SES Space and Defense Renewal 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.

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(2) Description of why an STA is needed.

SES Space & Defense ("SES S&D"), a wholly-owned subsidiary of SES S.A. ("SES") and an affiliate of O3b Limited ("O3b"), provides satellite solutions to U.S. government customers to meet mission critical needs. SES S&D is seeking renewal of an experimental special temporary authority ("STA") in order to test and demonstrate a terminal that will communicate with the O3b non-geostationary orbit ("NGSO") satellite system in the Ka-band (Call Sign S2935)[1] using 28.6-29.1 GHz and 29.5-30 GHz.

Specifically, SES SD requests this STA renewal to perform time-sensitive testing and demonstration of the L3Harris CSW antenna with the O3b network to assess the antenna's suitability to support satellite communications to U.S. Government customers deployed around the world.

The testing will involve an RF loopback communication link between the terminal and the satellite constellation to characterize link performance while tracking MEO satellites using an electronically steerable antenna (AESA).

NGSO operations are authorized to operate on a primary basis in the 28.6- 29.1 GHz frequencies. All operations in this band will protect other NGSO FSS transmissions and operate in accordance with O3b's existing coordination agreements.

[1] 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) ("O3b Market Access Grant").

SES SD further certifies that these operations will continue to comply with 47 C.F.R. § 25.289, and that all operations in the 28.6-29.1 GHz and 29.5-30.0 GHz bands will be conducted in compliance with Article 22, Section II, and Resolution 76 of the ITU Radio Regulations.

In the 28.35-28.6 GHz and 29.5-30.0 GHz bands, where GSO FSS is primary, the SES SD terminal will comply with the Off-Axis EIRP density envelopes specified in 47 C.F.R. § 25.218 and will operate in accordance with applicable coordination agreements for GSO satellites with which it communicates, ensuring compliance with regulatory requirements and minimizing interference with co-primary services.

SES SD will cease transmissions if instructed by the Commission or the satellite operator in the event of any reported interference.

(3) Time and Date of Proposed Operation

SES SD requests expedited processing to enable testing to continue from October 22, 2026 for another six months. The timing is driven by the need to conduct time-sensitive testing and demonstrations for the U.S. government.

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

The transmitting antenna will operate as a mobile satellite earth station.

(5) Description of the location(s) and geographical coordinates ofthe proposed operation.

- Bristow, VA (Washington Media Port)
  - Latitude: 38.7837 N
  - Longitude: 77.5722 W
  - Antenna Elevation Range: +30° above horizon during satellite tracking
  - Antenna Azimuth Range: 167.6° - 205.7° (True)
  - Operating Range: 1 km

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

L3Harris CSW modem PN 1000271622, 1 unit
L3Harris CSW modem subsystem PN 1000252576, 1 unit
L3Harris CSW Ka-band AESA antenna PN 1000278068, 1 unit
L3Harris CSW Ku/Ka-band AESA antenna PN E8638109-1, 1 unit

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

The maximum transmitted EIRP will not exceed 54 dBW (approximately 251,188 Watts), depending on waveform configuration. The peak ERP is approximately 153,108 Watts (51.85 dBW).

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

(8) Emission Designator

122MG1, 13M5G1D, 36M5G1D, 48M6G1D, 60M8G1D, and 216MG1D.

(9) Overall height of antenna or 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 is less than 1 meter, but it may be placed on top of a vehicle bringing its approximate height to 3 meters at max.

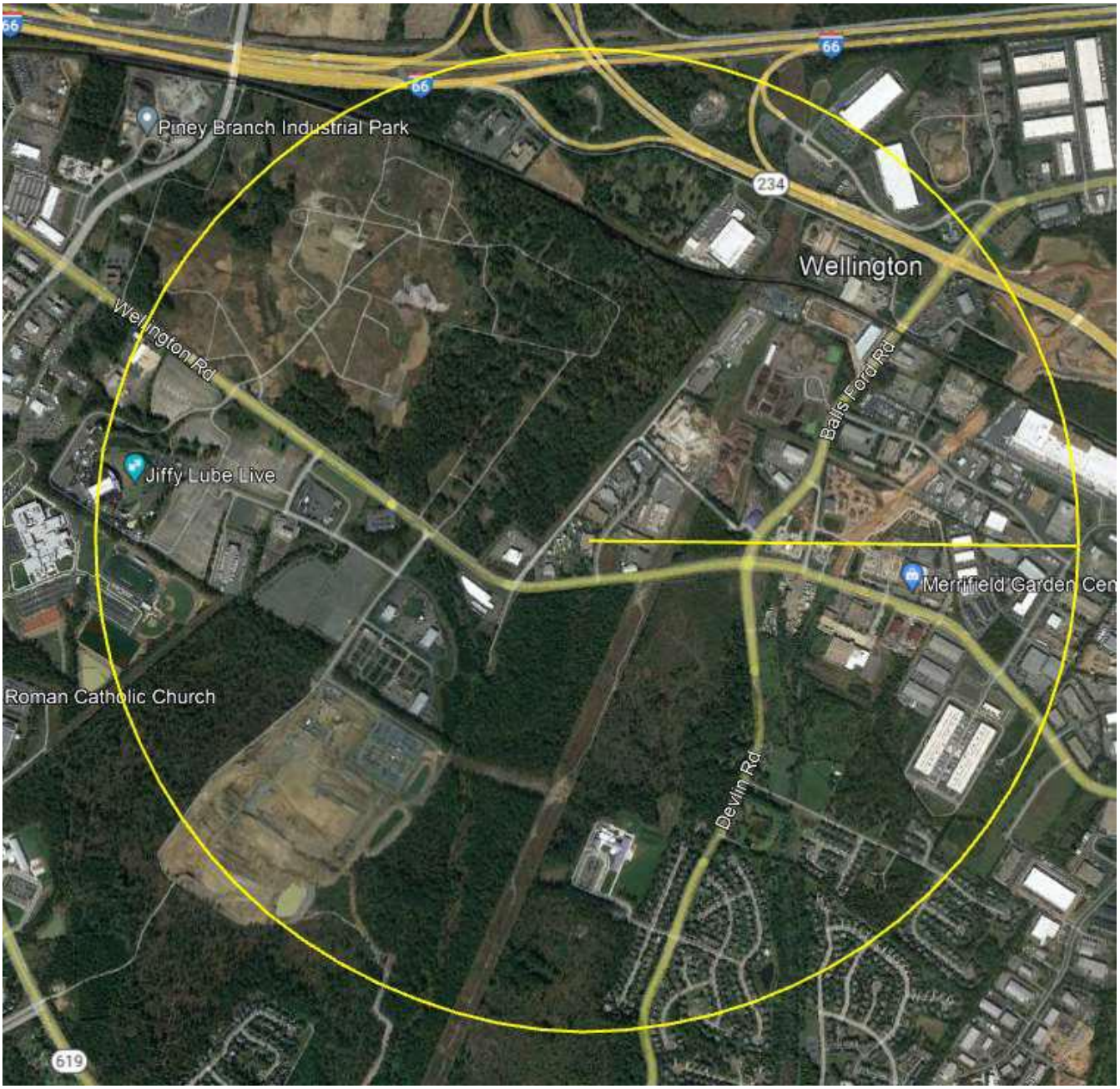
(10) Directional Antenna Characteristics

Width of the antenna beam in degrees at the half-power point	1.6 degrees
Orientation of the antennain the horizontal plane	0-360 degrees
Orientation of the antenna in the vertical plane	≥ 30 degrees

(11) 25.202 Certification

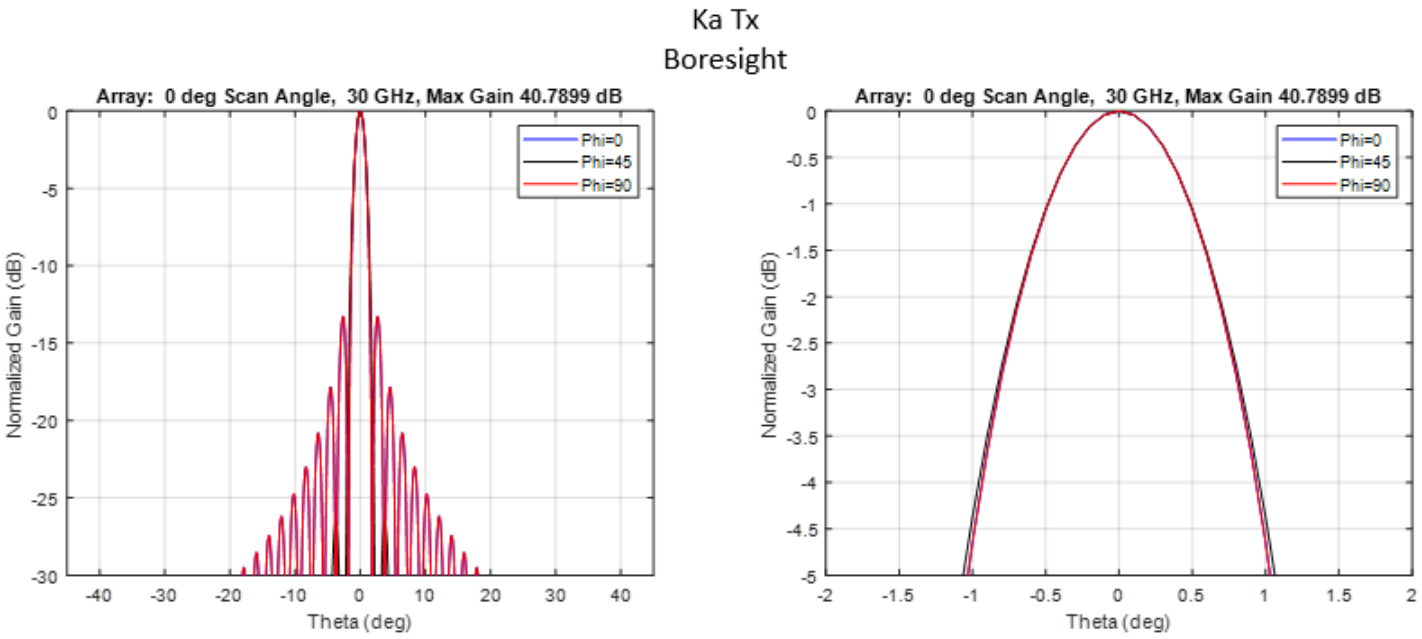
The applicant certifies it will comply with the out of band emissions limits specified in Section 25.202 of the Commission's Rules regarding frequency tolerance and emission limits.

Bristow, VA 1 km radius



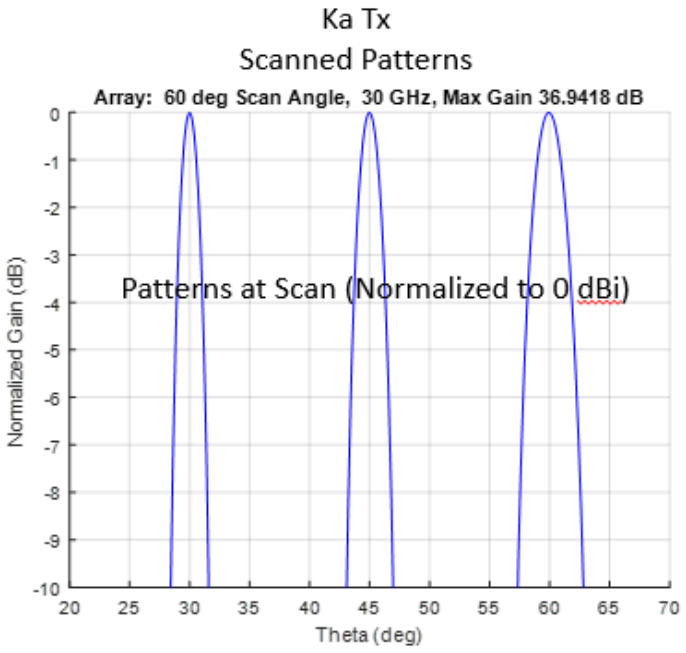
Terminal #1 Ka Tx AESA Antenna #1 PN 1000278068

Max Antenna Gain:	40.8 dB
3 dB Transmit beamwidth:	1.6°
Elevation angle (min):	+30°



Phi=0: 1.64 deg
Phi=45: 1.66 deg
Phi=90: 1.64 deg

Figure 5: Ka Transmit Pattern and Gain



Theta Steer = 30: 1.89 deg
Theta Steer = 45: 2.32 deg
Theta Steer = 60: 3.28 deg

Figure 6: Ka Transmit 3dB Beamwidth at varying Elevation angles

Terminal #1 Ku/Ka Tx AESA Antenna #2 PN E8638109-1

Max Antenna Gain: 27.5 dB
3 dB Transmit beamwidth: 6.8°
Elevation angle (min): +30°

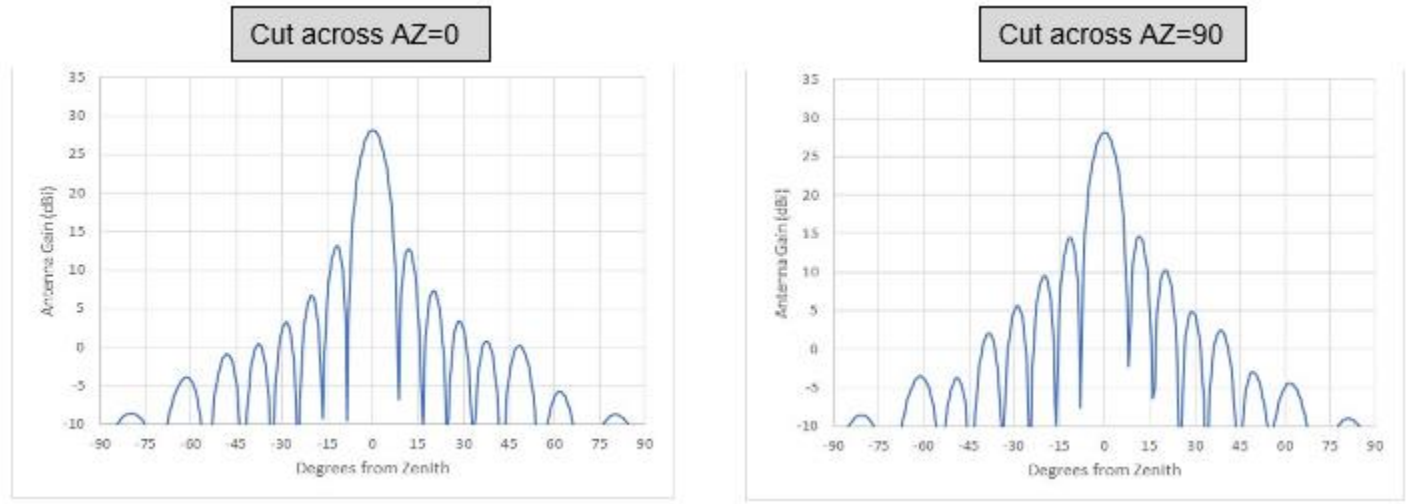


Figure 7: Ku Transmit Pattern and Gain

Max Antenna Gain: 27.5 dB
3 dB Transmit beamwidth: 3.2°
Elevation angle (min): +30°

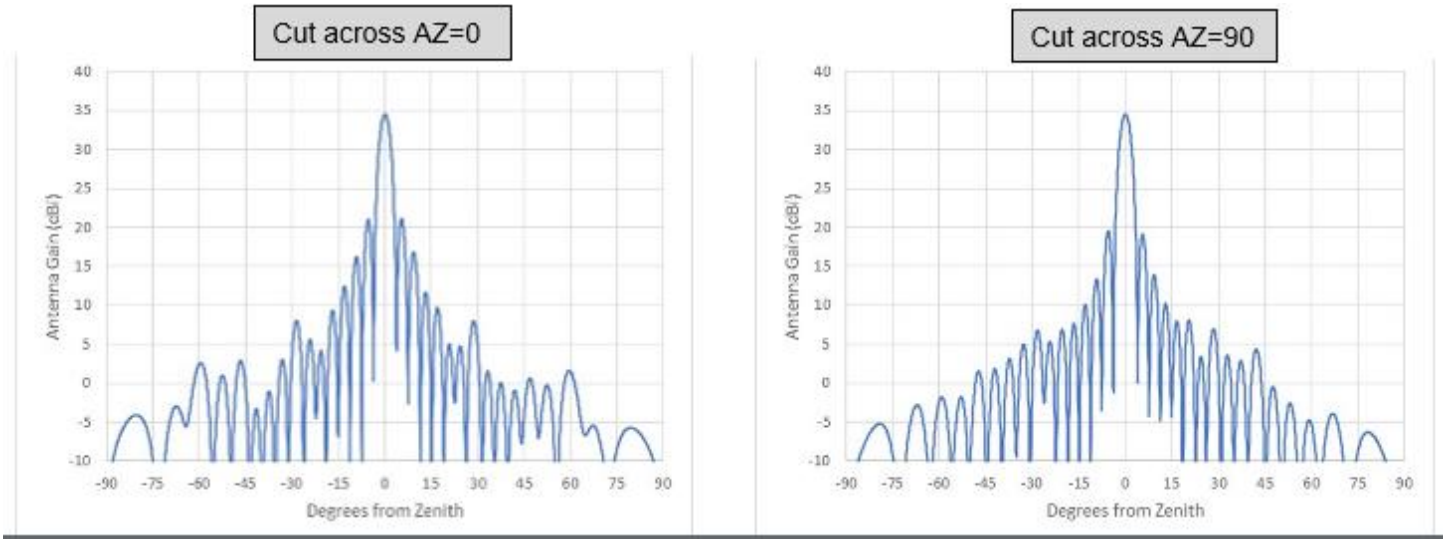


Figure 8: Ka Transmit Pattern and Gain