

EXHIBIT ONE  
PARTICULARS OF OPERATION  
AND  
STATEMENT OF NEED

Before the  
**Federal Communications Commission**  
**Washington, DC 20554**

In the Matter of )  
Ericsson Wireless Communications, Inc. )  
Request for Experimental License to be Used )  
In Conjunction With the Development of New )  
CDMA and Other Two-Way Land Mobile )  
Products. )

To: Chief, Experimental Licensing Branch

**Request for Experimental License**

**Background**

Since 1876, Telefonaktiebolaget LM Ericsson ("Ericsson") has been active worldwide in the development of telecommunications products. Today Ericsson operates in more than 140 countries. Annual investments in technical development average 15 percent of sales, the highest R&D ratio in the industry. Ericsson operates 23 Research and Development centers around the world, employing over 100,000 people, including 23,000 R&D engineers and technicians. Ericsson's dedication to cutting-edge R&D makes it a world leader in mobile infrastructure and mobile Internet. Four out of every 10 mobile calls are handled by Ericsson equipment.

Cdma2000 is a 3rd Generation solution based on IS-95. Unlike some 3G standards, cdma2000 is an evolution of an existing wireless standard. Cdma2000

supports 3G services as defined by the International Telecommunications Union (ITU) for IMT-2000. 3G networks will deliver wireless services with better performance, greater cost-effectiveness and significantly more content. The goal is access to any service, anywhere, anytime from one terminal - true converged, mobile services.

The CDMA Systems Ericsson Business Unit in San Diego is the champion unit from Ericsson for the worldwide development of cdma2000-capable 3G infrastructure products. Much of the actual R&D work is performed at the Ericsson Wireless Communications, Inc. research facility in Boulder, Colorado. In order for that facility to continue its work in CDMA equipment design, the Boulder facility needs to be able to test equipment over-the-air in a real-world environment.

### **The Need for and Experimental License**

The FCC Rules and Regulations require that most transmitting equipment be licensed prior to placing it on the air. Under the rules, carriers are permitted to apply for developmental licenses under the specific rule parts for which they are licensed as carriers. For example, Cellular carriers can apply for developmental authority under 47 C.F.R. § 22.401. Developmental licenses generally permit carriers to conduct research related to propagation, interference,

or development of new technologies. Such developmental authorizations are not available to companies such as Ericsson, as it is a manufacturer, not a carrier.

Part Five of the Commission's Rules and Regulations provides that authorizations in the Experimental Radio Service can be issued to "persons qualified to conduct experimentations utilizing hertzian waves for scientific or technical operation data directly related to a use of radio not provided by existing rules."<sup>1</sup> The rules further provide that authorizations can be granted for any of the following:<sup>2</sup>

- a) Experimentation in scientific or technical radio research.
- b) Communications essential to a research project.
- c) Technical demonstrations of equipment or techniques.
- d) Field strength surveys by persons not eligible for licensing under other rule parts.
- e) Demonstration of equipment to potential purchasers.
- f) Testing of equipment in connection with type approval of such equipment.
- g) Development of radio technique, equipment, operational data or engineering data related to an existing or proposed radio service.

Ericsson believes that, as a manufacturer, it qualifies for an Experimental Radio License under all of the above criteria. In order to develop high quality wireless communications equipment, Ericsson must have the ability to study the operation of that equipment in a real-world environment. That necessarily means the ability to put the equipment on the air. Ericsson believes that an

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<sup>1</sup> 47 C.F.R. § 5.201(a)

<sup>2</sup> 47 C.F.R. § 5.202

authorization in the Experimental Radio Service is the only vehicle available to it that will permit required on-air testing of new products.

### **Frequencies/Emission Being Requested**

Item 3 of FCC Form 442, page 2, lists the various frequencies that are being requested in this application. For the most part, the frequencies requested are those that are part of the international "band classes" defined in the cdmaONE and cdma2000 standards plus the Wireless Communications Service. The band classes are as follows:

- a) Band Class 0: 806-960 MHz (cellular, SMR, commercial, Nextel)
- b) Band Class 1: 1850-2010 MHz (PCS)
- c) Band Class 2: 872-960 MHz (TACS)
- d) Band Class 3: 832-925 MHz (JTACS)
- e) Band Class 4: 1750-1870 MHz (Korean PCS)
- f) Band Class 5: 452-489 MHz (450 MHz band)
- g) Band Class 6: 1920-2170 MHz (IMT-2000 band)
- h) Band Class 7: 746-806 MHz (public safety and commercial services)
- i) Band Class 8: 1710-1880 MHz (1800 MHz band)
- j) Band Class 9: 880-960 MHz (900 MHz band)

In addition to the above frequencies, which relate directly to international CDMA, Ericsson is also interested in developing equipment for the Wireless Communications Service (2305-2360 MHz). The power levels that are being requested are maximums that would ever be utilized. Generally radiated power levels would be several times lower than the maximum requested.

The final entry in the frequency list is for a general authorization to utilize frequencies between 30 and 2360 MHz. In addition to CDMA, Ericsson develops and markets product lines for numerous radio services, including AMPS/DAMPS cellular, wireless home and office products, private dispatch, and GSM PCS. Although these products are not the primary responsibility of the Boulder research facility at this time, the facility provides an ideal platform to test all varieties of equipment manufactured by Ericsson. The more general request for use of VHF and UHF frequencies would facilitate that research. Examples of modulation types would be 20K0F1D, 20K0F2D, 20K0F3E, etc. Emission types would generally be those currently authorized for the particular radio service for which the equipment under test is be targeted. Ericsson can supply an exhaustive list of such emissions if the Commission desires.

Due to the immediate need to be able to conduct on-air testing, Ericsson has no objection to the Commission eliminating or modifying the requested frequency segments. For example, if the request for 30-2360 MHz would require coordination with NTIA that could delay grant of the remainder of the license, then that segment can be dropped and Ericsson may then reapply under separate applications.

### **Interference Considerations**

Ericsson is acutely aware that operation under the broad authority that is being requested herein has the potential to cause interference to other licensed stations. Ericsson will make every effort to be a good neighbor when signals are being transmitted. Measures to be taken include monitoring prior to transmitting and, where appropriate, coordinating with other licensees in the area. For example, Ericsson may be able to work directly with PCS carriers in the area and utilize only frequencies of mutual agreement. Additionally, because the license is to be used only for scientific testing, there will be no commercial traffic. This will minimize the time that transmitters are actually on the air.

Ericsson is also aware that the proposed location is within 12.8 km of the coordinates listed in Section 1.924(b) of the Commission's rules for the Table Mountain Radio Receiving Zone. All transmitting antennas used at the site will be pointed away from the Table Mountain facility and Ericsson will assure that the power flux density over the Table Mountain facility does not exceed the values listed in Section 1.924(b)(1) of the rules.

### **Conclusion**

Ericsson has shown that it has a need for an authorization from the FCC to allow it to develop new wireless telecommunications equipment and test it in an over-the-air environment. Such testing is critical to Ericsson's being able to

continue to lead the world in the development and production of new wireless technologies. Not being a carrier, Ericsson is not eligible for "developmental" licensing under the various rule parts. Part Five of the Commission's rules, however, provides for licensing in the Experimental Radio Service to provide exactly the type of authority that Ericsson seeks. Ericsson will utilize such authority cautiously to avoid causing interference to any other authorized radio service licensee.

For the above reasons, Ericsson respectfully requests that the Commission grant the application as submitted. If additional information is required, please contact Doug Sharp at (303) 473-6600 for technical details. Other questions can be directed to our regulatory consultant, Mr. Ralph A. Haller, at (717) 334-7991 or to me.<sup>3</sup>

Respectfully submitted,



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<sup>3</sup> Ralph A. Haller is president of Fox Ridge Communications, Inc., 122 Baltimore Street, Gettysburg, PA 17325, phone (717) 334-7991, fax (717) 334-5656, or email at [rhaller@frci.com](mailto:rhaller@frci.com). Prior to joint Fox Ridge, Mr. Haller held several positions with the Federal Communications Commission, including chief of the Private Radio Bureau. His qualifications are well-known to the Commission.