

Cambium Networks 3.5 GHz Testing Proposal

1. Introduction

Cambium Networks is one of the world's leading providers of Fixed Wireless Broadband communications equipment. Through our extensive portfolio of reliable, scalable and secure business Wi-Fi, fixed wireless broadband point-to-point (PTP) and point-to-multipoint (PMP) platforms; managed by cloud-based software, Cambium Networks makes it possible for service providers; enterprises; governmental and military agencies; oil, gas and utility companies; Internet service providers; and public safety agencies to build powerful communications networks. Headquartered in Rolling Meadows, IL, outside Chicago, and with R&D centers in the U.S.; Ashburton, England and Bangalore, India; Cambium Networks sells through a range of trusted global distributors.

2. Experiment Description

Cambium Networks is presently working with a number of its current 3.65 GHz Wireless ISP (WiSP) customers in the USA to validate needed radio SW updates and related network operations changes which will allow the most expeditious and seamless migration of existing 3.65 GHz Fixed Wireless Broadband equipment in the field (Cambium PMP 450) to use Citizens Band Radio Service (CBRS). This includes the necessary integration with a SAS (Spectrum Access System ... in this case with Federated Wireless) and the assignment and operational use of new CBRS spectrum [3550 – 3650 MHz] made available under Part 96. As such, Cambium Networks, in partnership with Amplex Internet (an existing 3.65 WiSP operator in rural Ohio) plans to conduct a series of field tests with Category B Citizen Band Service Devices (CBSDs) at one or more locations in Ohio. These tests would utilize a single 20 MHz slice of spectrum in the new lower 100MHz of the CBRS band being made available to WiSP operators as per FCC Part 96 rules.

The purpose of the proposed testing is:

- 1) Evaluation of the radio propagation characteristics of 3.5 GHz for outdoor installations
- 2) Evaluation of end-to-end CBRS architecture
- 3) Evaluation of any and all required modifications to existing business, operations, and/or service activation systems as required by new the CBRS architecture.

Field tests will be conducted in a production network, in a highly controlled field environment, in order to assist in the development of commercial product software. The testing will benefit the public interest by enabling the pre-commercial testing of new products outside of a lab environment but in a controlled and managed manner.

This field trial will consist of an aggregate of no more than 50 Category B CBSDs for the trial locations (expected to be limited to a single tower site location in Luckey Ohio). The CBSDs will use the transmission parameters and operate inside the geographic regions defined below. Some of the tests will use solely base stations and user equipment operating in CBRS spectrum only. There will be no mobile devices operating within the RF coverage area of the CBRS cell devices. The equipment to be used in these trials will be compliant with FCC rules. Cambium

Networks and/or Amplex Internet has the ability to shut down all transmissions operated under the experimental license in the unlikely event any interference occurs.

3. Hours of operation and equipment shut down

The intent is to operate the evaluation devices 24 hours per day, 7 days per week, during the test period. Equipment can be shut down speedily, if the need arises, by contacting one or more of the interference coordinators identified in the section “Interference Coordination”

4. Interference Coordination

Immediate requests to stop transmissions under this STA can be communicated to David Geitner at 845-514-0848 or by email at david.geitner@cambiumnetworks.com

5. Trial Duration

Approximately 6 months, beginning approximately from Jan 21, 2019

6. Evaluation Equipment Transmitter Information

- Base Station and CPE supporting a subset (3550-3700 MHz) of Band 48 will be operating in compliance with FCC Part 96 rules. Directional antennas will be used with both the Base and CPE systems within the maximum EIRP and antenna gain constraints as specified in the rules.
- Up to four (50) Category B CBSDs ($\text{EIRP} \leq 50 \text{ dBm/20 MHz}$) using Band 48
- For outdoor Category B CBRS radio installations, directional antenna with horizontal orientation of 90-degrees (Base Station) and 60-degrees (CPE) will be evaluated for transmission and reception.