Ericsson
Exhibit to Experimental License Application, File No. 0166-EX-PL-2016
Date Filed: March 2, 2016

Description of the Experiment and Objectives to be Accomplished

Ericsson and Verizon are working together to advance 5G development. Throughout the telecommunications industry, it is widely recognized that future solutions commercialized beyond 2020 should be able to meet a one thousand factor increase in capacity demand. A key component for increased capacity is more spectrum and so using frequencies beyond 6 GHz for mobile communications will be necessary to fulfill the requirements.

We are seeking authorization to conduct indoor and outdoor pre-commercial over the air field trials, in conjunction with Verizon, in a new market location (San Francisco). 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. This Commission has previously authorized one location for similar field trial research with Verizon, in Piscataway, New Jersey.[1]

The trial activities will test and evaluate new radio access technologies including higher carrier frequencies to enable the use of larger bandwidths, reduced latency to provide improved user experience, use cases such as mission critical and machine type communications and advanced antenna systems to further improve spectral efficiency. The trials will also include demos of these technologies. We will use the information in these trials to develop 5G hardware and software to support later commercial deployment to end users and to support numerous 5G use cases. [redacted].

In this trial, some of the specifics we will examine include:

[redacted]

[1] *See* File Number 0801-EX-PL-2015.

[2] 5G will consist of LTE evolution together with a new radio-access technology, which we are currently calling "NX". LTE evolution will focus on backwards-compatible enhancements in existing spectrum up to ~6 GHz, while NX will focus on new spectrum, i.e. spectrum where LTE is not deployed. Although large amounts of contiguous spectrum are less cumbersome to find at higher frequencies, lower frequencies are important for wide-area coverage and the first NX deployments may very well target moderately high frequencies. NX will therefore be able to operate from below 1 GHz up to close to 100 GHz. *See* http://www.ericsson.com/research-blog/lte/release-14-the-start-of-5g-standardization/.

[redacted]

This research will contribute to new areas of radio by continuing the development of 5G technologies, which will be necessary to handle the increase in data traffic coming in the relatively near future. [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.

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.

Maximum Output Power

Note that the output power listed within the application is reflects EIRP, not ERP.

Timing Request

We are seeking authorization to begin operations on April 15, 2016. [redacted]

Directional Antenna Information

All six base stations, which have directional antennas, will have the same antenna configuration below: