

**Ericsson**

**Exhibit to Experimental License Application, File No. 0801-EX-PL-2015**

**Date Filed: December 21, 2015**

Description of the Experiment and Objectives to be Accomplished

Ericsson and Verizon are working together to advance 5G development. Ericsson's previous experimental license applications<sup>1</sup> have been for an enclosed lab environment with one prototype system operating on one band of spectrum. We now seek authorization to advance to pre-commercial over the air field trials, both indoor and outdoor. These trials will use both 15 GHz and 28 GHz spectrum and will include multiple base stations. Such testing is necessary to advance 5G development.

Ericsson's overall program of 5G R&D consists of Ericsson R&D lab in Sweden; a 5G testbed in our U.S. Headquarters in Plano, Texas; and now field trial testing and validation with Verizon. This field trial R&D with Verizon will occur both in Piscataway, New Jersey (the present application), and in Napa, California (separate application to be filed).<sup>2</sup>

The specific objectives for the field market trial with Verizon are to develop 5G hardware and software to support later commercial deployment to end users and to support numerous 5G use cases. [REDACTED]

The use cases we will test are:

[REDACTED]

These use cases will apply to [REDACTED]

This research will contribute to new areas of radio by continuing the development of 5G technologies, and ultimately enabling 5G deployment [REDACTED]. 5G will provide high data rates, very high traffic capacity with up to 100Gbps-massive MIMO, and will have very low latency to support improved user performance and new use cases. It will support massive number of devices and improve spectral efficiency for massive numbers of devices equipped for machine-to-machine communication. These devices will be very low cost and require minimal amounts of energy to function. 5G will also provide the ultra-high reliability and availability necessary for industrial use.

<sup>1</sup> E.g., on November 21, 2014, the Commission granted Ericsson an experimental license for 5G experimentation under call sign WH2XMQ. See File Number 0765-EX-PL-2014. Ericsson also has an application 0629-EX-PL-2015.

<sup>2</sup> File Number 0629-EX-PL-2015 represents part of our overall 5G research program, but remains pending before the Commission.

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Requested Government Spectrum

Ericsson requests authorization to transmit on 14.5-15.35 GHz only because the experimental equipment was built to function on this spectrum for initial testing in Sweden and it continues to be used for our overall 5G research program. Ericsson has no plans to request that this spectrum be repurposed for commercial use.

Recognizing the existence of government systems in the 15 GHz band, out of an abundance of caution we are providing a 24 hour emergency contact to turn off any transmissions should interference be detected. The contact information is: Hiep Pham, 925-216-8068 and [hiep.pham@ericsson.com](mailto:hiep.pham@ericsson.com).

Maximum Output Power

Because we are requesting confidentiality for the information, we are stating this number only in the narrative section of the application. The maximum EIRP will be [REDACTED]. The average EIRP will be [REDACTED].

Timing Request

Ericsson recognizes this would be an exceptionally tight review period, but we are seeking authorization to begin operations [REDACTED]  
[REDACTED]

Call Sign Waiver Request

The experimental 5G base stations are not built to transmit a call sign. While we have determined that we would be able to modify the base stations to transmit a call sign in simple Morse code should the Commission not grant the waiver in its current form, Ericsson requests that the requirement to transmit a call sign be waived for this experiment. We will be experimenting with new modulations, and other parties will not have receivers that can read the call signs. Users near our transmission will be notified of the experiment and should they notice any interference, can contact the 24-hour emergency contact to request shut-off of any transmissions.

Directional Antenna Information

The four base stations, which have directional antennas, will be located on the Ericsson campus, at coordinates 40.546612, -74.4782.<sup>3</sup> The antennas will have a [REDACTED]

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<sup>3</sup> 40° 32' 47.8032", -74° 28' 41.52"

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The antenna parameters will be:

Frequency: [REDACTED]  
Polarization: [REDACTED]  
Horizontal HPBW: [REDACTED]  
Vertical HPBW: [REDACTED]  
Antenna gain: [REDACTED]  
EIRP: [REDACTED]  
Electrical tilt: [REDACTED]  
Mechanical tilt: [REDACTED]