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December 2, 1996

VIA FEDERAL EXPRESS

Ms. Blanca S. Bayo
Director, Division of Records & Reporting
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Re: Docket No. 960979-TP

Dear Ms. Bayo:

Please find enclosed for filing in connection with the above-referenced docket the original and 15 copies of the Supplemental Testimony of Robert G. Berger and Testimony of George Simons on behalf of WinStar Wireless of Florida, Inc.

Please date-stamp the additional copies of the testimonies and return them in the enclosed envelope. Thank you for your attention to this matter. If you have any questions, please do not hesitate to contact me at the above telephone number.

Very truly yours,



Richard M. Rindler

- ACK _____
- AFA _____ Enclosures
- APP _____
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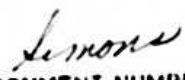


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RECORDS/REPORTING

CERTIFICATE OF SERVICE

Docket No. 960979-TP

I hereby certify that on this 2nd day of December 1996 copies of the Supplemental Testimony of Robert G. Berger and the Testimony of George Simons were served by first class mail, postage prepaid, on the following:

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Richard Rindler

* VIA FACSIMILE

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

In the matter of)
)
WINSTAR WIRELESS OF FLORIDA, INC.)
)
Petition for Arbitration Pursuant to)
47 U.S.C. § 252(b) of Interconnection Rates,)
Terms, and Conditions with)
)
GTE FLORIDA INCORPORATED)

Docket No. 960979-TP

**TESTIMONY OF
GEORGE SIMONS
ON BEHALF OF
WINSTAR WIRELESS OF FLORIDA, INC.**

December 2, 1996

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DOCUMENT NUMBER-DATE

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FPSC-RECORDS/REPORTING

TESTIMONY OF GEORGE SIMONS
ON BEHALF OF
WINSTAR WIRELESS OF FLORIDA, INC.

1 Q. PLEASE STATE YOUR NAME.

2 A. George Simons.

3 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

4 A. I am Senior Vice President of Wireless and Engineering for WinStar Communications,
5 Inc.

6 Q. WHAT ARE YOUR RESPONSIBILITIES AT WINSTAR?

7 A. I have been responsible for designing and deploying the network for WinStar to permit it
8 to provide local, long distance and Internet services to business customers.

9 Q. PRIOR TO WINSTAR, WHERE WERE YOU EMPLOYED?

10 A. Prior to joining WinStar, I spent two years at ITC, a consulting firm which specialized in
11 the development of emerging competitive telecommunications companies. My
12 responsibilities at ITC included network design, applications engineering and network
13 management consultation. Prior to that I worked at MCI where my last position was
14 Vice President, Technical Services and Support. I was responsible for the design and
15 development of MCI's international business telecommunications network for Fortune
16 500 customers. Prior to that I held increasingly responsible positions in operations and
17 engineering spanning several years.

1 Q. **WHAT IS YOUR EDUCATIONAL BACKGROUND?**

2 A. **I attended Syracuse University. I have taken numerous technical courses on emerging**
3 **telecommunications technologies with particular emphasis on wireless and Internet**
4 **standards.**

5 Q. **COULD YOU BRIEFLY DESCRIBE THE TECHNOLOGY USED BY WINSTAR TO**
6 **PROVIDE TELECOMMUNICATIONS SERVICES?**

7 A. **WinStar provides telecommunications services over a network that uses 38 GHz wireless**
8 **technology as its distribution network. In most other respects the technology used by**
9 **WinStar and other Alternative Local Exchange Carriers is virtually identical.**

10 **Put simply, WinStar uses 38 GHz radio spectrum as its distribution network in**
11 **place of the fiber optic distribution network of most ALECs and the mixed fiber/coaxial**
12 **distribution networks of the LECs. WinStar sends signals over the 38 GHz band between**
13 **buildings to transceivers located on rooftops. These transceivers both receive and**
14 **transmit signals over the 38 GHz band.**

15 **WinStar's wireless technology relies on line-of-sight, point to point transmission.**
16 **To ensure high quality service, WinStar uses each transceiver to cover a 1 to 1½ mile**
17 **area.**

18 **From the transceiver the signal passes through an updown converter which is an**
19 **electronic piece of equipment similar in function to a frequency converter. The updown**
20 **converter converts the 38 GHz signal down to the appropriate frequency necessary for**
21 **delivery to the customer and up to 38 GHz for signals for distribution from the customer**
22 **to the distant end.**

1 **The signal from the transceiver passes through the updown converter and**
2 **connects to internal building cable which brings the signal to another electronic piece of**
3 **equipment which is similar to a multiplexer and is delivered in DS-1 or DS-3 format to**
4 **the customer over inside building cable.**

5 **Q. WHAT SERVICES CAN BE PROVIDED USING THIS SERVICE?**

6 **A. All DS-0, DS-1 and DS-3 services, basically the same services as those offered over fiber.**
7 **For example, DS-1 service can provide dedicated broadband local access, LAN**
8 **Internetworking, private networks, Internet access, voice communications, and video**
9 **conferencing. DS-3 applications can include dedicated services, trunk line extensions for**
10 **fiber rings, cellular or PCS interoffice backbone, PBX digital trunking, high capacity data**
11 **services, broadcast quality video applications and voice communications.**

12 **Q. YOU MENTIONED THAT THE WIRELESS TECHNOLOGY RELIES ON LINE-OF-**
13 **SIGHT TRANSMISSION BETWEEN TRANSCEIVERS ON ROOFTOPS. COULD**
14 **YOU UTILIZE THIS WIRELESS DISTRIBUTION NETWORK IF YOU DID NOT**
15 **HAVE ACCESS TO ROOFTOPS?**

16 **A. No. Basically you would be foreclosed from using this technology. First, as I indicated,**
17 **rooftop transceivers are necessary as part of WinStar's distribution network. In that sense**
18 **the rooftops are the poles, conduits or rights of way. They are essential parts of the**
19 **distribution network.**

1 **Secondly, you cannot service customers in a building using our wireless**
2 **technology, if you can't have access to the roof. Just as you can't serve customers using**
3 **a fiber optic distribution network if you don't have building access and a space for your**
4 **multiplexer.**

5 **Barring rooftop access for our 38 GHz technology, we would be forced to serve**
6 **requesting customers in any given building either by purchase of unbundled loops from**
7 **the incumbent carrier or purely through resale.**

8 **Q. ARE ALL ROOFS SUITABLE FOR THE PLACEMENT OF WINSTAR'S**
9 **EQUIPMENT?**

10 **A. No. Roofs that don't provide adequate line-of-sight coverage are not useful. Similarly,**
11 **the design of the roof may prevent its use. This, of course, is a site specific**
12 **determination.**

13 **Q. DOES THE WINSTAR TECHNOLOGY OCCUPY SUBSTANTIAL ROOF SPACE**
14 **AND REQUIRE SPECIAL CONSTRUCTION?**

15 **A. No, that is one of the misconceptions about WinStar's technology. WinStar does not**
16 **need to use the very large antenna and receivers commonly used for microwave**
17 **transmissions. In fact, the normal transceiver is only 15" x 12". A transceiver that size**
18 **has the capacity of one DS-3. With that capacity, a large office building might use 2-4**
19 **transceivers. Exhibit A to my testimony is a photograph of a rooftop on which both**
20 **microwave receivers and WinStar wireless transceivers are placed. As you can see there**
21 **really is no comparison in size, nor is there any similarity in weight. Exhibit A also**
22 **illustrates the flexible interface unit which is approximately the size of a CD player.**

1 **The underlying technology is really relatively simple. The 38 GHz millimeter**
2 **wave technology employed permits the complete integration of all millimeter wave**
3 **functions into a single rugged subassembly. The electronics contain all of the baseboard**
4 **electronics including the functions of line interface, digital multiplexing, modulation and**
5 **frequency generation. It also includes the alarm and diagnostics, service channel and**
6 **network management to interfaces.**

7 **ARE THERE ADVANTAGES TO THIS TECHNOLOGY?**

8 **A. Yes, there are a number of advantages to this technology. First, because the technology**
9 **does not depend on underground cabling, the cost to develop a network is substantially**
10 **less than that for a fiber optic or fiber/coaxial network. Second, cost savings are also**
11 **recognized as a result of the speed at which the network can be installed. Third, again,**
12 **because of the simplicity of the technology, it provides great flexibility in terms of**
13 **expansion, in terms of capacity of the network and expansion of the network itself. The**
14 **technology also is particularly well suited to serve as alternate routing and disaster**
15 **recovery. There are no cable cuts, water main breaks or floods to be concerned with.**

16 **Q. WHAT IS THE TRANSMISSION QUALITY USING THIS TECHNOLOGY?**

17 **A. The quality of WinStar's wireless service is superior to copper facilities and fully**
18 **comparable to the best fiber installations.**

19 **Q. IS WINSTAR'S WIRELESS NETWORK BEING USED FOR DISASTER**
20 **RECOVERY?**

21 **A. Yes. The New York City Department of Information Technology and**
22 **Telecommunications is relying on this technology for disaster recovery. The contract to**

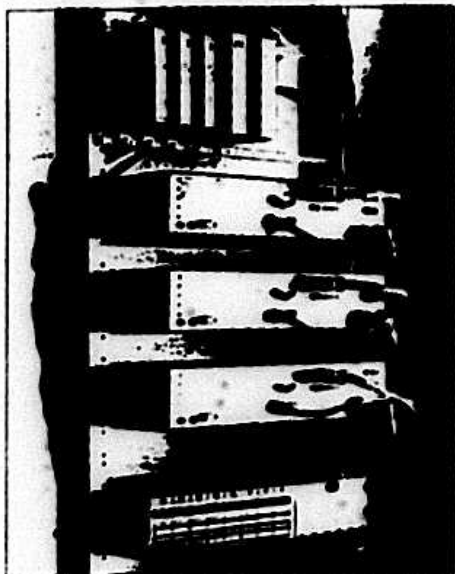
1 provide this service is part of a coordinated effort to disaster proof the largest
2 telecommunications market in the world.

3 Q. DOES THIS TECHNOLOGY PROVIDE ALTERNATE ROUTING FOR OTHER
4 CARRIERS?

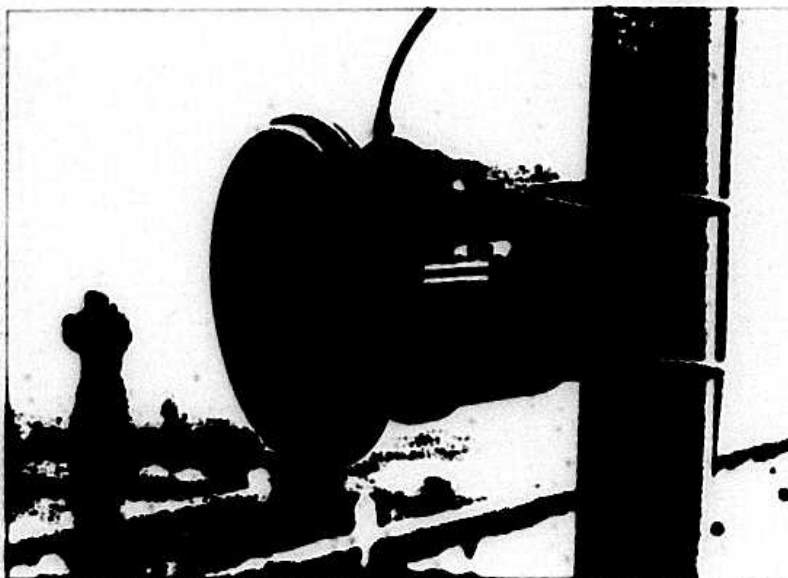
5 A. Certainly. WinStar Wireless' network is available for use as a distribution network by
6 any carrier and is presently used for that purpose by other carriers. In that sense WinStar
7 is a carrier's carrier. The benefit of WinStar's technology is not limited to its use as a
8 distribution network. The technology can serve to provide the "last mile" for other LECs
9 and ALECs, in effect serving as an alternative to the LEC unbundled loop.

10 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

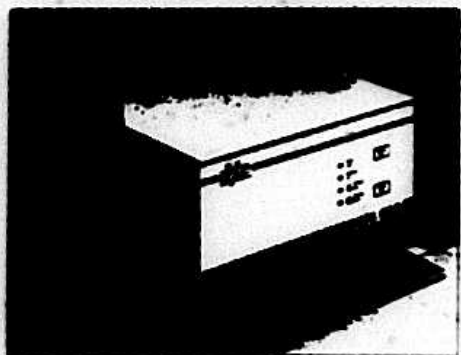
11 A. Yes.



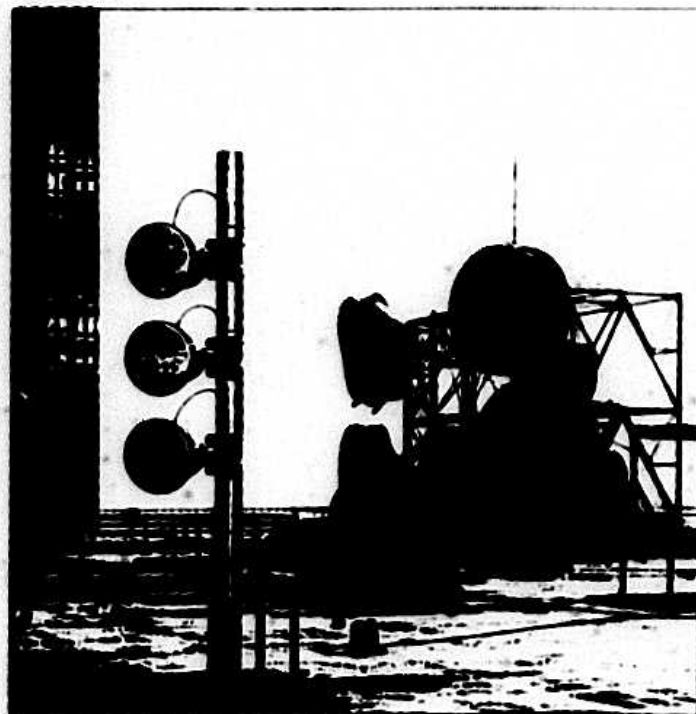
19-inch Rack Mount. Top to bottom: Power Supplies, Indoor Units (3), DSN Panel



Close-up of antenna - Single coaxial cable carries all power and signal. Up to four antennas can be mounted on a single mast using Custom Mounting Brackets



PSU which is mounted on bottom shelf of 19-inch Rack Mount (shown above)



Size comparison of WIRELESS FIBER™ service antenna vs. conventional microwave