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**NORTEL**  
NORTHERN TELECOM

September 13, 1996

VIA FEDERAL EXPRESS

Chief, Frequency Liaison Branch  
Federal Communications Commission  
2025 M Street, N.W. - Room 7326  
Washington, DC 20554

Reference: File #4575-EX-MR-94; Call Sign K I 2 X A G

Dear Sir:

On behalf of Northern Telecom, Inc. , hereinafter referred to as "Nortel", and Nortel Technologies, Inc., enclosed please find our report of experimental results on the referenced license for the reporting period June 15, 1995 to August 31, 1996. Please call me if you have any questions.

Sincerely,



Michael Lynch, Manager  
Spectrum Regulation  
Wireless Networks

em  
/Enclosure



File # 4575-EX-MR-94  
Call Sign K I 2 X A G

## **EXPERIMENTAL RESULTS**

**for the**

## **FEDERAL COMMUNICATIONS COMMISSION**

Frequency Liaison Branch  
2025 M Street N.W.  
Room 7326  
Washington D.C. 20554

by Nortel and Nortel Technologies, Inc.  
(formerly known as BNR, Inc.)  
P. O. Box 833871  
Richardson, TX 75083-3871

**For the Period**

**June 15, 1995 to August 31, 1996**



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## INTRODUCTION

This progress report is a summary of the types of emissions used and the technical findings from experimental tests conducted by Nortel and Nortel Technologies, Inc. (formerly known as BNR, Inc.). The tests were authorized by the FCC using the following Experimental Radio License:

#4575-EX-MR-94 for tests in the vicinity of:

- (1) Richardson, TX
- (2) Mountain View and Santa Clara, CA
- (3) Raleigh (RTP), NC

The license authorizes Nortel Technologies, Inc. to use and operate the radio transmitting facilities, hereinafter described, for radio communications as shown in Table 1.

**Table 1**

<b>Authorized MHz</b>	<b>Frequency</b>	<b>Authorized Power Power (watts)</b>
	864-868	10 milliwatts (ERP)
	901-904	3W (ERP)
	902-928	1W (ERP)
	930-960	10 milliwatts (ERP)
	946-949	1W (ERP)
	1850-1910	2W (ERP)
	1930-1990	1K (ERP)
	2400-2483.5	1W (ERP)
	5725-5850	1W (ERP)

The initial authorization was effective August 14, 1991 and the renewal authorization will expire 3:00 A.M. EST January 1, 1997.

## **EXPERIMENTAL TESTING IN THE VICINITY OF RICHARDSON, TX**

### **TYPE OF EMISSIONS USED**

For the period June 15, 1995 to August 31, 1996, the Companion #1 test equipment has transmitted in the 864.1 to 868.1 MHz range. The Motorola 2000 Silverlink handsets are still being used with a CT2 protocol.

Companion System #1 continued to operate with 25 Base Stations and 20 handsets throughout the reporting period.

Companion System #2 (CT2+) which transmitted in the 944-948 MHz range has been removed and is no longer in operation.

For the period above referenced, the PCS 1900 system, which came on line in Q4 1994, continues to operate in the 1850-1910/1930-1990 MHz band. The handset power output level is .6W(ERP) and the base station output level is 400W(ERP).

### **ACTIVITIES**

The CT2 trial program in the Richardson Nortel and Nortel Technologies' buildings currently has one system in operation and there are no for the reporting period June 15, 1995 through August 31, 1996. The second system, Companion #2 (CT2+) has been removed and is no longer in operation.

The PCS1900 system, which came on line during Q4 1994, provides the switching platform for numerous customer demonstrations and trials. Demonstrations included short message service, over-the-air activation and data. There are currently a total of 120 handsets in use on this system from various manufacturers. These have been tested and are currently actively used with 49 users registered on the system, which consists of Nortel and Nortel Technologies' engineers and managers. Trials are also being initiated at several customer locations under their local licenses.

### TECHNICAL FINDINGS

**Companion System #1:** System performance is under continuous and sustained traffic load for the period and has been excellent with no known outages or interference observed.

The objectives of the trial are as follows:

- (1) Exercise the R100-A system along with any upgrades in firmware or software;
- (2) Validate the functionality and the operation of the hardware;
- (3) Increase our expertise in installation, operation, and maintenance of the R100 product;
- (4) Test the system's ability with line loss and cell configurations over a large area;
- (5) Test the system's compatibility with other product lines; and
- (6) Exercise and verify the usefulness of the handsets with the product.

The PCS 1900 equipment system was brought online smoothly Q4 1994. The switch continues to facilitate numerous customer demonstrations and trials, including short message service, over-the-air activation, and data at remote locations throughout the Americas. Nortel has successfully demonstrated compatibility with PCS1900 handsets from multiple vendors and the system continues to work reliably.

**EXPERIMENTAL TESTING IN THE VICINITY  
OF MOUNTAIN VIEW, CA.**

For the period June 15, 1995 to August 31, 1996, the Nortel Companion system was removed at the Mountain View, CA facility and no longer in operation.

During the same period, the Santa Clara facility Companion system was also removed and is no longer in operation.

**EXPERIMENTAL TESTING IN THE VICINITY OF  
RESEARCH TRIANGLE PARK, N.C.**

**TYPE OF EMISSIONS USED**

For the period from June 15, 1995 to August 31, 1996, an in-building test system was in service at Research Triangle Park transmitting in the 864.1 to 868.1 MHz range.

**ACTIVITIES**

The Companion 100 (CT2) trial system in place at the Nortel/Nortel Technologies' facilities in Research Triangle Park, NC, operated in the 864-868 MHz band during the reporting period. Tests have been completed on this System and all field trial equipment has been removed from service as of July 1, 1996. The research performed using this system directly contributed to the development of Nortel's Companion 200 product, which was the first product to be approved for use in the 1920-1930 MHz.

**TECHNICAL FINDINGS**

There are no new findings to report from operations or testing at our Raleigh location at this time.

### CONCLUSIONS

The ongoing testing and trialing of the systems at Richardson continues to provide insight in developing effective PCS systems with new and enhanced features.

The system has good stability. Some testing on the dead spots and cell geometry has begun, and further testing of the cell configurations, hardware and software is required.

### FCC STAFF INQUIRIES

FCC staff inquiries regarding this report should be directed to:

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