Verizon 3.5 GHz Experiment Proposal

1. Introduction

Verizon Communications Inc. (Verizon or the Company) is a holding company that, acting through its subsidiaries, is one of the world's leading providers of communications, information and entertainment products and services to consumers, businesses and governmental agencies. With a presence around the world, we offer voice, data and video services and solutions on our wireless and wireline networks that are designed to meet customers' demand for mobility, reliable network connectivity, security and control. We have two reportable segments, Wireless and Wireline. Our wireless business, operating as Verizon Wireless, provides voice and data services and equipment sales across the United States (U.S.) using one of the most extensive and reliable wireless networks.

2. Experiment Description

Verizon is working with partner companies to develop equipment that will use LTE technologies, using Citizens Band Radio Service (CBRS) spectrum, also known as Band 48, using 3GPP terminology. As part of the technology validation, Verizon plans to conduct a series of field tests with Category B Citizen Band Service Devices (CBSDs) at one or more locations, restricted to the frequency range 3650 MHz – 3700 MHz (i.e. the upper 50 MHz of the CBRS band)

The purpose of the proposed tests 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 TDD-LTE using 3.5 GHz

Field tests will be conducted in a production network, in a highly controlled field environment, in order to assist in the development of commercial products. 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 up to fifteen (15) Category B CBSDs for all the trial locations. The CBSDs will use the transmission parameters and operate inside the geographic regions defined below. These tests will use base stations and user equipment operating in CBRS spectrum only or a combination of CBRS plus legacy (licensed by Verizon) spectrum.

Mobile devices from multiple equipment manufacturers will be used in the evaluation testing and they be compliant with FCC rules. Verizon 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, both small cells and mobile units, 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 Corey Shaffer at 808-292-0031 or by email at corey.shaffer@verizonwireless.com, or Douglas Briedwell at 971-303-2185 or by email at douglas.briedwell@verizonwireless.com.

5. Trial Duration

Approximately 6 months, beginning approximately from October 21, 2019.

6. Evaluation Equipment Transmitter Information

Small cells supporting a subset of Band 48 (3650-3700 MHz) will be operating in compliance with FCC Part 96 rules. Directional antennas will be used with the small cell systems within the maximum EIRP and antenna gain constraints as specified in the rules.

LTE mobile devices support TDD-LTE operation with an LTE uplink in Band 48 and receive in the same band. Upon availability of mobile devices supporting inter-band carrier aggregation, CBSD devices supporting one or more of Verizon's licensed bands will be used.

- Up to fifteen (15) Category B CBSDs (EIRP ≤ 50 dBm/20 MHz) using Band 48. EIRP will strictly comply with FCC Part 96 for intended transmission bandwidths, i.e., <50dBm/20MHz.
- Multiple mobile terminals (approximately up to 10 terminals) operating in Carrier Aggregation (CA) mode, using licensed bands B2, B4, B66 or B13 or a subset of these, in CA aggregation with B48, using LTE(FDD/TDD), with a maximum transmitter power = 24 dBm.