



## **Attachment to FCC Application for Part 5 Conventional Experimental License (ELS File No. 0679-EX-CN-2021)**

### **1. Introduction**

Dell Inc. (dba Dell Technologies) is a leading innovator that partners with other industry leaders in data analytics and artificial intelligence to deliver expertise and a broad portfolio of solutions for deriving data-driven insights wherever business demands. We help our customers accelerate intelligent outcomes by aligning their business and IT with a data-first approach, and then put their data to work to achieve success at any scale. This approach enables customers to fast-track innovation and differentiate with data so they can grow without boundaries.

### **2. Description of Experiment**

The requested experimental license will support Dell's review and evaluation of different applications of fifth generation (5G) stand-alone (SA) technology associated with 5G open radio access network (O-RAN) architecture.

Dell is working with partner companies that develop equipment for use in the 5G SA C-Band spectrum, also known as Band N78, using third generation partnership project (3GPP) standards. As part of its technology validation effort, Dell plans to conduct a series of tests with remote radio units (RRU), distribution units (DU), and centralized units (CU) at one or more locations, restricted to the frequency of 3700 - 3800 MHz in Band N78.

The purposes of the tests are to evaluate:

- The radio propagation characteristics of the N78 band (3.7 – 3.8 GHz) for indoor installations;
- End-to-end Open RAN Front-End architecture; and
- Duplex mode (TDD) 5G NR/SA using the N78 band (3.7 – 3.8 GHz)

### **3. Technical Specifications**

#### **a. Location of Test Site:**

Dell proposes to conduct the proposed tests at its facilities located at Round Rock, Texas (coordinates: 30° 29' 4" N; 97° 39' 55" W (NAD83)).

Tests will be conducted deploying an experimental network in a highly controlled environment indoors at Dell's facilities. Subject to obtaining appropriate permission, Dell might expand the experimental operations to test the propagation characteristics of the system outdoors, limited to a geographic area immediately surrounding its test facilities. In no event would Dell operate at distances greater than 1 kilometer from the coordinates specified in Item 3a above without authority needed from Verizon and the FCC.

The proposed operations will benefit the public interest by enabling pre-commercial testing and review of new products outside of a lab environment, but in a controlled and managed manner.



#### b. Frequencies Requested:

Dell proposes to use spectrum that is licensed to Verizon in the 3700-3800 MHz band; the use of the spectrum will be coordinated with Verizon.

#### c. Power Levels:

Dell proposes to operate fixed base stations with a peak effective radiated power (ERP) of 0.5 Watts. Mobile units will operate with a peak ERP of 0.5 Watts.

#### d. Type of Emission, Modulation Technique, and Bandwidth Required:

Operations will be conducted primarily with the emissions and modulation techniques specified in the application (*i.e.*, Orthogonal Frequency Division Multiplexing (OFDM) with the emission designator 100MW7W). If other emission modes and modulation techniques are utilized, in no event will the emissions extend beyond the frequency bandwidth or band requested.

Dell does not propose to supply station identification as set forth in Section 5.115 of the Commission's Rules, 47 C.F.R. § 5.115 (2020).

#### e. Equipment To Be Used:

The experiment will consist of a maximum of 10 base radio units operating at any given time with the number of UEs not exceeding 20 for all experimental locations. The RRUs will use the transmission parameters and operate inside the geographic regions defined above under Item 3a. As noted above, the RRUs and User Equipment (UE) will be operated in spectrum licensed to Verizon, and the use of the spectrum will be coordinated with Verizon.

Equipment from multiple equipment manufacturers will be used in this experiment. The RRU devices to be deployed initially are prototypes, but they are in process of completing formal equipment authorization. During the testing, all prototypes will be operated in a manner to maintain compliance with FCC rules. Specifically, the RRUs supporting tests to be conducted in Band N78 (3.7 – 3.8 GHz) will be operated in compliance with Part 27, Subpart O of the FCC's rules. Omni-directional antennas will be used with the RRUs within a maximum equivalent isotropically radiated power (EIRP) and antenna gain constraints as specified within the FCC's rules.

#### f. Antenna Information and Compliance with RF Exposure Limits:

Dell will comply with all Federal Aviation Administration (FAA) and FCC rules and regulations regarding the installation and operation of antennas and their support structures. The antennas to be deployed under the authority requested will not extend more than six meters above ground or more than six meters above a building.

All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation. In addition, all personnel who will operate the equipment are knowledgeable as to the effects of RF energy and will have the ability to control their exposure.



#### 4. Interference Protection and Coordination

As noted above, Dell proposes to operate on spectrum that is licensed to Verizon and the use of the spectrum will be coordinated with Verizon. Verizon will have the ability to contact Dell to request a shutdown of transmissions operated under the experimental license in the unlikely event any interference occurs. Equipment can be shut down immediately, if the need arises, by contacting the interference coordinator (“stop buzzer”) identified below.

#### 5. Duration of Test

Dell proposes to conduct the experimental tests over a period of 12 months, beginning October 1, 2021. Dell has asked for a term of 24 months to accommodate delays in the commencement of the tests or the need for follow-up testing. Any operation during the term of the license will be coordinated with Verizon and, therefore, subject to any operational limitations imposed by Verizon.

#### 6. Contact Information

##### a. Technical Contact:

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##### b. Stop Buzzer Contact:

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##### c. FCC Legal Contact

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