



**Southwestern Bell
Technology Resources**

John A. Moore
512-372-5810

Larry P.

March 19, 1997

Mr. Richard M. Smith
Chief - Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW
Room 480
Washington, DC 20554

Re: Southwestern Bell Technology Resources, Inc.
Call Sign KM2XBI
File Number: 4703-EX-ML-95
Quarterly Progress Report Number Nineteen

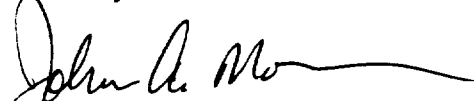
Dear Mr. Smith:

In accordance with the Federal Rules and Regulations Part 5, Section 5.204(b), attached please find quarterly progress report number nineteen for Southwestern Bell Technology Resources, Inc. in connection with our personal/wireless communications testbeds.

The main objective of our Austin testbed is to verify performance of the emerging wireless communications systems and technologies prior to integration into one of SBC Communications Inc.'s business units.

Please direct any inquiries to me at 512-372-5810.

Sincerely,


John A. Moore
Director, Wireless Communications

Attachment

**FCC Quarterly Progress Report Number Nineteen (19) in
Connection with Personal/Wireless Communications
Testbeds**

Conducted by Southwestern Bell Technology Resources, Inc.

March 19, 1997

**Authorized by FCC Experimental License
Call Sign KM2XBI, File Number 4703-EX-ML-95
(expansion/continuation of 3037-EX-PL-92)**

1.0 Introduction

This report describes the experiments conducted with Wireless Local Area Network (WLAN) devices operating in the unlicensed ISM band. The purpose of the experiments was to determine the throughput and coverage range of WLAN devices under outdoor radio propagation conditions. The testing began on January 10, 1997 and was completed on January 27, 1997.

2.0 Devices Tested

The devices tested were:

1. AP 3000-E Wireless Ethernet Access Point manufactured by Aironet
Operating Frequency Band : 2.40 - 2.4835 GHz
Output Power: 1.26 W (31 dBm) EIRP
(100mW with 11 dBi antenna)
Modulation: Frequency Hopped Spread Spectrum
2. ARLAN 3000 PCMCIA Wireless LAN Adapter manufactured by Aironet
Operating Frequency Band : 2.40 - 2.4835 GHz
Output Power: 100 mW EIRP
Modulation: Frequency Hopped Spread Spectrum

3.0 Experiment Description

The ARLAN AP 3000-E Access Point was connected to an 11 dBi omni-directional antenna, and located on the west side of the eighth floor of the Southwestern Bell Technology Resources building at 9505 Arboretum Blvd., in Austin, Texas. The access point and antenna were placed on a ledge, outside the glass window such that a maximum line of sight range could be obtained. Both the Access points were connected to the wired LAN via the Ethernet jack located at a nearby cubicle.

Laptop computers connected with PCMCIA wireless LAN adapters were taken to different locations along the street in front of the building, and to parking lots in nearby buildings at an approximate maximum distance of 2000 feet. Some locations had a direct line of sight with the Access Point while others had foliage obstruction in their path. Locations with varying distance from the Access Point were chosen such that data throughput could be measured as a function of range. The maximum achievable range was also determined by finding the nearest location from which reliable data connection with the access point was not possible.

At each of the locations, several tests were conducted to determine the following:

1. Success Rate in connecting to the wired LAN
2. Data transfer rate from wired LAN to wireless portable
3. Data transfer rate from wireless portable to wired LAN

Analysis of data collected through these experiments indicate that for the given set up, the WLAN was able to communicate with the wired LAN at a maximum range of about 1500 feet, and throughput varied from 750 kbps to 50 kbps depending on the radio conditions.