Experiment Description

File No. 0493-EX-ST-2020

This application is for "Phase Two" testing of TVWS (TV white spaces) and ATSC 3.0 LPTV. Last year Edge Spectrum Incorporated (ESI), a low-power television ("LPTV") licensee in Crockett, Texas, successfully conducted nearly identical testing to evaluate potential interference to its broadcast operations on a first adjacent channel under an STA granted by the Commission in File Number 1262-EX-ST-2019. That STA expired on February 11, 2020.

While a new STA is needed to continue the testing, it will be identical in form and particulars to the previous STA and Phase One. Accordingly, the Experiment Description from the prior application is attached hereto as Appendix A and incorporated by reference. Because Phase Two testing is exactly the same as Phase One, and because the Phase One testing confirmed that there was no harmful interference with ATSC 3.0 TV receivers, the likelihood of any harmful interference from Phase Two will lower than the tests approved under the prior STA. Moreover, all the protections and precautions which ESI took in Phase One (discussed in Addendum A) will be continued in this Phase Two.

The Phase Two testing will be a functional test of TVWS transceivers operating in the same first adjacent channels that were used in the Phase One radio frequency interference testing. Phase Two will test the performance potential of TVWS data services in a plethora of operating environments within the same 16 km radius from the tower used in the Phase One test program. Phase Two will deploy up to twenty TVWS devices at any location within the test radius. Testing will include line of sight, obstructed line of sight and non-line of sight operating environments.

ADDENDUM A

Experiment Description [From Appl. in File Number 1262-EX-ST-2019]

Edge Spectrum Incorporated (ESI), a low-power television ("LPTV") licensee in Crockett, Texas, seeks to evaluate potential interference to its broadcast operations on a first adjacent channel; including any interference to both ATSC 1.0 and ATSC 3.0 television receivers. ESI is the licensee of LPTV station KTWC-LD on channel 34 in Crockett, Texas. ESI has confirmed that there is no nearby licensee on channels 32 or 36. ESI will avoid testing in locations and frequencies that hold any potential for interference to other broadcasters, so ESI will observe all separation distances and other interference protection requirements with respect to the non-ESI broadcast station on the same and adjacent channels. Furthermore, all testing will occur outside of the operational hours of the ESI station potentially affected by the testing.

For these tests ESI will use commercial radios capable of operating on adjacent channels to KTWC-LD in a base-station/client-device configuration. The base-station will be mounted on a tower at the location described in this application and the client-devices will operate, communicating with the base station, within a 16 km radius of the tower. Client devices will be transportable fixed devices and are therefore considered to be "mobile" for the purposes of this application.

ESI will measure throughout this experimental area: (1) background noise, (2) received TV signal strength, and (3) received TV signal when the potential interferers are operating on a first adjacent channel, and at a 3 MHz offset from the broadcast television channel. These measurements will be taken at each location, to reflect base-station antenna heights of 30, 60, and 85 meters as well as ATSC 1.0 and ATSC 3.0 receivers. DTV receiver equipment will operate in a truck and will be connected to an external antenna that reaches 10 meters AGL to simulate a household antenna.

This experiment is substantively identical to the experiment described in ESI's prior STA application for Ardmore, OK, except for the identity of the LPTV station and channel, the city and state, and one of the fixed antenna heights. The Ardmore application was granted in File Number 0620-EX-ST-2019 (Call Sign WO9XHM). ESI was unable to conduct the experiment at the location approved previously because it encountered unexpected structural engineering problems with the tower that was to be used in Ardmore. A copy of the description of the experiment filed in File Number 0620-EX-ST-2019 as appended as the second page hereto so a comparison can readily be made.

[ARDMORE Experiment Description

For Background

From File Number 0620-EX-ST-2019]

Edge Spectrum Incorporated (ESI), a low-power television ("LPTV") licensee in Ardmore, OK, seeks to evaluate potential interference to its broadcast operations on a first adjacent channel; including any interference to both ATSC 1.0 and ATSC 3.0 television receivers. ESI is the licensee of LPTV station K22JQ-D on channel 22 in Ardmore, OK and holds a construction permit for K24IW-D on channel 20 in the same area. ESI has confirmed that there is no nearby licensee on channel 21. ESI will avoid testing in locations and frequencies that hold any potential for interference to other broadcasters, so ESI will observe all separation distances and other interference protection requirements with respect to non-ESI broadcast stations on the same and adjacent channels. Furthermore, all testing will occur outside of the operational hours of the ESI stations potentially affected by the testing.

For these tests ESI will use commercial radios capable of operating on adjacent channels to K22JQ-D and K24IW-D in a base-station/client-device configuration. The base-station will be mounted on a tower at the location described in this application and the client-devices will operate, communicating with the base station, within a 16 km radius of the tower. Client devices will be transportable fixed devices and are therefore considered to be "mobile" for the purposes of this application.

ESI will measure throughout this experimental area (1) background noise, (2) received TV signal strength, and (3) received TV signal when the potential interferers are operating on a first adjacent channel, and at a 3 MHz offset from the broadcast television channel. These measurements will be taken at each location, to reflect base-station antenna heights of 30, 45, and 60 meters as well as ATSC 1.0 and ATSC 3.0 receivers. DTV receiver equipment will operate in a truck and will be connected to an external antenna that reaches 10 meters AGL to simulate a household antenna.