terminate onto the MDF for transport to the CLEC's collocation space. BST will allow UVL and UDL loops to be combined onto the ULC offering.

13.1 Availability

BST will offer this capability in all locations.

13.2 Interfaces

This service can be provisioned with either a TR008 or a TR303 interface. Each ULC will be dedicated to a single CLEC.

13.3 Transport

In order for the BST loop concentration system to perform properly, certain interface requirements into the concentration system must be observed.

The interface requirements into a loop concentration system are service dependent. For each CLEC-requested service to be placed through the concentration system, BST will provision appropriate channel units. All dc voltage, current and signal powers applied to each channel unit by the CLEC shall comply with extant industry documents related to that service.

The optional test circuit, commonly referred to as a dc test pair, offered with this service shall comply with the appropriate system (TR008 or TR303) testing requirements. The maximum dc voltage allowed on the test pair is 120 Vdc, with a maximum resulting current of 15 mA. The maximum allowable ac voltage is 60 Vac. This test circuit will be emulated with Tollgrade channel units using two channels of the concentrated carrier system.

14. Electrical Disturbances

Unbundled Local Loops may be exposed to electrical surges from lightning and commercial power system disturbances. Despite protective devices on the MDF, some of these disturbances are likely to reach CLEC equipment. CLEC equipment shall be designed to withstand certain surges without being damaged, and shall fail in a safe manner under infrequent high stress.

The prevalent voltage-limiting device available for CO use is the 3-mil carbon block. The performance of these devices can best be characterized by a normal distribution function. The upper 3σ firing voltage is 1000 volts peak under surge conditions. The protector may also limit - to about 350 mA over extended periods - the current that is permitted to flow to equipment. In addition, a protective fuse cable located outside the CO incorporating 24 or 26 AWG conductors to coordinate with the protector, serves to limit current to safe levels in the event of prolonged operation of the protector during power fault conditions.

15. ANNEX A - Characteristics of Tie Cable(s) And/or Wiring Component

The cabling and/or wire between the MDF interface and the collocated CLEC equipment (if any) is not a component of the Unbundled Local Loop. It is an unbundled element. The following specifications apply:

- The total length should be less than 1500 feet.
- The dc resistance should be less than 80 Ω.
- The insertion loss, measured between 900 Ω terminations at 1 kHz, should be 0.5 dB or less.
- The noise shall be 15 dBrnC or less.

DSX-1 Cross-connect

- The total length of all DSX-1 cross-connect wiring should be less than 85 feet of 22-gauge cable.
- The cabling between the equipment and the DSX-1 panels shall be built-out in each direction of transmission such that the overall cabling and build-out is the equivalent of 655 feet of 22-gauge ABAM cable.

16. ANNEX B - NC/NCI Codes

Network Channel (NC) and Network Channel Interface (NCI) codes are used to supplement ordering. These codes provide a shorthand notation of the interface and performance characteristics described in this document. This section may be used as a reference for NC and NCI codes to be used when ordering the services described in this document, which are services covered under the BellSouth Special Access Tariff.

16.1 Network Channel (NC) Codes

The Network Channel code is a representation used to identify non-switched channel services and to designate the channel parameters. Table 16.1 shows the format of the NC code. It is a four-character code that consists of a Channel Service Code and an Optional Feature Code. The Channel Service Code is a two-character code that indicates the channel service. This code is always filled in. The Optional Feature Code is a two-character code that indicates service options available for each channel service code. A hyphen (-) is used in positions 3 and 4 of the NC code to indicate the absence of features or options.

Table 16.1 Network Channel (NC) code format.

Field Identity	Channel Service Code		Optional Feature Code	
Character Position	1	2	3	4
Character Type	Alpha	alpha	Alphanumeric	Alphanumeric

16.2 Network Channel Interface (NCI) Codes

The Network Channel Interface (NCI) code designates five interface elements located at the Point of Termination (POT) or customer location. The interface elements are described below:

- **Total Conductors** is a two character numeric code (the first two characters of the NCI) that represents the total number of physical conductors required at the interface. This field is always filled.
- **Protocol** is a two character alpha code (positions 3 & 4) that indicates the transmission requirements. The protocols specified at either end of a circuit do not have to be the same, but they do have to be technically compatible. This field is always filled.
- **Impedance** is a one character alpha code (position 5) indicating the nominal impedance that terminates the channel. This field is always filled.
- **Delimiter** is either a period (.) or virgule (/) in position 6 that indicates the start of the protocol option code. If the option field is not coded, a double delimiter will be placed in character positions 6 and 7.

- **Protocol Options** is a one-to three–character alphanumeric code (positions 7 to 9) that indicates additional features of the protocol to be used. Protocol option codes are left justified in the field when fewer than three characters are used.
- **Delimiter** is either a period (.) or virgule (/) in position 10 if a three character protocol option code is used, or position 9 if a two character protocol option code is used, or position 8 if a single character protocol option code is used.
- **Transmission Level Point** (TLP) (last two positions after the second delimiter) is not used for unbundled loops at this time but may be used to indicate direction of service by some Local Transport Providers.

The following table illustrates the NCI code format:

Table 16.2 Network Channel Interface Code Format.

Field Identifier	Total Conductors	Protocol	Impedance	Delimiter	Protocol Options	Delimiter	TLP Level TX/RX
Character Position	1&2	3&4	5	6	7 to 9, left justified	8 or 9 or 10	last two positions
Code Type	Numeric	Alpha	Alpha	. or /	Alpha-Numeric	. or /	Alpha-Numeric

The following table provides the NC and NCI codes that apply to the services covered in this document.

Table 16.3 Network Channel/Network Channel Interface Code Format.

Service	NC	NCI At CLEC	SEC NCI at End User	Related TR73600 Section(s)
UVL-2W/SL1 (Loop Start)	TY--	N/A	N/A	4.1, 5.1, 6
UVL-2W/SL2 (Loop Start)	LY--	02QC3.OOD	02LS2	4.2, 5.2, 6
UVL-4W (Loop Start)	LY--	04QC2.OOD	04LS2	4.2, 5.2, 6
UVL-2W/SL2 (Grnd Start)	LY--	02QC3.OOB	02GS2	4.2, 5.3, 6
UVL-4W (Ground Start)	LY--	04QC2.OOB	04GS2	4.2, 5.3, 6
UVL-2W (Rev Batt)	LY--	02QC3.RVO	02RV2.T	4.2, 5.4, 6
UDL-4W/D0 (2.4 Kbs)	LY--	04QC5.OOJ	04DU5.24	7.2
UDL-4W/D0 (4.8 Kbs)	LY--	04QC5.OOK	04DU5.48	7.2
UDL-4W/D0 (9.6 Kbs)	LY--	04QC5.OOL	04DU5.96	7.2
UDL-4W/D0 (19.2Kbs)	LY--	04QC5.OOM	04DU5.19	7.2
UDL-4W/D0 (56 Kbs)	LY--	04QC5.OOP	04DU5.56	7.2
UDL-4W/D0 (64 Kbs)	LY--	04QC5.OOQ	04DU5.64	7.2
UDL-2W/I (BR ISDN)	LY--	02QC5.OOS	02IS5	7.3
UDL-2W/EE (HDSL)	LX--	02QB9.00H	02DU9.00H	7.4
UDL-4W/EE (HDSL)	LX--	04QB9.00H	04DU9.00H	7.4
UDL-2W/EE (ADSL)	LX--	02QB9.00A	02DU9.00A	7.5
UDL-4W/DS1/ISDN	HC-- (AMI-SF) HCD- (AMI-ESF) HCZ- (B8ZS-SF) HCE- (B8ZS-ESF)	04QB9.11	04DU9.BN (AMI-SF) 04DU9.1KN (AMI-ESF) 04DU9.DN (B8ZS-SF) 04DU9.1SN (B8ZS-ESF)	7.6
UCL-2W	LY--	02QC3.OOF	02NO2	8
USL-2W	TX--	N/A	N/A	9
USL-4W	TX--	N/A	N/A	9
UNTW-2W	TX--	N/A	N/A	10
Unbundled Loop Concentration (ULC)/ Unbundled Sub-Loop Concentration (USLC)	HCKA (TR008 Non-Con AMI/SF) HCKB (TR008 Non-Con B8ZS/SF) HCKC (TR008 Non-Con B8ZS/ESF) HCKD (TR008 Concent. AMI/SF) HCKE (TR008 Concent. B8ZS/SF) HCKF (TR008 Concent. B8ZS/ESF) HCLA (TR303 B8ZS/ESF)	04QB9.11	N/A	12, 13
ULC/USLC Test Ckt	LY--	04QB9.11	02DC2	12, 13

BellSouth Telecommunications, Inc.
FPSC Docket No. 000649-TP
W. Keith Milner
EXHIBIT No. WKM-2

BELLSOUTH
Customer Guide
CG-LNCL-001
Issue 2-March 2000

Local Number Portability Ordering Guide for CLECs

Interconnection Services

PUBLIC

CG-LNCL-001
Issue 2-March 2000

Copyright

March, 1999 - March 2000

CG-LNCL-001
Issue 2-March 2000

Introduction

Purpose

This document contains information on Local Number Portability for CLECs interested in ordering this service from BellSouth®. The Guide is intended to increase the CLEC's understanding of LNP Order Process at BellSouth®, to provide guidelines for LSR completion, and to offer information on critical success factors for LSR submission.

This guide is intended to be used as a supplement to, not a replacement for, the **BellSouth® Ordering Guide for CLECs** and the **LEO Implementation Guide**, which are available on-line through the BellSouth® Interconnection website at:
http://www.interconnection.bellsouth.com/guides/guides.html

Information resources reviewed for this guide include, but are not limited to:

- BellSouth® CLEC Interconnections Web Site
- BellSouth® Interconnection Services Ordering Guide for CLECs
- BellSouth® LNP Documentation
- North American Numbering Council (NANC) Architecture and Administrative Plan for Local Number Portability
- North American Numbering Council (NANC) Inter-Service Provider LNP Operations Flows
- www.fcc.gov
- www.npac.com/home.htm
- www.ported.com

Version Information:

Revision History

Chapter	Action Request #	Date/Issue	Description
Various	N/A	March 2000 / 2	Added an Appendix section, containing, a Directory Listing Job Aid for LEO-IG Volume 1, Version 7, BellSouth® Business Rules for Local Ordering (effective April 7, 2000) and for LESOG Version 2 Form; a Job Aid for EATN, EAN, ATN, AN and BAN fields for LEO-IG Volume 1, Version 7, BellSouth® Business Rules for Local Ordering (effective April 7, 2000) and LESOG Version 4 Form; and a Job Aid for CRIS (SLI) Loop Ordering for LEO-IG Volume 1, Version 7 and LESOG Version 4 Form (effective April 30, 2000). Deleted Minimum Required Fields for faxed LNP Orders Section (including tables) Deleted Faxed Loop Service with Number Portability Fields Section Included copyright symbols General Revision
Various	N/A	November 1999/1c	Add web site for LNP Implementation Schedule. Add reference for POS and CN on EDI/TAG PONs.
Various	N/A	October 1999/ 1b	General Revision
Various	N / A	April 2, 1999 / 1a	General Revision
All	N / A	March, 1999 / 1	First Issue

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CHAPTER 1.0 - Introduction to Local Number Portability

1.1 Description of LNP

Local Service Provider Portability

Local Number Portability (LNP) is a part of local competition that provides end users with the ability to retain their phone numbers when they change their Local Service Provider.

Phase	Description
Local Service Provider (SPP)	Allows customers to keep their current telephone number(s) if they chose to switch from their current Local Service Provider to another.

The Telecommunications Act of 1996 requires BellSouth® to provide a mechanism for customers to retain their current telephone numbers when they change their Local Service Provider.

Orders of the FCC pursuant to the Telecommunications Act of 1996 provide deadlines for implementing Local Service Provider Portability (SPP) in the top 100 metropolitan areas in the United States. The BellSouth® territory includes 21 of the top 100 metropolitan areas. To learn more about BellSouth's implementation schedule plan , please visit us at:
Note: http://g8058183.ga.bst.bls.com/ibu/files/infra_lnp/LNP/LNPtrack.xls

1.2 Network Provisioning for Local Number Portability

Interim Number Portability (INP) is a temporary solution for porting numbers which involves two telephone numbers to route calls to the serving wire center using one of the following methods:

- Remote Call Forwarding
- Direct Inward Dialing
- Route Index Hubbing

Local Number Portability (LNP) is the long range solution for Service Provider Portability (SPP) and includes the following characteristics:

- uses only one telephone number.
- requires significant network architecture hardware and software upgrades.
- uses the Advanced Intelligent Network (AIN).
- requires new routing methodology to send calls to the wire center of the company currently providing the local service.

Note: All calls to a port eligible NPA NXX will route using the AIN to look up the correct routing information (LRN) for the telephone number.

The **LNP Gateway (LNP GW)** is a major link in the LNP process for BellSouth® since it provides both internal and external communications with various interfaces and processes, including:

- linking BellSouth® to the Number Portability Administration Center (NPAC).
- allowing for inter-company communications between BellSouth® and the CLECs for electronic ordering.
- providing interface between NPAC and AIN SMS for LNP routing processes.

The **Number Portability Administration Center (NPAC)** is a neutral third party organization that oversees the porting of telephone numbers for Local Number Portability. The NPAC maintains and communicates LNP-related data including

- Old Service Provider ID (OCN)
- New Service Provider ID (OCN)
- Local Routing Number (LRN)
- Due Dates
- CLASS-DPC
- CLASS-SSN
- LIDB-DPC
- LIDB-SSN
- CNAM-DPC
- CNAM-SSN
- ISVM-DPC
- ISVM-SSN

The BellSouth® LNP Gateway must communicate with the NPAC as to whether numbers are porting out or porting in. The messages sent to and from the NPAC are called Subscription Versions (SVs). Subscription Versions are the messages that flow through the NPAC to provide information for routing calls to ported numbers. The SV can only contain one telephone number (TN), which means that one LSR may have many TNs and SVs associated with it.

LSRs for INP

LSRs requesting Interim Number Portability (INP) will not be accepted with due dates by BellSouth® after the completion for each phase. If the due date is between ready to port and completion date, the CLEC may request INP or LNP.

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CHAPTER 1.0 - Introduction to Local Number Portability

1.3 LNP Order Status

Online Order Status Information For Faxed LSR's

CLEC PON Status Reports for faxed LNP LSRs are now available via BellSouth's website at **https://clec.bellsouth.com**. This report is located in the same location as your company's measurement reports. The information can be found as report number 00 (PON Report) on the CLEC reports page.

The report will provide status for all orders tracked into BellSouth's Local Order Number (LON) systems for the most recent 31 days. The report is CLEC specific. This will answer the majority of questions CLECs have about orders that have been submitted.

Each CLEC will be required to have a specific login and password to access these reports. The application for this report is also found on the web. Once the form is completed, it should be sent to the account team for processing.

EDI/TAG POS and CN

Users submitting LSR's through EDI or TAG receive Pending Order Statuses (POS) and Jeopardy Notifications back through the return path for these systems. Completion notification (CN) is sent when all service orders associated with the LSR are complete.

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CHAPTER 2.0 - LNP Order Process Flows

2.1 High Level LNP Order Process Flow and Narrative

High Level LNP Order Process Flow 

1.0 Order Submission 1.1

Step Action

Process Step: CLEC sends LNP LSR to BellSouth® LCSC via fax, EDI, or TAG.

2.0 Order Validation

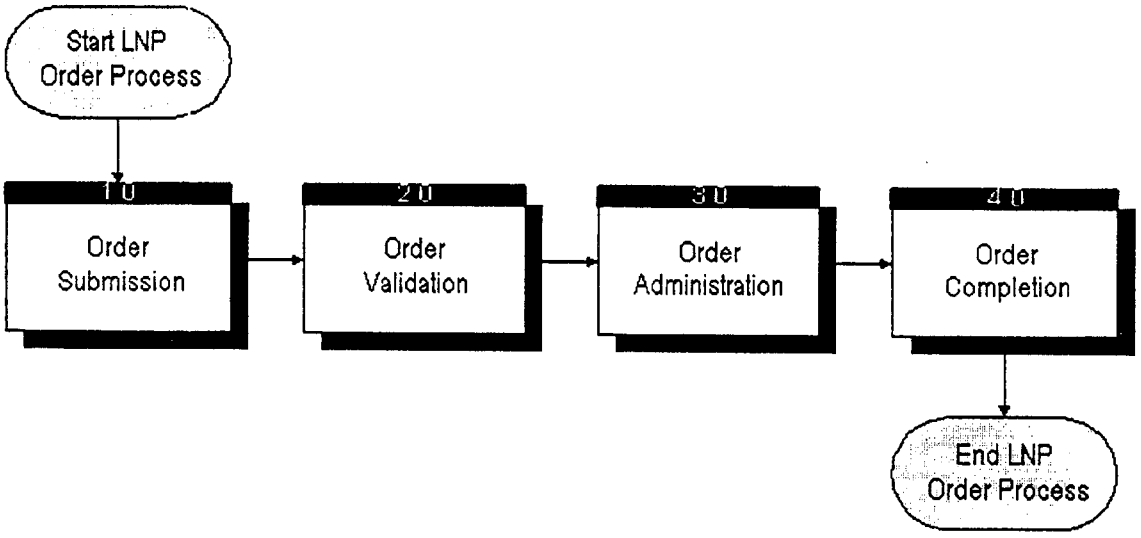
Process Step: BellSouth® validates CLEC LSR for errors, and requests clarification when necessary.

3.0 Order Administration

Process Step: BellSouth® sends FOC to CLEC if clarification is not needed. CLEC receives FOC and immediately sends Create SV to NPAC. BellSouth® then sends Concur SV to NPAC. The CLEC sends the Activate SV to NPAC on the Due Date, porting the number.

4.0 Order Completion

Process Step: BellSouth® completes the Disconnect listing order (if applicable) and sends E911 Unlock message to SCC. CLEC sends E911 Migrate message to SCC.



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CHAPTER 2.0 - LNP Order Process Flows

2.2 Detailed LNP Order Process Flow and Narrative

Detailed LNP Order Process Flow 

2.2.1 LNP Order Process - Port Out and Port Out with Loop

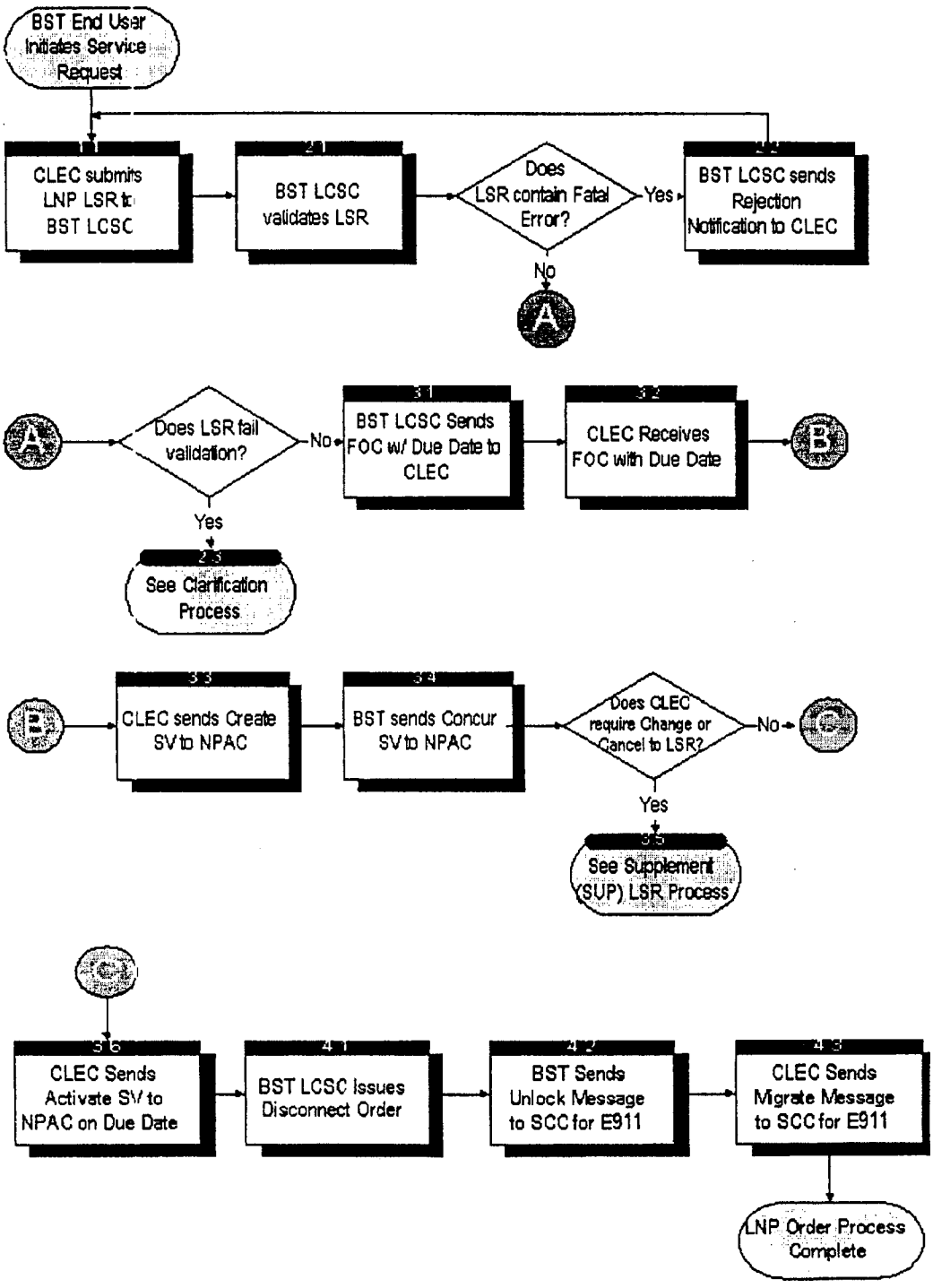
1.0 Order Submission

1.1

Step	Action
Process Step:	**CLEC sends LNP LSR to BST LCSC via fax, EDI or TAG**
Term	**Definition**
Predecessor:	BellSouth® End User initiates LNP Request with CLEC
Term	**Definition**
Input:	End-user CSR; BellSouth® Ordering Guide for CLECs; order forms; BellSouth® Standard Interval information; BellSouth® LNP Ordering Checklist
Term	**Definition**
Output:	BellSouth® LCSC receives paper copy LSR via fax server OR digital LSR for EDI or TAG orders
Term	**Definition**
Key Interface:	Fax; EDI, TAG

Note: Note: LSR format defined by OBF

2.0 Order Validation



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2.1

Step	Action
Process Step:	**BST LCSC validates LSR**
Term	**Definition**
Predecessor:	CLEC submission of LSR
Term	**Definition**
Input:	CLEC LSR
Term	**Definition**
Output:	Validated LSR
Term	**Definition**
Key Interface:	BellSouth® LNP-Gateway

Note: Note: CLECs may access pre-order support using a web browser and the **LENS** interface. Use the Inquiry function to confirm the accuracy of customer record information, address, etc.

Decision Point

Step	Action
Process Step:	**Does LSR contain Fatal Error*?**
Term	**Definition**
If YES,	Proceed to 2.2 "BST LCSC sends Rejection Notification to CLEC"
Term	**Definition**
If NO,	Proceed to Decision Point "Does LSR fail validation?"

Note: Note: *Fatal Reject errors include missing required fields, duplicate PON, and invalid entries.

2.2

Step	Action
Process Step:	**BST LCSC sends Rejection Notification to CLEC**
Term	**Definition**
Predecessor:	CLEC LNP LSR contains fatal errors (e.g., missing fields, duplicate PON, invalid entries)
Term	**Definition**
Input:	Rejected LSR
Term	**Definition**
Output:	Notification of fatal errors sent to CLEC
Term	**Definition**
Key Interface:	Fax, EDI, TAG, BellSouth® LNP-Gateway

Note: Note: Fatal reject notices for EDI or TAG orders will be transmitted electronically via EDI or TAG. Fatal reject notices for faxed orders will be transmitted via fax.

Decision Point

Step	Action
Process Step:	**Does LSR fail validation?**
Term	**Definition**
If YES,	Proceed to 2.3 "Clarification Process"
Term	**Definition**
If NO,	Proceed to 3.1 "BellSouth® LCSC Sends FOC with Due Date to CLEC"

2.3
See Clarification Process

3.0 Order Administration

3.1

Step	Action
Process Step:	**BST LCSC Sends FOC with Due Date to CLEC**
Term	**Definition**
Predecessor:	CLEC LSR passes BellSouth® LNP Gateway validation.
Term	**Definition**
Input:	Valid LSR
Term	**Definition**
Output:	FOC is sent to CLEC via EDI, TAG, or fax; BellSouth® LCSC issues 10 digit trigger order if applicable
Term	**Definition**
Key Interface:	EDI, TAG, fax, BellSouth® LNP Gateway

Note: Note: "Trigger" may not be applicable for all types of service. For Port Out with Loop, all service orders are issued at this time. The UNE Center ensures that the orders complete when the loop is turned up.

3.2

Step	Action
Process Step:	**CLEC receives FOC with Due Date**
Term	**Definition**
Predecessor:	BellSouth® LCSC sends CLEC FOC via fax, EDI, or TAG
Term	**Definition**
Input:	Valid LSR with FOC
Term	**Definition**
Output:	CLEC receives FOC with Due Date
Term	**Definition**
Key Interface:	Fax; EDI, TAG

3.3

Step	Action
Process Step:	**CLEC sends Create SV to NPAC with Due Date on FOC and Time set to 00:00**
Term	**Definition**
Predecessor:	FOC received by CLEC
Term	**Definition**
Input:	FOC with Due Date sent by BellSouth® LCSC
Term	**Definition**
Output:	NPAC notifies BellSouth® LCSC that CLEC has sent Create SV
Term	**Definition**
Key Interface:	NPAC - Service Order Administration (SOA); BellSouth® LNP Gateway

Note: Note: SV - Subscription Version BellSouth® will place SVs in Conflict if CLEC sends the Create SV to NPAC prior to CLEC receiving FOC from BellSouth®.

3.4

Step	Action
Process Step:	**BST LCSC sends Concur SV to NPAC with Due Date on FOC and Time set to 00:00**
Term	**Definition**
Predecessor:	BellSouth® receives notification of Create SV from NPAC
Term	**Definition**
Input:	Create SV sent by CLEC to NPAC
Term	**Definition**
Output:	NPAC notifies CLEC that Concur SV has been sent by BellSouth®
Term	**Definition**
Key Interface:	NPAC - Service Order Administration (SOA); BellSouth® LNP Gateway

Note: Note: BellSouth® LCSC has 18 hours after Create SV to send Concur SV to NPAC.

Decision Point

Step	Action
Process Step:	**Does CLEC require Change* or Cancel to Original LSR?**
Term	**Definition**
If YES,	Proceed to 3.5 "Supplement (SUP) LSR Process"
Term	**Definition**
If NO,	Proceed to 3.6 "CLEC sends Activate SV to NPAC with Due Date on FOC"

Note: Note: *Change to original LSR includes: Due Date change; Add/Remove TNs

3.5
See Supplement (SUP) LSR Process

3.6

Step	Action
Process Step:	**CLEC Sends Activate SV to NPAC on Due Date on FOC**
Term	**Definition**
Predecessor:	BellSouth® LCSC sends Concur SV to NPAC
Term	**Definition**
Input:	CLEC receives Concur SV from NPAC
Term	**Definition**
Output:	NPAC receives Activate SV from CLEC on Due Date on FOC
Term	**Definition**
Key Interface:	NPAC - Service Management System (SMS); BellSouth® LNP Gateway

Note: Note: BellSouth® is no longer responsible for customer after CLEC sends Activate SV to port the number.
Activate SV should be sent for all telephone numbers on the LSR.

4.0 Order Completion

4.1

Step	Action
Process Step:	**BST LCSC Issues Disconnect Order** and Listing Order (if applicable) for Port Out without loop.
Term	**Definition**
Predecessor:	CLEC sends Activate SV to port number.
Term	**Definition**
Input:	NPAC notification of CLEC Activate SV sent to BellSouth®
Term	**Definition**
Output:	Disconnect service orders issued by BellSouth® LCSC
Term	**Definition**
Key Interface:	NPAC - Service Management System (SMS); BellSouth® LNP Gateway

Note: Note: Following this point, questions regarding maintenance & repair should go to the UNE Center.
LCSC will not issue disconnect until the Activate SV is received for all telephone numbers on LSR

4.2

Step	Action
Process Step:	**BST sends Unlock Message to SCC for E911**
Term	**Definition**
Predecessor:	BellSouth® completes Disconnect service order
Term	**Definition**
Input:	Disconnect service order
Term	**Definition**
Output:	SCC receives BellSouth's Unlock message
Term	**Definition**
Key Interface:	SCC

Note: Note: BellSouth® will not send the Unlock message to SCC before the Disconnect service order is complete. BellSouth® will not send the Unlock message for E911 until Activate SV is received for all telephone numbers on LSR.

4.3

Step	Action
Process Step:	**CLEC Sends Migrate Message to SCC for E911**
Term	**Definition**
Predecessor:	BellSouth® Unlock message has been received by E911 SCC
Term	**Definition**
Input:	BellSouth® Unlock message
Term	**Definition**
Output:	E911 record locked
Term	**Definition**
Key Interface:	SCC

Note: Note: If CLEC Migrate (Lock) message makes it to SCC before BellSouth's Unlock Message, then the CLEC message goes on an error report. BellSouth® will not send Unlock message to SCC until CLEC has sent Activate SVs to NPAC for all telephone numbers on LSR.

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CHAPTER 3.0 - LNP Clarification and Supplement (SUP) LSR Process Flows

3.1 Detailed LNP Clarification Process Flow and Narrative

Clarifications

Any LSR will be returned to the CLEC for clarification when BellSouth® is not able to issue the orders requested due to:

- incomplete information
- incorrect information
- conflicting information

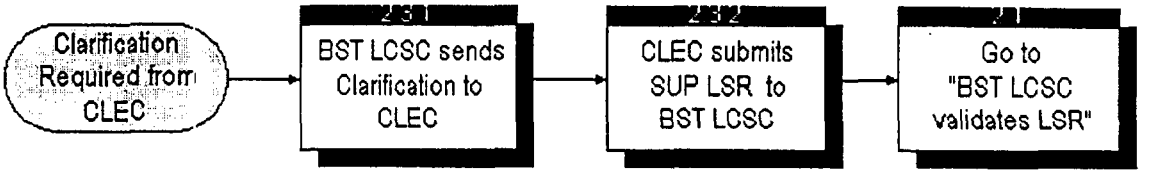
For faxed requests, clarifications will be sent via fax. The CLEC has 10 business days to respond to the request for clarification by submitting a supplemental LSR. (SUP)* If no response is received, the LSR will be canceled on the eleventh day. If canceled by BellSouth®, a new LSR (PON) must be submitted. Clarifications for EDI or TAG orders are sent via EDI or TAG. The CLEC has 30 days to respond to the clarification through EDI or TAG.

Note: * SUP LSRs must be sent using the same ordering method as the original LSR (i.e., Fax, EDI, TAG)

Detailed LNP Clarification Process Flow 

3.1.1 Clarification Process

2.3.1



3.2 Detailed Supplement (SUP) LSR Process Flow and Narrative

Supplement (SUP) LSR

A supplemental change (SUP) LSR will be required if a CLEC:

- has been asked for clarification on an LNP LSR,
- is requesting a Due Date Change,
- would like to cancel an LSR,
- would like to add/remove telephone numbers for porting on LSR.

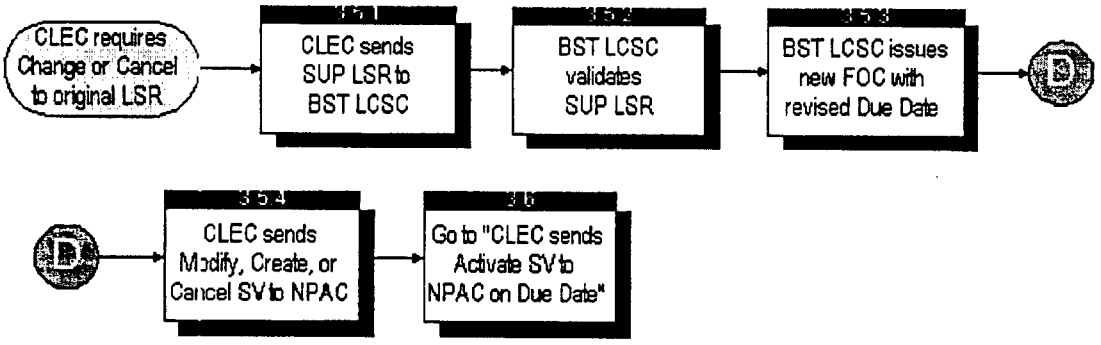
If a CLEC is changing the original LSR, a SUP LSR must be filed with BellSouth® prior to any contact with NPAC.

Note: SUP LSRs must be sent using the same ordering method as the original LSR (i.e., Fax, EDI, TAG)

Detailed Supplement (SUP) LSR Process Flow 

3.2.1 Supplement (SUP) LSR Change Process

3.5.1



Step	Action
Process Step:	**CLEC sends SUP LSR to BST LCSC**
Term	**Definition**
Predecessor:	Create and Concur SV received by NPAC for original LSR
Term	**Definition**
Input:	Original FOC and LSR; SUP LSR
Term	**Definition**
Output:	BST LCSC receives SUP LSR via fax, EDI, or TAG
Term	**Definition**
Key Interface:	EDI, TAG, Fax

Note: Note: SUP LSR must be sent to BellSouth® LCSC and revised FOC received by CLEC prior to CLEC sending Modify SV to NPAC. CLEC must complete SUP field and VER field on LSR form

3.5.2

Step	Action
Process Step:	**BST LCSC validates SUP LSR**
Term	**Definition**
Predecessor:	CLEC submission of SUP LSR
Term	**Definition**
Input:	CLEC SUP LSR
Term	**Definition**
Output:	Validated SUP LSR; BellSouth® updates internal records with supplemental information on LSR
Term	**Definition**
Key Interface:	BellSouth® LNP-Gateway

3.5.3

Step	Action
Process Step	
Term	**Definition**
Predecessor:	BellSouth® receives and validates SUP LSR from CLEC
Term	**Definition**
Input:	SUP LSR; original LSR and FOC
Term	**Definition**
Output:	BellSouth® LCSC updates internal records with new Due Date; new FOC sent to CLEC via fax, EDI, or TAG
Term	**Definition**
Key Interface:	BST LNP-Gateway, EDI, TAG, fax

Note: Note: CLEC must receive FOC prior to sending Modify SV to NPAC. Revised Due Date on FOC will be based on the receipt of SUP LSR and the BST Standard Intervals.

3.4

Step	Action
Process Step:	**CLEC sends Modify, Create or Cancel SV to NPAC**
Term	**Definition**
Predecessor:	CLEC receives revised FOC with new Due Date
Term	**Definition**
Input:	SUP LSR; Revised FOC with new Due Date
Term	**Definition**
Output:	NPAC receives Modify, Create, or Cancel SV
Term	**Definition**
Key Interface:	NPAC - Service Order Administration (SOA)

Note: Note: If changing the Due Date on LSR, CLEC sends a Modify SV
If removing TNs to port from original LSR, CLEC sends a Cancel SV for each TN.
If adding TNs for porting, CLEC sends Create SVs for each new TN on the SUP LSR.
If canceling the original LSR, CLEC sends Cancel SV to NPAC.

3.5
See Supplement (SUP) LSR Process

3.6

Step	Action
Process Step:	**CLEC Sends Activate SV to NPAC on Due Date on FOC**
Predecessor:	BellSouth® LCSC sends Concur SV to NPAC
Term	**Definition**
Input:	CLEC receives Concur SV from NPAC
Term	**Definition**
Output:	NPAC receives Activate SV from CLEC on Due Date on FOC
Term	**Definition**
Key Interface:	NPAC - Service Management System (SMS); BellSouth® LNP Gateway

Note: Note: BellSouth® is no longer responsible for customer after CLEC sends Activate SV to port the number. Activate SV should be sent for all telephone numbers on the LSR.

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CHAPTER 4.0 - Requirements for LNP Ordering

4.1 Requirements for LNP Ordering

A telephone number may port out when all of the following are true:

- NPA NXX is portable.
- telephone number is a working BST number or end user is paying to reserve the number.
- end user name on the LSR matches the BellSouth customer record.
- end user address on the LSR is in the same Toll Message Rate Center (TMRC) as the address on the BellSouth® customer record.
- number is associated with a line type that is portable. (Refer to Local Number Portability Rules - Section 4.2 below to determine if service type is portable and if a trigger order is necessary)

The responsibilities for porting out telephone numbers are described in the following table.

The responsibilities for porting out telephone numbers are described in the following table

Work Group	Responsibilities
CLEC	• Send LSR to BellSouth® to request number(s) to be ported. • Receives FOC before sending SVs to NPAC. • Provide service to end user. • Notify the NPAC when ready to port the number. • Update E911 information. • Send SUP LSR to change Due Date, Cancel LSR, or modify TN on LSR.
LCSC	• Process LSR and FOC for port out requests. • Issue trigger/port out/listing/loop service orders. • Send and receive NPAC messages.
UNE Center	• Coordinate port out with loop orders with CLEC as needed. • Complete port out with loop orders as needed. **Note:** UNE Center is involved in provisioning only if loop is requested.

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4.2 Local Number Portability Rules

The following table may be used to determine if the service type is portable and if a trigger order is required. The existing service or line type is for reference only because the service is not portable. Only the number is ported.

Local Number Portability Rules

Service / Line Type	Portable - w/LRN	Trigger	Notes
AdWatch	Y	N	The number will no longer work for AdWatch once it is Ported.
Cellular	N		
Choke Codes	N		Does not involve LRN
Denied for Non-Pay	Y	N	Must be ported prior to disconnection of service.
DID (Block of 20)	Y	N	To Port a portion of a range may require special assembly.
ESSX® / MultiServ®	Y	Y	If lines are in a hunting arrangement, see Hunting Lines below.
FX / FCO	Y	Y	The number can be ported within the same Toll Message Rate Center (TMRC). The BST designed circuit will be disconnected and the new service provider must establish the service.
Hunting Lines	Y	Y	If not all of the numbers in the hunt group are porting, the numbers porting must be removed from the hunt group the day before the port due date. CLEC can determine Frame Due Time or use BST default of 9:00 PM day before Port.
ISDN	Y	Y	
N11	N		

Out dial trunks	Y	N	
Pager Numbers	N		
Party Line	Y	N	The number may be ported without loop. The BST service must be disconnected
Remote Call Forwarding / Interim Number Portability	Y	N	
Reserved numbers	Y	N	Only numbers reserved with chargeable USOCs may be ported
RingMaster®	Y	N	
Sub-Let	Y	Y	
Surrogate Client Number	Y	N	
Suspend for season	Y	N	
Switched Access	N		
Uniserv®	N		The lead number is not portable but subsequent TNs can be ported.
Warm Line	N		
ZipCONNECT®	N		

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CHAPTER 4.0 - Requirements for LNP Ordering

4.3 Required Forms For Faxed Requests

Required Forms for Port Out

The CLEC submits the following forms to the LCSC to request telephone numbers to Port Out:

- Local Service Request (LSR)
- End User (EU)
- Number Portability (NP) or Loop Service with Number Portability (LSNP)

Conditional Forms for Porting Out

- Directory Listing Request (DLR)

LNP Order Form Matrix

LNP Order Form Matrix

When Ordering:	These Forms Are:				
	LSR	EU	NP	LSNP	DLR
Number Portability	R	R	R	P	C*
Loop Service with Number Portability	R	R	P	R	C*

Form Names:	Form Requirements:
LSR = Local Service Request Form	R=Required
EU = End User Form	R=Required
NP = Number Portability Form	C=Conditional
LSNP = Loop Service with Number Portability Form	O=Optional
DLR = Directory Listing Request Form	

Required Forms for SUPs

A supplemental change (SUP) LSR will be required if a CLEC:

- has been asked for clarification on an LNP LSR,
- is requesting a Due Date Change,
- would like to cancel an LSR,
- would like to add/remove telephone numbers for porting on LSR.

Use the **LNP Order Matrix Form** above to determine which order forms must be used.

A supplemental change LSR (SUP) should contain complete information and will supersede the original LSR. The SUP must reflect the same PON, ACT, NPT, and CC from the original request. It must also have a higher version number in the VER field. For faxed requests, the SUP field must be populated with:

- (1) to Cancel. (Prohibited if CLEC has sent Activate SV to NPAC for any numbers on the LSR)
- (2) for Desired Due Date changes. The new date is specified in the DDD field. If the request is to establish a due date less than the standard interval (from the date the SUP is sent), the EXP field must also be populated.
- (3) for other types of changes. This includes adding or removing porting numbers. Also includes requests for a change in desired due date in conjunction with other changes to a pending order. The standard interval should be used to establish a new due date when adding or removing ported numbers.

EDI, TAG and Fax requests may not be combined for the same PON. If an LSR is submitted via:

- EDI all SUPs for the PON must be sent through EDI.
- Fax all SUPs for the PON must be faxed.
- TAG all SUP's for the PON must be sent through TAG.

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4.4 Complex LNP Orders

Definition of Complex Services

The Local Number Portability (LNP) request is classified as complex if the number(s) being ported out is working on a complex class of service. Requests to port out telephone numbers working on the following types of service are considered complex:

- ESSX® / MultiServ®
- Primary Rate ISDN
- Basic Rate ISDN
- Channelized MegaLink®
- PBX - DID, Inward/Outward/Combination trunks
- Pathlink

4.5 Project Managed LNP Orders and Standard Intervals

Note: For information on project management and due date intervals, refer to BellSouth® Products and Services Interval Guide Interconnection Services @ http://interconnection.bellsouth.com/guides/guides_html

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CHAPTER 5.0 - Critical Success Factors for LNP Ordering

5.1 Pre-Order Information

1. CLEC can proactively check the following points in the LSR before submitting via fax, EDI, or TAG.
   a. Customer address is RSAG valid and within the rate center;
   b. NPA-NXX is marked portable in the LERG;
   c. TNs on LSR match TNs on end user account;
   d. Due Date intervals are based on BellSouth Standard Intervals.
2. CLEC must have a Q-account for each OCN registered with NPAC and stated on LSR. All new OCNs registered with NPAC should be updated with BellSouth® and a Q-account should be established.
3. CLEC should use correct OCN. OCN used at NPAC must match OCN used in the CC or NNSP field on CSR and OCN for Q account in BAN field.
4. CLEC must obtain end-user authorization to request LNP before submitting LNP LSR.

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CHAPTER 5.0 - Critical Success Factors for LNP Ordering

5.2 LSR Order Forms for LNP

1. CLEC should complete all required fields.
2. CLEC should provide previously unassigned PON on LSR.
3. If CLEC is porting on any day other than the Due Date stated on the FOC, the CLEC should send BellSouth® a SUP LSR prior to the Due Date stated on the LSR. BellSouth® will then send a revised FOC with the new due date to the CLEC.
4. Per the BellSouth® Ordering Guide for CLECs, for Issue 3B in reference to faxed requests, a REF NUM may not be duplicated on an individual PON. **REF NUMs are associated with:**
   - porting numbers
   - disconnecting numbers
   - directory listings

   Example:

   > If a REF NUM is used on the Directory Listing Request form, it may not be repeated on the Number Portability/Loop form or the End User Disconnect form.

   - PONs containing duplicate REF NUMs are placed in clarification.
5. The CLEC must advise BellSouth® how to handle additional telephone numbers on the end user account. The additional telephone numbers may be associated with features such as:
   - Ringmaster®
   - Surrogate Client MemoryCall®
   - Flexible Call Forwarding Dial Around

   If these telephone numbers are not porting, use the disconnect section on the End User Form to detail this information.
6. For all LNP orders, the LSR must provide the initiator's fax number in the FAX NO field, even for EDI or TAG LSRs.
7. CLEC should provide accurate cable & pair information for loop orders to avoid provisioning delays.
8. An LSR must contain numbers on one CSR. An LSR must be sent for each CSR unless using "LEATN" for Issue 9

5.3 Supplemental LSRs

1. If CLEC intends to port on any day other than the Due Date stated on the FOC, the CLEC should send BellSouth® a SUP LSR prior to the due date originally stated on the FOC.
2. A supplemental change LSR (SUP) must reflect the same PON, CC, ATN, AN, EATN, EAN, ACT, and NPT as the original request.
3. SUP must also have a higher VER number and SUP field entry complete
4. EDI/TAG vs. FAX: EDI or TAG and Fax requests may not be combined for the same PON. If an LSR is submitted via:
   - EDI all SUPs for the PON must be sent through EDI.
   - TAG all SUPs for the PON must be sent through TAG.
   - Fax all SUPs for the PON must be faxed.

Example:

The original LSR is sent via EDI and then placed in clarification by the LCSC. CLEC must send a SUP through EDI to change or cancel the request.

5.4 Clarifications

1. For faxed requests, the CLEC has 10 business days to respond to the request for clarification by submitting a supplemental LSR.
2. If no response is received by BellSouth® LCSC within 10 business days, the LSR will be canceled on the eleventh business day.
3. If original LSR is canceled by BellSouth®, a new LSR with new PON must be submitted.
4. CLEC should not send Create SV to NPAC until an FOC has been received.
5. BellSouth® will place SVs in Conflict if CLEC sends Create before FOC is received.

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CHAPTER 5.0 - Critical Success Factors for LNP Ordering

5.5 Standard Intervals

1. CLEC should review BellSouth® Standard Interval Guide prior to submitting LSR.
2. The minimum Due Date for port-out is five business days after the FOC receipt date. The first TN ported in an NPA-NXX is no earlier than five business days after FOC receipt date.

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CHAPTER 5.0 - Critical Success Factors for LNP Ordering

5.6 NPAC Communication

1. CLEC must receive FOC from BellSouth® prior to sending any NPAC SV messages (Create or Modify).
2. The CLEC should send the Create SV immediately upon receipt of FOC.
3. The Due Date on the Create SV sent to NPAC by the CLEC must match Due Date on FOC sent by BellSouth®
4. The Due Time on the Create SV must be set to 00:00.
5. CLEC should send Activate SV to NPAC on FOC due date.
6. BellSouth® LCSC does not issue the Disconnect service order until notification of CLEC Activate SV is received from NPAC for all TNs on the LSR. This is done to avoid disruption to end-user service.
7. For any change in the Due Date to port numbers, to cancel port, or to add/remove telephone numbers, a SUP LSR must be sent to BellSouth® LCSC and CLEC must receive revised FOC prior to sending a Modify message to NPAC.

5.7 E911 Lock Down

1. CLEC must send Activate SV to NPAC before BellSouth® LCSC will issue the Disconnect.
2. BellSouth® will not send the Unlock Message until Disconnect service order is complete.
3. If CLEC Migrate message reaches SCC before BellSouth's Unlock Message, the CLEC Migrate message will be shown on an error report which is sent to CLECs daily. CLEC must be sure they have sent Activate SVs to NPAC for all TNs which appear on error reports from SCC.
4. CLEC and BellSouth® should send Migrate and Unlock messages to SCC with the same due date as the Activate SV to NPAC.

6.1 Interface Options for Order Submission

Ordering Options for LSRs

The CLEC must send the Local Service Request (LSRs) for Local Number Portability or Loop Service with Number Portability to the BellSouth® LCSC for processing. The request may be faxed or sent electronically through Electronic Data Interchange (EDI) or Telecommunication Access Gateway (TAG).

If the LSR is received electronically, the FOC is sent to the CLEC automatically through EDI or TAG. The CLEC also receives completion notices through EDI or TAG once the service orders are complete. EDI, TAG and Fax requests may not be combined on the same PON. If an LSR is originally submitted via EDI, then all SUPS for this PON must be sent through EDI.

6.2 System Interface Descriptions

Local Exchange Navigational System (LENS)

Step	Action
Description:	Front-end GUI application which provides pre-ordering support for LNP orders using the Inquiry function.
Term	**Definition**
Inputs:	Customer address, customer information
Term	**Definition**
Outputs:	RSAG Address Validation; Service availability for a particular NPA NXX; Customer record information

Note: Note: LNP LSRs can not be submitted via LENS.

PON Order Status via the Web

Step	Action
Description:	Supports on-line viewing of faxed LSR order status.
Term	**Definition**
Inputs:	Faxed LSRs
Term	**Definition**
Outputs:	CLEC-specific LSR status by PON

Note: Note: For faxed LSRs

Fax

Step	Action
Description:	Supports the transmission of manual CLEC orders.
Term	**Definition**
Inputs:	Paper LSR
Term	**Definition**
Outputs:	Clarifications, FOCs

Note: Note: Clarifications and FOCs for faxed LSRs are sent via fax. SUP LSRs for faxed LSRs must be submitted via fax. EDI, TAG and faxed requests may not be combined on the same PON.

Electronic Date Interchange (EDI)

Step	Action
Description:	Supports the CLEC transmission of orders to BellSouth®, and the acknowledgment of receipt of orders to CLEC by BellSouth®.
Term	**Definition**
Inputs:	Digital LSR
Term	**Definition**
Outputs:	Clarifications, Rejects, FOCs, Pending Order Statuses, Completion Notices

Telecommunications Access Gateway (TAG)

Step	Action
Description:	Supports the CLEC transmission of orders to BellSouth®, and the acknowledgment of receipt of orders to CLEC by BellSouth®. CLEC has access to ordering and pre-ordering functionality via TAG.
Term	**Definition**
Inputs:	Digital LSR
Term	**Definition**
Outputs:	Clarifications, Rejects, FOCs, Pending Order Statuses, Completion Notices

BellSouth® LNP Gateway

Step	Action
Description:	Supports both internal and external communications with various interfaces and processes, including NPAC (SOA & SMS), EDI, and TAG.
Term	**Definition**
Inputs:	LNP LSRs, NPAC messages, EDI and TAG orders
Term	**Definition**
Outputs:	Rejects, Clarifications, FOCs, NPAC concurrence messages, Service orders to provisioning

NPAC

Step	Action
Description:	NPAC is the third party organization that oversees the porting of telephone numbers for Local Number Portability.
Term	**Definition**
Inputs:	CLEC and BellSouth® subscription versions.
Term	**Definition**
Outputs:	CLEC and BellSouth® subscription versions.

Note: Note: Interface descriptions are specific to LNP orders only.

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CHAPTER 7.0 - Frequently Asked Questions

7.1 General

1. 1. What should be done if it is determined that some numbers sent on an LSR are not to be ported?

   A sup should be sent immediately to delete the telephone numbers from the NP or LSNP form if they are not porting. The account will not be disconnected until all telephone numbers on the NP or LSNP form have been ported.
2. 2. How is a CLEC LSR validated?
   The validation process includes the following steps to ensure that the requested number(s) may be ported out.

Step	Action
1	Are the porting number(s) on the LSR working number(s) on the CSR (or customer is paying to reserve the numbers)? If yes, go to step 2. If no, go to step 7.
2	Does the end user name on the LSR match the listed name and/or billing name on the CSR? If yes, go to step 3. If no, go to step 7.
3	Are the telephone number(s) on the LSR associated with a line type that is portable? Refer to Local Number Portability Rules (Section 4.2 of this guide). If yes, go to step 4. If no, go to step 7.
4	Does the service address information on the LSR match the LA or SA on the CSR? If yes, go to step 6. If no, go to step 5. **Note:** If the line type on the existing end user service is FX/FCO, go to step 5.
5	Is the Toll Message Rate Center (TMRC) for the porting number(s) shown on the LSR the same as the TMRC for the address shown on the LSR? If yes, go to step 6. If no, go to step 7.
6	Is LNP available for the NPA NXX at this time? If yes, go to step 8. If no, go to step 7.
7	Send CLEC Clarification request and wait for receipt of SUP LSR.
8	Proceed with Service Order Issuance Process.

3. What CLEC actions would cause an LNP request to fall out of the order process at BellSouth?
Some reasons for an LSR to fall out of the order process are:

- CLEC sent a create SV before receiving an FOC. BellSouth will put SV in Conflict with NPAC
- CLEC sent a create on the wrong TN
- CLEC sent create with due date different than FOC due date
- CLEC sent create with time other than 00:00
- CLEC ported number before or after Due Date on the FOC

If the CLEC LSR has fallen out of the order process, BellSouth® will not be able to automatically send Concur SV to the CLEC Create SV.

- 4. What CLEC actions should be taken if the end user is continuing to receive a bill from BST after the account is ported out?
- CLEC should verify that the activate SV has been sent on all telephone numbers provided on the LSR. If yes, refer the account to the LCSC for investigation. If no, send the activate SV to the NPAC.

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7.2 Ordering Options

1. In what form should a CLEC expect to receive an FOC, Clarification, or Reject response?
   - If an order was sent via EDI, the response will be sent via EDI.
   - If an order was send via TAG, the response will be sent via TAG
   - If an order was send via fax, the response will be sent via fax.
2. Why can't the status of an LSR submitted via EDI be viewed in the PON Status Reports which are available on-line?
   The PON Status Reports are for orders which were submitted via fax. Status for orders submitted via EDI/TAG are received via EDI/TAG.

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CHAPTER 7.0 - Frequently Asked Questions

7.3 LSR Error Notices

1. What types of errors would require clarification?
   Some examples of errors for which BellSouth® will request clarification:
   - Some numbers on an account are being ported, but information/instruction has not been provided on **ALL** numbers listed on the account (i.e., Ringmaster®; Surrogate Client MemoryCall®; Flexible Call Forwarding Dial Around (FCPAN))
   - REF NUM are duplicated on the LSR
   - LSR does not contain the minimum required fields
   - Duplicate PON
   - Data was entered into a prohibited field
   - Busy cable & pair
   - Incorrect address
   - End user & central office are not in same wire center (may be wrong ACTL)
   - Invalid ACT
   - Invalid Q-account
   - TN listed is not a working BellSouth® TN
   - Listing 2 numbers to port from two different CSRs on one LSR
2. Why would the CLEC receive error reports from SCC, Manager of the E911 database?
   If the CLEC sends the Migrate message to the SCC to lock E911 prior to SCC receiving BellSouth's Unlock message, the CLEC Migrate message will be placed on an error report (755) which is distributed daily to CLECs from SCC. SCC will mechanically process the Migrate/Unlock record match for 7 days for all 755 error messages. After 7 days the record will move to a 760 error file. SCC will manually continue to look for the record match there.
   CLEC should be sure that the Activate SV has been sent to NPAC for the Migrate messages which appear on the 755 or 760 error reports.

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7.4 Due Dates

1. What are the key steps to changing the Due Date for a previously submitted LNP LSR?
   The most important part of a Due Date change is submitting a SUP LSR to the BellSouth® LCSC and receipt of a revised FOC prior to sending the Modify SV to NPAC. If the Modify SV is sent to NPAC prior to receipt of the revised FOC from BellSouth, the LSR will fall out of the order process at BellSouth®. Due Date changes should be requested prior to the due date and not later than the due date originally stated.
2. Why does the FOC have a Due Date which is different than the Desired Due Date?
   If the Desired Due Date on the original LSR did not adhere to BellSouth® Standard Intervals for LNP orders, then the Due Date on the FOC would reflect the appropriate interval. Refer to BellSouth® Standard Interval Guide for more details.
3. Why does the CLEC have to send the Activate SV on the Due Date?
   If the CLEC sends the Activate SV before or after the Due Date on the FOC, end user service could be impacted.

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CHAPTER 7.0 - Frequently Asked Questions

7.5 NPAC Communication

1. What does it mean when a CLEC receives an SV with Authorization set to NO (Conflict) from NPAC?
   This SV indicates that the CLEC sent a Create SV to NPAC prior to receipt of an FOC for the TN. CLEC should check for receipt of an FOC for the TN.
2. Why can't the CLEC send the Create SV to NPAC prior to receiving an FOC from BellSouth®?
   If the CLEC sends the Create SV to NPAC prior to receiving an FOC from BellSouth®, BellSouth® will send SV with Authorization set to NO (Conflict) to NPAC. CLEC should follow industry flow for successful porting.
3. How does CLEC know BellSouth® is ready to port number?
   CLEC should complete the following steps at least the day before the due date:
   - verify FOC was received
   - verify FOC due date
   - verify SV is Pending with Concurrence for all TNs on LSR
   - verify SV due date is same as FOC due date for all TNs on LSR
4. What happens if the NPAC telephone number disconnect option is used after sending the activate (number ported) message?
   The telephone number and not the end user is returned to BellSouth®. The CLEC must arrange to provide service for the end user because upon receipt of the Activate SV, BST will proceed with the disconnect order.

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CHAPTER 8.0 - LNP Ordering Checklist

8.1 LNP Ordering Checklist

1. **Pre- Submission: The LSR Form for LNP**
   Has the pre-order information been validated? CLECs may access pre-order support using a web browser and the LENS interface. Use the Inquiry function to confirm the accuracy of the following information:
   - TNs on LSR match TNs on CSR
   - LSR address is RSAG valid
2. Have you included/checked the following items:
   - Previously unassigned PON on LSR
   - Unique REF NUMs on all associated forms for LSR
   - Minimum required fields are complete
3. Is there a Q-account for each OCN registered at the NPAC and stated on the LSR in the CC field?
4. Were BellSouth® Standard Due Date Intervals followed when assigning the Desired Due Date? (Refer to BellSouth® Products and Services Interval Guide.)
5. **NPAC Communication**
   Do not send NPAC messages (e.g., Create or Modify) prior to receipt of FOC. (For original LSR or SUP LSR)
6. The Create SV should be sent immediately upon receipt of FOC by the CLEC for all TNs on the LSR.
7. Does the Due Date on Create message must match Due Date on FOC sent by BST?
8. For any change in the Due Date to port numbers, a SUP LSR must be sent to BellSouth® LCSC prior to sending a Modify message to NPAC. Any other changes, such as Cancellations, also require a SUP LSR.
9. Does the Due Time have setting of 00:00?
10. **E911 Lockdown**
    The Migrate message to lock records at an E911 SCC should be sent after the Activate message is sent to NPAC.

Note: This list is not all inclusive, but highlights the actions which would most contribute to the submission of a valid LSR.

CG-LNCL-001
Issue 2-March 2000
CHAPTER 9.0 - Glossary of LNP Terms

9.1 Glossary of LNP Terms

Term	Definition
Advanced Intelligent Network (AIN)	Evolving, service-independent network architecture that provides important new capabilities for rapid creation of customized telecommunications services. AIN offers one way for a network element to query a central database to obtain local number portability routing information.
BST	Acronym used to indicate BellSouth®
Central Office (CO)	An environmentally controlled space in which a telecommunications network switching system and other associated operating systems are installed.
Central Office Exchange (CENTREX)	A telephone service offered by LSPs that provides the end-user with advanced features and services from the LSPs EO
Clarification	Requested by BellSouth LCSC when an CLEC LSR contains incomplete or inaccurate information which requires further documentation from the CLEC to allow order processing to continue.
Competitive Local Exchange Carrier (CLEC)	A new entrant into a market where there is already an incumbent LEC (ILEC) providing local phone service.
Conflict	An SV status which indicates that an error has occurred in the ordering process which will require further CLEC action for BellSouth to resume order processing. For example, BST will place SV in conflict if CLEC sends a Create SV before an FOC has been issued.
Directory Number (DN)	An end-user's telephone number, also known as a TN. In its most restrictive definition, an end-user number which is listed in a directory or with directory assistance.
Donor Switch	Switch/Office/Exchange Refers to the local switch from which an end-user was served, prior to changing SPs.
	A switching system used to provide local service for a local

End Office (EO)	telephone company; also known as a central office. End offices are typically equipped with both line and trunk terminations.
Fall-Out	Human eyes are needed to review the order, e.g. with a partial migration.
Fatal Reject	A type of error which suggests that the minimal requirements of an LSR were not fulfilled. For example, a missing required field or a duplicate PON. A Fatal Reject will not allow the CLEC order to be processed further by the BellSouth® LCSC.
Federal Communications Commission (FCC)	Congressionally credited governmental agency with the responsibility to direct the U.S. national and international telecommunications regulatory environment.
Firm Order Confirmation (FOC)	Verification/acknowledgment from one SP to another of receipt of a valid Local Service Request (LSR)
Incumbent Local Exchange Carrier (ILEC)	Typically, the RBOC or independent who services local end-users (prior to a market opening up to local competition)
Intelligent Network (IN)	Hardware and software platform used to provide enhanced voice, video and data services. IN offers one way for a network element to query a central database to obtain local number portability routing information.
Inter-Exchange Carrier (IXC)	A carrier that provides connections between LATAs, between serving areas, and between LATAs and serving areas where the calling or called end-user is located in the United States.
Interim Number Portability (INP)	A temporary solution for porting telephone numbers that routes calls to the CLEC wire center using: • Remote Call Forwarding (RCF) • Direct Inward Dialing (DID) • Route Index Hubbing (RTI)
Local Exchange Carrier (LEC)	A company that provides local telephone service. LECs also include independent local telephone companies.
Local Exchange Routing Guide (LERG)	Bellcore administered Network Routing and V&H Coordinate information for U.S. Telecommunications Industry and others.
Local Number Portability (LNP)	Provides end users with the ability to retain their numbers when they change their local service provider.
	A BellSouth® System created to support LNP that:

Local Number Portability Gateway (LNP GW)	• includes desktop application for LCSC Service Representatives. • is used to process LNP LSR's on-line. • communicates with the NPAC. • interfaces with the AIN database to update call routing information.
Local Service Management System (LSMS)	The LSP owned network database which holds downloaded ported number information.
Local Service Provider (LSP)	A company that provides basic local telephone service.
Location Routing Number (LRN)	A routing code that is: • unique • 10 digits • identifies the switch in which a ported number resides. LRN utilizes AIN triggers, SS7 signaling, and unique 10-digit code for switch identification.
Lockheed-Martin IMS (LM-IMS)	The neutral third-party administrator for the LNP database NPAC.
New Service Provider (NSP)	Subscribers selection of exchange carrier that will be providing dial tone. This will usually be the exchange carrier that is not the default SP for the NPA NXX. This would be the recipient switch for the porting of a number when the end-user is being ported. When the end-user is changing from ported to non-ported the NSP would be the donor switch.
Non-Portable Number	Numbers are those that have not been designated as ported exchanges or portable capabilities in the LERG.
North American Numbering Council (NANC)	FCC -mandated task force assigned to oversee NPAC and NANP administration for the U.S. telecommunications industry.
North American Numbering Plan (NANP)	A plan for the allocation of unique 10 digit address numbers. The numbers consist of a 3 digit area (numbering plan area) code, a 3 digit office code, and a 4 digit line number. The plan also extends to format variations (e.g., 3 digit and 7 digit address), prefixes (e.g., 1, 0, 01 and 011), and special code applications (e.g., Service Access Codes).
Number Portability Administration Center (NPAC)	A neutral third party vendor contracted by BellSouth® and the CLEC's to: • maintain the master database for LNP. • coordinate the flow of information between service providers.
Numbering Plan Area (NPA)	A defined geographic area identified by a unique three digit code used in the North American Numbering Plan Area.

NXX	End Office Code A three digit code used to identify a central office exchange. However, in a portable environment the last 4 digits or the 7-digit telephone number may not always reside in the central office exchange to which the NXX was natively assigned.
Plain Old Telephone Service (POTS)	Basic residence or business telephone service which provides users with simple telephone features or service.
Port In	A term used with Local Number Portability to indicate that a customer is changing his facility based local service provider from a CLEC to BellSouth and wishes to keep his same telephone number.
Port Out	A term used with Local Number Portability to indicate that a BellSouth customer is taking his telephone number with him to another facility based local service provider.
Portability	The ability of the user to change local telephone companies, location and/or service without changing the telephone number.
Portable Number	Those numbers within an exchange that have portable capabilities and are assigned to a designated portable exchange. These are the numbers that are assigned to the designated default switch and have not been ported to another LSP. These numbers are commonly identified as working on the "Donor" switch. Portable numbers are all numbers in an NXX where portability is allowed. Numbers will be declared portable on an NXX basis.
Ported Number	Those that have been assigned to other LSPs providing recipient switch access for Portable exchanges. This is commonly termed as the numbers assigned to the "Recipient" switches. The "Recipient" switch is not the default switch in the SCP. Ported numbers are the subset of portable numbers that have actually been moved from the LERG based switch (donor) to another switch (recipient).
Private Branch Exchange (PBX)	System typically installed in a business that serves as the central telephone system for that business and which may provide certain enhanced services for that business.
Recipient Switch	Switch/Office/Exchange - Refers to local end office switch to which an end-user is served, after changing SPs.
Remote Call Forwarding (RCF)	LNP deployment model generally viewed as an interim solution. For customers changing their local telephone company and wanting to keep their phone number, routes

	all incoming calls to the old company switch first. Then the calls are forwarded to a new phone
SCC	Neutral third party responsible for the E911 database administration. (SCC is not an abbreviation.)
Service Management System (SMS)	Computer facility permitting access to records contained in the number portability database. Receives Number Ported messages from NPAC.
Service Order Administration (SOA)	Interface to the NPAC for porting end-user TNs. Receives create and sends concurrence SVs.
Service Provider (SP)	A company that provides telephone service.
Subscription Version (SV)	A message that flows through the NPAC to provide information regarding LNP.
Telecommunications Access Gateway (TAG)	TAG is a transaction based messaging system with data translation. TAG provides a by-directional flow of information between the CLEC and BellSouth®, and gives the CLEC access to pre-ordering and ordering functionality.
Toll Message Rate Center (TMRC)	A uniquely defined geographic area: • created to allow for the proper rating of toll and message charges. • appears in LERG for a wire center/switch.
Trigger Order	6-Digit Trigger - identifies NPA XXX that is portable and causes querying. 10-Digit Trigger - end-users' telephone number. This trigger causes look up process so when the 10-digit trigger is dialed the call is routed through AIN to the SS7 database. **Note:** "Trigger" is not available for all service types.

10.1 Job Aids

Directory Listing Job Aid for BellSouth® Business Rules for Local Ordering and LESOG Version 4 Form

Listings Desired	REQTYP	ACT	DIRECTORY LISTINGS REQUEST FORM	ERL
YES	CB	V	YES	N
YES	CB	V	NO	Y
NO	CB	V	NO	Blank
YES	BB	V	YES	N
YES	BB	V	NO	Y
NO	BB	V	NO	Blank
NO	CB	P/Q	NO	Prohibited
NO	BB	P/Q	NO	Prohibited
YES	CB	P/Q	YES	Prohibited
YES	BB	P/Q	YES	Prohibited

Directory Listing Job Aid forLEO-IG Volume 1, Version 7and LESOG Version 2 Form

Listings Desired	ReqTyp	ACT	Directory Listing Form
YES	CB	V	YES
NO	CB	V	NO
YES	BB	V	YES
NO	BB	V	NO
YES	CB	W*	NO
YES	BB	W*	NO

Note: *Note: Act of W is not allowed for a partial migration. If only a portion of the lines on the account are converted, the DLR should be submitted to request listings.

Job Aid for EATN, EAN, ATN, AN and BAN Fields for BellSouth® Business Rules for Local Ordering and LESOG Version 4 Form

LSR FIELD	For REQTYP B with SL1 Loop (NC=TY) field contains	For REQTYP B with SL2 Loop (NC=LY) field contains	REQTYP C
EATN or EAN or LEATN or LEAN	The main CSR account number where the numbers are found that are to be ported out. The C and D port out orders are issued on this number.	The main CSR account number where the numbers are found that are to be ported out. The C and D port out orders are issued on this number.	The main CSR account number where the numbers are found that are to be ported out. The C and D port out orders are issued on this number.
BIx (x=1 or 2)	L (Loop)	L (Loop)	N
BANx (x=1 or 2)	Q account number for Loop	CABS account number	Q account for Directory
BIx (x=1 or 2)	N	N	
BANx (x=1 or 2)	Q Account for directory	Q account for directory	
ATN	Telephone Number under which the Directory Account will be established. (Will not be populated if listings are not requested)	Telephone Number under which the Directory Account will be established. (Will not be populated if listings are not requested)	Telephone Number under which the Directory Account will be established. (Will not be populated if listings are not requested)
AN	Miscellaneous Account Number to assign to the service order for the SL1 Loop	CABS account number (It will be repeated in this field)	

Note:
Note:

- X= either 1 or 2. For REQTYP B, the CLEC can place either of the accounts in either field.
- For REQTYP C, only the BI1 and BAN1 field will be populated.
- The BI2 and BAN2 fields are prohibited for REQTYP C.

Job Aid for CRIS (SLI) Loop Ordering for LEO-IG Volume 1, Version 7 and LESOG Version 2 Form
(These fields required on requests received on or after April 30, 2000.)

LSR Field	Data	Explanation
EATN or EAN	XXX XXX-XXXX XXX AXX-XXXX	The account number on the CSR where porting numbers are found.
AN	XXX AXX-XXXX	Miscellaneous account to assign on the SLI service order. May be preassigned through LENS.
ATN (Optional)*	XXX XXX-XXXX	Telephone number under which Directory Account will be established.
BI 1**	L	Loop
BAN1	XXX QXX XXXX	Q account for Loop
BI 2**	N	Number Portability
BAN2	XXX QXX XXXX	Q account for Directory Listing account

Note: * Note: Field is not required if listings are not desired or if listings may be established using EATN number.
Note: ** Note: The L or N may be shown with BI1. The appropriate Q account must be shown in the BAN field following the BIx L or BIx N.