

SES Americom
Application for Experimental License

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 Americom ("SES") is a satellite operator that operates U.S. licensed space stations as well as many foreign licensed space stations that are on the Federal Communications Commission's Permitted List. SES satellites and earth stations operate in many bands in the U.S. including the 3700-4200 MHz band which is at issue in an ongoing Commission proceeding.

In order to facilitate the Commission's goal of making a portion of the 3700-4200 MHz band available for terrestrial mobile wireless services, SES is developing new techniques and technologies that will allow it to use less spectrum while maintaining its critical C-band services for its many U.S. customers. To further that goal, SES will be conducting antenna performance measurements using an antenna test range with fixed transmitters. These measurements will provide critical reference data on a commonly used antenna system in the US for the intersystem interference analyses needed to establish safe emission standards. The test range's fixed transmitters will transmit in the 3700-3900 MHz band to replicate the emissions of a terrestrial base station in order to assess its impact on a C-band earth station.

SES will be performing the tests at two co-located test ranges in Orlando, FL. SES seeks special temporary authority so that testing can be conducted at these locations. During the tests, the two fixed transmitters will be between 25 ft and 500 ft from the mock receive-only earth station in order to measure the effect of the transmissions on the receive signal.

(3) Time and dates of proposed operation

SES requests temporary authority for approximately 2 months, from August 18, 2019 through October 25, 2019. While the test will only occur for no more than a week, SES requests a larger range to ensure the testing can be conducted within in the time frame of the temporary authority.

SES will notify any U.S. authorized co-channel C-band earth station operators prior to any transmit testing, and provide emergency contact information. In addition, when the transmitter will operate in spectrum bands shared with terrestrial operators, SES will complete frequency coordination prior to testing. SES will only transmit in one direction in order to minimize the potential for harmful interference for licensed users near the testing area. In the event that there is harmful interference, SES will immediately cease transmissions.

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

The transmitting stations will operate in fixed mode only from two test ranges in close proximity.

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

SES will operate the transmitters at the two below locations.

Location 1:

5644 Commerce Drive, Orlando, Florida

28 degrees, 28 minutes, 38.6 seconds N Lat, 81 degrees, 22 minutes, 24.1 seconds W Long

Location 2:

7407 Chancery Lane, Orlando, Florida

28 degrees, 27 minutes, 30.3 seconds N Lat, 81 degrees, 23 minutes, 48.2 seconds W Long

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

Rohde & Schwartz 5G Vector Signal Generator, model number is SMW200A. One unit.

(7) Frequencies desired.

5G center frequency: 3850 MHz, 5G bandwidth: 60 MHz

5G center frequency: 3830 MHz, 5G bandwidth: 100 MHz

Concurrent multiple 5G center frequencies: 3850 MHz and 3790 MHz, 5G bandwidth: 60 MHz

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

The maximum EIRP is 43.8 dBm.

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

We plan to experiment with different bandwidth and modulation schemes. The bandwidths as described above are 60 MHz, 100 MHz, or 120 MHz (two 60-MHz). The modulation schemes are defined as part of the 5G standard. The modulation can be QPSK, 16QAM, 64QAM, and 25QAM. The coding can range between 78/2048 to 948/1024. The various 5G coding and modulation scheme can be found in the R&S SMW200A manual (https://www.rohde-schwarz.com/webhelp/smw_html_usermanual_en/SMW_HTML_UserManual_en.htm).

- (10) 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 is 3.9 meters.

O3b Networks
Application for Experimental License Annex A

- I. Is a directional antenna (other than radar) used? Yes
 - a. If yes, provide the following information
 - i. Width of the beam in degrees at the half power point: 336.0° at Location 1,
14.9° at Location 2
 - ii. Orientation in horizontal plane (degrees): 0°
 - iii. Orientation in vertical plane (degrees): 2.8°