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NARRATIVE STATEMENT

I. Introduction

Lextrum, Inc., the applicant for this Experimental Authorization, is the developer of a method for full duplex communication, allowing simultaneous two-way data communication on one common radio channel. Lextrum's innovative approach to achieving true full-duplex technology has been tested and verified in a laboratory environment, and now Lextrum, Inc., pursuant to FCC Rules 47 CFR 5.51 and 47 CFR 5.53, is seeking experimental approval to do the first tests of their full-duplex solution in an outdoor environment.

II. Location of Testing

Lextrum's outdoor testing will be done in a controlled outdoor environment at their Tucson, Arizona, offices, with deployment of the equipment on their office rooftop, and on a rooftop adjacent to the Lextrum offices, a distance of approximately 250 feet from rooftop to rooftop. The included exhibits provide physical address, coordinates and AGL height of the two rooftops.

III. Description of Testing

Lextrum's test plan consists of a series of tests intended to achieve the following:

a. Evaluate the overall performance of the full-duplex technology RF link in an outdoor environment when impacted by common mechanisms of the RF environment such as multipath and interference.
b. Evaluate the performance of the full-duplex technology when it is being used to transport data in a serial connection configuration.
c. Evaluate the performance of the full-duplex technology when it is operating using a common wireless communications protocol, such as LTE.
d. Evaluate LTE interoperability and coexistence with the full-duplex technology.
e. Evaluate the full-duplex technology's resilience and response to external interferers, such as non-full-duplex radio links operating on co-channel and adjacent channel frequencies.

IV. Description of Equipment

Lextrum's test plan allows for the equipment being used to be broken up into two separate physical links:

a. TDD Radio Link

This link will consist of an LTE eNB and UE(s) manufactured by VNC of Chantilly, Virginia, and will be deployed as is, with no modifications. While this equipment is not currently certified by the FCC, and therefore required to be included in this authorization request, Lextrum currently owns this equipment and fiscal responsibility dictates use of the equipment as opposed to purchasing new or additional equipment. This link will be used to provide comparative TDD spectral efficiency, capacity, performance, and operational data.

b. Full-Duplex Radio Link

The Lextrum full-duplex radio link consists of an Ettus (National Instruments) X310 USRP Software Defined Radio, integrated with the Lextrum custom-designed full-duplex subassemblies. The included exhibits will provide a pictorial depiction of how these subassemblies are interconnected and deployed on the two rooftops. The equipment used at the two rooftop link endpoints is the same, as will be the operating parameters.

V. Spectrum Usage and Protection

After careful consideration and analysis, Lextrum has selected what is now commonly known as the CBRS band (LTE-TDD Band 48) to perform their initial outdoor testing. While Lextrum's full-duplex technology is designed to be both protocol and frequency agnostic, the intent and philosophy of the CBRS band welcomes development of technologies that will increase spectrum efficiency and overall performance of currently available equipment.

Lextrum understands that all testing under the proposed experimental grant must be done on a non-interfering basis, and will take multiple steps to ensure they are at all times compliant with this requirement:

a. Spectrum scanning will be performed on a periodic basis during all operational test periods to ensure both radio links are operating on frequencies not in use by other nearby licensees.
b. No unattended operation will be allowed; Lextrum personnel will be present during all testing that is performed.
c. A "stop button/kill switch" contact phone number will be provided as part of this application submission.
d. Lextrum will consult the ULS database and ensure that testing to be performed will not impact surrounding licensees. Also, Lextrum will notify registered licensees with registered site locations within a 2 mile radius of the Lextrum test location of its planned testing prior to commencing operation. As part of Lextrum's document submission, a map is provided showing licensees within a 2 mile radius.

VI. Conclusion

It is Lextrum's belief that approval of this Experimental Authorization request will most definitely contribute to the further development and expansion of the radio art, as is the expectation with the grant of an Experimental Authorization.

Lextrum welcomes any additional questions the Commission may have regarding the execution of the testing proposed in this Experimental Authorization request and looks forward to initiating our testing upon grant of this Authorization request.