

AvL Technologies
Application for STA for Experimental License
Testing with the O3b Non-geostationary satellite system from Asheville, NC

Narrative Statement

(1) Name, address, phone number (also e-mail address and facsimile number, if available) of the applicant.

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(2) Description of why an STA is needed

AvL is developing a microwave antenna technology that could significantly improve performance and lower costs in commercial deployments. Grant of the STA will allow AvL to test its technology with the O3b non-geostationary satellite system.¹

(3) Description of the operation to be conducted and its purpose

AvL Technologies will test its antenna technology from its manufacturing facility in Asheville, North Carolina. The purpose of the test is for AvL Technologies to demonstrate that their antenna system can successfully track the O3b Networks non-geostationary orbit satellite constellation, can transmit and receive signals over the satellites, and meets all of the technical specifications that the tracking antennas were designed to meet.

(4) Time and dates of proposed operation

July 29, 2014 – January 29, 2015. AvL will notify ViaSat, Inc., Hughes/EchoStar, Inmarsat, SES and any other U.S. authorized Ka-band satellite operators, at least one week prior to any transmit testing, and provide emergency contact information. In the event that there is harmful interference, AvL will immediately cease transmissions.

¹ The Commission previously authorized O3b to operate two FSS earth stations to communicate with O3b's NGSO FSS Ka-band system. The first authorization was for a fixed earth station in Haleiwa, Hawaii, and the second authorization was for a fixed earth station in Vernon, Texas. O3b Limited, IBFS File No. SES-LIC-20130124-00089 (Vernon, Texas, Call Sign E130021), granted June 20, 2013 and IBFS File No. SES-LIC-20100723-00952 (Haleiwa, Hawaii, Call Sign E100088), granted Sept. 25, 2012. The Haleiwa, Hawaii, earth station is authorized to provide gateway and telemetry, tracking and command (TT&C) services and the Vernon, Texas, earth station is authorized to provide gateway and back-up TT&C services.

Between July 29 and August 15, 2014, AvL will utilize only the O3b frequencies that are not allocated for terrestrial use, that is, 28.35-28.4 GHz and 28.6-29.1 GHz (uplink) and 18.3-18.6 GHz and 18.8-19.3 GHz (downlink).

Beginning August 15, 2014, AvL will utilize all frequencies requested herein. AvL has initiated frequency coordination with terrestrial licensees in the bands AvL's experimental antennas will be transmitting in that are allocated for terrestrial use, that is, 27.6-28.35 GHz (uplink).² AvL will submit the results of that frequency coordination to the FCC prior to August 15, 2014.

(5) Class(es) of station (fixed, mobile, fixed and mobile) and call sign of station (if applicable).

The transmitting station will operate in fixed mode.

(6) Description of the location(s) and, if applicable, geographical coordinates of the proposed operation.

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Decimal: 35.6400 North; 82.5750 W.L.
UTM: 35° 38' 24" North; 82° 34' 30" W.L.

(7) Transmit equipment to be used, including name of manufacturer, model and number of units.

AvL .85m Ka Band Antenna (experimental) (2 units)
AvL 2.4m Ka Band Antenna (experimental) (2 units)

(8) Frequencies desired.

Transmit:
27.6 – 28.4 GHz
28.6 – 29.1 GHz

Receive:
17.8 – 18.6 GHz
18.8 – 19.3 GHz

(9) Maximum effective radiated power (ERP) or equivalent isotropically radiated power (EIRP).

The maximum transmitted EIRP will be:
85cm with 20W BUC 58.7 dBW
2.4m with 40W BUC 70.5 dBW

² Where AvL's experimental antennas will be receiving in bands that are allocated for terrestrial use, that is, 17.8-18.3 GHz (downlink), O3b previously has shown that transmissions from its satellites protect terrestrial stations by complying with applicable PFD limits at the Earth's surface. O3b Limited, IBFS File No. SES-LIC-20130124-00089 (Vernon, Texas, Call Sign E130021), granted June 20, 2013.

(10) Emission designator (see §2.201 of this chapter) or describe emission (bandwidth, modulation, etc.)

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(11) Overall height of antenna of antenna structure above the ground (if greater than 6 meters above the ground or an existing structure, see part 17 of this Chapter concerning notification to the FAA).

The overall height of the antenna above ground level will not exceed 6 meters.