

Description of Experimental Program

In its 6 GHz Report & Order, the Commission designated additional spectrum for unlicensed operations, envisioning its use for “new innovative technologies and services that will advance the Commission's goal of making broadband connectivity available to all Americans, especially those in rural and underserved areas.” Unlicensed Use of the 6 GHz Band, 35 FCC Rcd 3852, 3853 (2020). Through this application for experimental license, Comelec Services, Inc. (“Comelec”) seeks to advance these goals through testing of available equipment across the UNII-5 and UNII-7 bands to collect additional data on the use of these bands for delivery of enhanced fixed wireless broadband services on a shared basis with incumbent users.

The experimental operations will involve field deployment and testing of Cambium Networks 6 GHz radio technology from three towers in Southwestern Wisconsin and Eastern Iowa. These operations will evaluate the greater throughput capabilities available in these bands using 160 MHz channels. The program will evaluate two types of Cambium CPE units deployed at existing customer locations within 5 miles of the access point. Although the application form specifies up to 200 end user terminals of each of two types, a maximum of 200 such end user transmitters will be in use at any one time; Comelec simply seeks flexibility to adjust the number of each type of equipment used to facilitate its testing goals. For example, it might deploy at one point 150 units of one type of remote unit and just 50 of the other type, such that any further increase in the use of one type would be accompanied by a reduction in the use of the other type.

Although the trial will involve deployment at customer locations, the deployment will involve existing customers, with equipment located side-by-side with existing equipment and will therefore permit evaluation of the performance of different equipment, spectrum and bandwidth. New customers may be added to the trial as needed to maintain a consistent level of CPE deployment, in the event of customer cancellations, but in no case will use of the 6 GHz band be marketed to customers as a new or augmented service offering. Except for the need to install new equipment at customer sites, the use of the test equipment will be seamless and transparent to customers. All equipment deployed to customer sites will be retrieved at the conclusion of the experimental testing program.

The trial will include self-interference and real-world loading in order to evaluate the equipment performance. Two of the sites are only a few miles apart, are visible to each other and were intentionally chosen to test self-interference. Comelec will additionally evaluate the impact of transmitting multiple frequencies from a single tower and overlapped within a given sector. In addition to the self-interference test the Comelec trial will evaluate the impact of channel loading. Comelec believes that 200 CPE units will provide close to a real-world scenario. On a 160 MHz channel Comelec will need an average of at least 25 CPE units per AP sector to fully utilize the spectrum.

Comelec's data collection program will operate without causing harmful interference to incumbent users. Comelec will work with any nearby licensed incumbents that it identifies, based on information provided in the FCC's databases, to ensure that its operations will avoid any harmful impact on such existing users.

The ePMP 4600 (Access Point), sector antennas will provide 18 dBi gain, which when connected to 63mW output power will result in 2.43 W ERP.

The ePMP 4600C CPE antennas will provide 24 dBi gain, which when connected to 15.8 mW output power will result in 2.43 W ERP.