

From: Rob Alderfer

To: Anthony Serafini
Date: August 10, 2016

Subject: FCC STA questions

Message:

8/9/16

CableLabs
858 Coal Creek Circle
Louisville, CO 80027

TO: FCC ELS
RE: File Number 1125-EX-ST-2016, Correspondence Ref No: 33430

In response to the questions below CableLabs submits the following statement.

CableLabs is working with several vendors to supply pre-commercial marketing demonstration equipment supporting TD-LTE equipment for the newly expanded Citizens Broadband Radio Service in order to demonstrate the possibilities for such service to the Society of Cable Televisions Engineers Tec Conference at the Pennsylvania Convention Center on 9/26 – 9/29. As this equipment is still being developed it is not possible to provide all the information requested below at this time. However, we understand the absolute necessity to avoid interference to FSS stations operating in nearby spectrum and we are open to modifying our STA request as follows;

- • STA valid dates: only from 9/25 – 9/29/2016
- • STA operating condition of only operating both CBSD and user equipment INDOORS at the Convention Center.
- • STA operating frequency range modified to 3550 – 3650 MHz
- • CableLabs will provide contact information of on-site CableLabs personnel to the nearby FSS station licensees in order to ensure immediate shutdown of STA equipment in the event a FSS station experiences interference.
- • CBSD and User equipment will use omnidirectional antennas
- • Other information requested is included in-line with the text below.

In addition, CableLabs will adhere to all grant conditions listed in the STA grant.

Submitted by: James P. O'Connor, CableLabs contract engineer

Applicant: CableLabs
File Number: 1125-EX-ST-2016
Correspondence Reference Number: 33430
Date of Original Email: 08/05/2016

Our International Bureau is asking for additional information regarding your application. Please upload an exhibit that responds to the following:

Satellite Division found a number of earth stations near the proposed experimental stations (some of the distance separation are 0.7, 0.7, 1.0, 1.1, 1.3, 2.8, 3 km, etc. this is not a complete list).

Our analysis indicates there is a high potential for in-band and adjacent band interferences, but we need more detail information to finalize our analysis.

* Please provide a spectrum plot of waveform output from the antenna for each emission (10M0D7D, 20M0D7D, 40M0D7D). Equipment will use, potentially, all ETSI 3GPP LTE adaptive modulation waveforms defined in ETSI TS 136 101 (uplink) and ETSI TS 136 104 (downlink), to demonstrate the adaptive modulation and high data rate capabilities of TD-LTE.

* Does the system use filtering and if so what is the filter roll-off? Equipment will conform to the Part 96 Subpart E Technical Rules for CBSD and User Equipment.

* What is the power level between 3670 - 3673 MHz and 3694 - 3702 MHz? Operation will be confined to 3550 – 3650 MHz only.

* How close to the edge of the 3700 MHz will the experimental transmitter need to operate? Fundamental transmission occupied bandwidth will be at least 50 MHz below 3700 MHz.

* How many sub-carriers are planned for this test? Transmissions will use all subcarriers defined for the full channel bandwidth of the transmission.

* Can the test be performed at and below 3650 MHz? Yes, we can operate below 3650 MHz.

* Does the test equipment employed mitigation technique to avoid interference? If so, please provide specific details on how it operates. No, but the power level can be turned down manually if necessary to ensure non-interference to the nearby FSS stations.

* Please provide an antenna pattern plot of the base stations. Antennas will be omnidirectional

* Are the base station antennas setup to tip down towards the ground? Is so what is the off-axis angle from a zenith point of view? Orientation is to be determined at the time of installation.

Applicant be aware that there is a FSS earth station authorize license (call sign: E080238) receiving signals from a space station in the band 3670 - 3673 MHz and 3694 - 3702 MHz that has a high potential of interference from the propose experimental station. Consult the MyIBFS database in the FCC.GOV website for more information on the licensee. Understood.