

SES Government Solutions, Inc. ("SES-GS")
Application for Experimental Special Temporary Authority

Narrative Statement

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

SES-GS Representative and Stop Buzzer Contact:

Mike Blefko

11790 Sunrise Valley Drive, Suite 300, Reston, VA 20191¹

Office Phone: (703) 610-0957; Mobile Phone: (571) 419-1333

E-mail: Mike.Blefko@SES-GS.com

Counsel to SES-GS: Karis Hastings, SatCom Law LLC, karis@satcomlaw.com

(2) Description of why an STA is needed.

SES Government Solutions, Inc. ("SES-GS"), a wholly-owned subsidiary of SES S.A. and an affiliate of O3b Limited ("O3b"), provides satellite solutions to U.S. government customers to meet mission critical needs. SES-GS seeks an experimental special temporary authority ("STA") in order to demonstrate a new terminal that has been developed to operate with the O3b Ka-band non-geostationary orbit ("NGSO") satellite system² that operates in a medium earth orbit ("MEO") 8,062 km above the earth.

Specifically, SES-GS requests STA to perform testing and demonstration of a 2.2 meter AvL Litecom model antenna with the O3b fleet that is being evaluated to determine the antenna's suitability for deployment as part of a worldwide U.S. Army network. SES-GS previously requested and received authority to test the antenna at sites in Asheville, NC and Port St. Lucie, FL.³ Based on the success of the initial testing, SES-GS seeks authority to perform further evaluations and demonstrations at four new locations. The antennas will communicate with O3b's Ka-band NGSO satellite constellation using spectrum in which NGSO operations have sole primary status, transmitting in the 28.6-29.1 GHz frequencies and receiving in the 18.8-19.3 GHz frequencies.

¹ Given the ongoing COVID-19 pandemic, SES-GS requests that all correspondence be sent electronically, as physical mail to this address may not be checked regularly.

² The FCC has granted market access to the current O3b 20 satellite constellation and authorized the expansion of the constellation to up to 42 satellites. See *O3b Limited*, Order and Declaratory Ruling, 33 FCC Rcd 5508 (2018).

³ SES Government Solutions, Call Sign WR9XUV, File No. 0468-EX-ST-2021, granted Apr. 19, 2021. SES-GS incorporates by reference the gain information and antenna patterns provided with that request. See *id.* at Annex 1.

(3) Time and Date of Proposed Operation

SES-GS requests expedited processing to allow the demonstrations to begin by July 7, 2021. The timing is driven by the need to meet U.S. Army program scheduling dates for qualifying the terminal with the O3b MEO network. Once the qualification is complete, the terminal could be deployed to provide high throughput, low latency connectivity for the U.S. Army at more than one hundred sites around the world. SES-GS is seeking to expedite the qualification process in order to speed the delivery of this valuable service to armed services personnel.

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

The transmitting stations will operate as fixed satellite earth stations.

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

SES-GS will operate the terminals at fixed locations at and around four sites. During testing the antennas will be positioned within a 1-mile (1.6 km) radius of the designated coordinates listed below:

1. Fixed testing within 1.6 km of 47° 6' 44.3" N 122° 31' 18.8" W (Joint Base Lewis-McChord, WA)
2. Fixed testing within 1.6 km of 33° 1' 2.6" N 114° 15' 10.1" W (Yuma Proving Ground, AZ)
3. Fixed testing within 1.6 km of 39° 27' 50.4" N 76° 7' 8.8" W (Aberdeen Proving Ground, MD)
4. Fixed testing within 1.6 km of 38° 46' 58.7" N 77° 34' 25.8" W (Washington Media Port, VA)

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

AvL 2.2 meter Ka-band antenna AN/TSC-156(E) (experimental), part number Lite Sat 2.2A-PH-Q, 6 units.

Please note that each earth station terminal unit will include two technically identical antennas.

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

The maximum transmitted EIRP will be 60 dBW. The linear SSPA power is 41.76 dBm, or 15 watts.

For all operations, SES-GS will comply with the radiofrequency radiation exposure limits in 47 C.F.R. § 1.1310 and apply the measures recommended in the FCC's OET Bulletin 65 to ensure compliance.

(8) Emission Designator

50M0G7D

(9) 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 antenna's overall height above ground level is 2.5 meters.

(10) Directional Antenna Characteristics

Joint Base Lewis-McChord, WA Location	
Width of the antenna beam in degrees at the half-power point	0.3-0.5 degrees
Orientation of the antenna in the horizontal plane	Azimuth sweep range is from 195 degrees to 161 degrees
Orientation of the antenna in the vertical plane	Elevation will vary from 17 degrees to 16 degrees across the pass

Yuma Proving Ground, AZ Location	
Width of the antenna beam in degrees at the half-power point	0.3-0.5 degrees
Orientation of the antenna in the horizontal plane	Azimuth sweep range is from 212 degrees to 170 degrees
Orientation of the antenna in the vertical plane	Elevation will vary from 30 degrees to 36 degrees across the pass

Aberdeen Proving Ground, MD Location	
Width of the antenna beam in degrees at the half-power point	0.3-0.5 degrees
Orientation of the antenna in the horizontal plane	Azimuth sweep range is from 185 degrees to 148 degrees
Orientation of the antenna in the vertical plane	Elevation will vary from 27 degrees to 22 degrees across the pass

Washington Media Port, VA Location	
Width of the antenna beam in degrees at the half-power point	0.3-0.5 degrees
Orientation of the antenna in the horizontal plane	Azimuth sweep range is from 183 degrees to 146 degrees
Orientation of the antenna in the vertical plane	Elevation will vary from 28 degrees to 22 degrees across the pass