Experimental License Application

Justification

Ameren is a publicly traded utility providing energy services to approximately 2.4 million electric customers and 900,000 natural gas customers across 64,000 square miles in Illinois and Missouri.

I BACKGROUND

Ameren intends to use a private LTE network for AMI or AMI backhaul, distribution and gas system sensors and controls, substation backhaul, and monitoring and control of customer-owned distributed energy inverters. The applications at these sites include, SCADA, remote engineering access, WiFi, telephony, push-to-talk, and general workforce mobility applications.

PdvWireless, Inc. ("PDV") and the Enterprise Wireless Alliance ("EWA") submitted a Petition for Rulemaking to create a 3X3 MHz allocation to facilitate broadband deployment for business enterprise entities, including those classified as Critical Infrastructure Industry (RM-11738) within the 900MHz band. This proposal would require realignment of the 900 MHz band. Subsequently, the FCC initiated a Notice of Inquiry (WT 17-200) which requests comments on the future use of the 900 MHz LMR spectrum band. Ameren intends to use PDV 900 MHz channels as proposed in the experimental license in a broadband and NB-IoT configuration. Currently, the 900 MHz licenses are configured in 20 blocks of 10 contiguous 12.5 kHz channels (125 kHz) that cover entire Metropolitan Trading Areas ("MTAs"), each block is separated by 10-channel allocations of site-specific Business/Industrial/Land Transportation ("B/ILT") frequencies. Since the minimum channel size for a LTE carrier is currently 200KHz, the existing 900 MHz band configuration prevents the deployment of these services.

II REQUEST FOR CONVENTIONAL EXPERIMENTAL RADIO LICENSE

A Purpose of Test

Ameren requests a conventional experimental radio license to test LTE equipment on 900 MHz spectrum. The purpose of the testing is technical radio research: it is intended to confirm that up to 3 MHz broadband service can be deployed on 900 MHz spectrum using LTE-certified Band Class 8 equipment to provide the necessary capacity and latency for the above listed use cases without causing interference to systems operating on spectrum adjacent to the proposed 900 MHz allocations in the license. The testing will comply with Rule Section 5.84 and will not cause interference to either co-channel or adjacent channel licensees authorized pursuant to the current 900 MHz band plan. It will be conducted on MTA channels held by PDV and interleaved B/ILT channels. The testing will also be a "proof of concept" opportunity, to determine whether LTE data speeds and capacity can support the important fixed field-area functions and applications that are currently conducted on narrowband systems or on legacy copper-based circuits that may be de-constructed.

B Technical Parameters of Test

The testing will involve wireless connectivity to fixed locations within listed radii of each transmitter site. Details on the Nokia transmitting equipment are provided in the technical sections of this application. It should be noted that this is experimental equipment only to the extent that it has not yet been certified for use on Part 90 spectrum; the models Ameren plans to test are certified LTE Band Class 8 equipment that has been deployed worldwide at 900 MHz. Ameren plans to deploy three Commscope directional antennas at each site, the details of which also are provided in the technical section of this application.

As with standard field area network systems, the testing of the fixed wireless LTE equipment will be automated to transmit/receive intermittent information between the transmitters and the end-point (electrical assets) locations. While most of the monitored testing would take place during normal business hours (9AM-5PM), Ameren anticipates that some data transmissions will occur throughout the 24-hour day. Consistent with the requirements of Rule Section 5.107, system management and monitoring will be handled remotely from Ameren's St. Louis headquarters, except for setup and any equipment adjustments that will be conducted by qualified personnel on site.

Ameren requests a 24-month term for the experimental license for a valid product development trial and to make adjustments to the testing as needed.