REQUEST FOR SPECIAL TEMPORARY AUTHORITY
NARRATIVE STATEMENT

(1) Contact Information

If there are any questions regarding this application, please contact:

SES Space & Defense Representative and Stop Buzzer Contact: Nick Brown
11790 Sunrise Valley Drive, Suite 300, Reston, VA 20191
Office Phone: (703) 610-0942; Mobile Phone: (571) 325-7950
Nick.Brown@ses-gs.com

Counsel to SES SD: Will Lewis, Aegis Space Law
Email: will@aegis.law
Phone: 203-856-8528

(2) Explanation of why Experimental Authorization is Needed

SES Space & Defense ("SES SD"), a wholly owned subsidiary of SES S.A. ("SES"), provides satellite solutions to U.S. government customers to meet mission critical needs. SES SD is seeking an experimental a license to test connectivity with a new electronically steered antenna ("ESA") using the operational satellites of the OneWeb non-geostationary, fixed-satellite service ("NGSO FSS") constellation.[1]

Specifically, SES SD is requesting a blanket license in CONUS and Hawaii to perform testing and demonstration of the Inster FoldSat ESA to assess the antenna's suitability to support satellite communications to U.S. Government customers.

(3) Description of Operations to be Conducted and its Purpose

SES SD seeks experimental authority to test and validate the performance characteristics of the ESA user terminals at the locations specified in Section 6 of this narrative. These over-the-air tests will be conducted using satellites in the authorized OneWeb NGSO FSS constellation for the purpose of demonstrating multiple functions of the antenna, including: (i) tracking and connectivity capabilities, (ii) handover between satellites; (iii) half-duplex operation and time synchronization; and (iv) throughput speed versus modulation. Completion of these tests will enable SES SD to optimize the experimental ESA, thereby benefiting its customers around the world.

Some licensees proposing to operate in the 14.0-14.2 GHz (Earth-to-Space) frequency band within 125 km of the NASA Tracking and Data Relay Satellite System ("TDRSS")

[1] The OneWeb NGSO FSS system was granted U.S. market access by the Commission in June 2017. *See WorldVu Satellites Limited, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb NGSO FSS System*, Order and Declaratory Ruling, 32 FCC Rcd 5366 (2017) ("OneWeb Market Access Grant").

facility in White Sands, New Mexico are subject to coordination with NASA.[2] SES SD's proposed operations will not include transmissions in 14.0-14.2 GHz near the NASA TDRSS facility.

Some licensees proposing to operate in the 14.47-14.5 GHz sub-band in the vicinity of Radio Astronomy Services ("RAS") observatories observing in the 14.47-14.5 GHz band are subject to coordination with the National Science Foundation. SES SD notes that its proposed operations do not fall within the delineated coordination radius of the RAS facilities listed in Table 1 to Section 25.228(j)(3). These concessions eliminate the necessity for coordination.

SES SD commits to ensuring the protection of licensed services operating in the 14.0-14.5 GHz bands from harmful interference and will implement measures and protocols to safeguard the integrity and functionality of these licensed services. All proposed operations involving these earth stations will be conducted by SES SD on a non-interference basis in the Ku-band.

SES SD will also notify in-band licensees prior to commencing any operations at a particular site. SES SD will include the name and contact information of the stop buzzer personnel that will be available to cease operations in the event of reported interference. The notification will also include the testing parameters (specific location(s), antenna gain(s), antenna height(s), antenna orientation, EIRP, EIRP density) and day and times of each test.

SES SD will accept harmful interference in the 10.7-12.7 GHz (downlink) from licensed users. SES SD understands that its operations in the 10.7-12.7 GHz bands would be authorized on an unprotected basis with respect to current and future systems operating in the fixed service.

For all operations, SES SD will comply with the radiofrequency radiation exposure limits in 47 CFR § 1.1310 and all recommended measures in OET Bulletin 65. All proposed operations involving these earth stations will be conducted by SES SD

(4) Time and Dates of Proposed Operation

SES SD requests experimental authority for a period of 28 days, beginning February 5, 2024. The timing is driven by the need to support a special, short term testing event for the U.S. military. SES SD notes that the Commission has been able to process such STAs for this terminal consistent with the requested grant timeline[3] and respectfully requests similar expedited processing to the extent possible.

(5) Classes of Station

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

---

[2] 47 C.F.R. 25.228.

[3] *See e.g.* File No. 2323-EX-ST-2023

(6) Description of the Location

SES SD seeks authority to test and operate the terminal in fixed mode the following location:

Site: Camp Pendleton, CA
Latitude: 33° 15' 15.7"
Longitude: 117° 25' 19.5"
Operating Range: 8.0 kilometer radius around the above coordinates

All operations will operate within the below elevation and azimuth angle ranges.

Elevation Angle Range: 25.1-49.7°
Azimuth Angle Range: 154.4-225.9°

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

Manufacturer:	Inster
Model:	FoldSat - Electronically Steerable Antenna
Number of Units:	2

(8) Requested Frequencies

Transmit:	14.0 - 14.5 GHz
Receive:	10.7 - 12.7 GHz

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

The maximum transmitted EIRP will be 36.6 dBW. The transmitted power is 3550 Watts.

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

Emission Designator:	2M10G7W, 18M0G7W
Transmit bandwidth:	2.16 – 18 MHz
Modulation:	QPSK, 8PSK, and 16QAM
Frequency Tolerance (+/-):	0.0000007 %

(11) Overall height 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 antennas above ground (or above existing structures) will not exceed 5 meters.

(12) Supplemental Technical Data for Antenna Registration.

Parameters		Ku-band Antenna
Beam Width at Half Power Point	Horizontal Plane	3.0° at 14.25 GHz
	Vertical Plane	3.0° to 3.4° at 14.25 GHz
Orientation in Horizontal Plane		0° – 360°
Orientation in Vertical Plane		37° – 90°
Antenna Size	Diameter	0.43 m

(13) Point of Contact for Tests

In the event any harmful interference has been identified in relation to these tests, the point of contact who can immediately cease operations of the experimental ESA terminals is as follows.

Name: Nick Brown
Title: Principal Engineer
Phone: 571-325-7950
Email: nick.brown@sessd.com