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June 29, 1994

Modification Request
Experimental Radio License

KI2XAG

(Call Sign)

1820-EX-R-92

(File Number)

Effective June 11, 1993

Expires January 1, 1995

Mr. H. Franklin Wright
Frequency Liaison Branch Chief
Federal Communications Commission
2025 M Street
Washington, DC 20554

Subject: Modification of Experimental Radio License for
Licensed PCS Product Development Testing, and
Demonstration

Dear Mr. Wright:

Attached hereto is an application to Modify the referenced BNR, Inc., Experimental Radio License. BNR, Inc., the research and development affiliate of Northern Telecom, Inc., currently has an Experimental Radio License, (File Number 1820-EX-R-92; call sign KI2XAG) to test and develop new radio systems, including systems for Licensed and Unlicensed PCS systems in the 1850-1990 MHz bands. BNR, Inc., requests authorization for joint development testing, operation, and system demonstrations with Northern Telecom Inc., BNR, Inc.'s affiliate and the equipment manufacturer, with respect to the activities described hereinafter.

BNR, Inc., working in conjunction with Northern Telecom Inc., (hereinafter called "BNR/NT"), has an immediate need to increase the current power limit for the 1930 MHz-1990 MHz base station to mobile communication from one watt ERP to 50 watts ERP. The immediate test need does not require any power increase for the Mobile/Handset transmissions in the 1850 MHz to 1990 MHz bands. Subsequent testing in late 1994 will need up to 1000 watts ERP for the 1930 MHz-1990 MHz base station to mobile communications, and 2 watts EIRP for Mobile/Handset transmissions in the 1850 MHz to 1910 MHz bands. All power limits requested herein fully comply with power limits for PCS adopted by the Commission, including limits adopted in the Opinion and Order, Docket 90-314, Released June 13, 1994.

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Increased base station power to 50 watts ERP is needed to test, refine, and demonstrate real life PCS systems to serve MTA and BTA service areas for PCS. Potential PCS Licensees are currently developing business cases for the Broadband License Auctions, and equipment capacity to provide coverage to the PCS service areas, is a critical element of the business cases.

The expanded program will test at the BNR/Northern Telecom complex buildings located at the 2201, 2150, 2100 and 2221 Lakeside Blvd. Buildings, all in Richardson, Texas. Outdoor antennas will be located at the 2150 Lakeside Building for the expanded test program. Most PCS base station to mobile/portable testing, under the Modified License, will be conducted at powers less than 50 watts ERP. The initial expanded program will occasionally transmit at powers up to 50 watts ERP, to test and demonstrate system range and capacity for rural and urban parts of PCS service areas. BNR/Northern Telecom will coordinate testing activity with current licensees and future Licensed PCS providers to avoid interference.

BNR/NT request increased power to 1000 watts ERP, for subsequent testing in late 1994, to test PCS systems using NT's Smart Antenna, a high gain, directional antenna. Testing NT's Smart Antenna would use transmitter output power of less than 100 watts, and the Smart Antenna is the type of antenna system promoted by the new FCC Opinion and Order for PCS. Subsequent testing in late 1994 will also need authority for increased Mobile/Portable transmit power from 1 watt ERP to 2 watts EIRP. The increased Mobile/Portable power is needed to test the system with the full range other manufacturers Mobiles/Handsets that may be designed to transmit at the maximum power authorized by the Commission's rules for PCS. Most Smart Antenna and Mobile/Portable tests after late 1994 will use powers much less than the requested maximum. However occasional Smart Antenna testing, up to 1000 watts ERP, and Mobile/Portable testing up to 2 watts EIRP, will be needed to test systems for Rural and less dense Urban applications. The tests would fully use the Smart Antenna's directional capabilities to avoid interference with other radio systems.

The need for 50 watt ERP testing is immediate and pressing. The Commission has moved quickly to begin licensing Broadband PCS, and the License Modification is needed to quickly test, refine, and demonstrate PCS systems for future Licensees. If the request for further power, to 1000 watts ERP, to test the Smart Antenna system, or the request for 2 watt EIRP Mobile/Portable authority would delay