SES Americom, Inc.
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, Inc. ("SES Americom") 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 3.7-4.2 GHz C-band downlink spectrum, which is the subject of an ongoing Commission proceeding exploring the possible introduction of terrestrial 5G services.

In order to facilitate the Commission's goal of making a portion of the 3.7-4.2 GHz band available for terrestrial mobile services, SES is evaluating new techniques and technologies that could allow it to use less spectrum while maintaining its critical C-band satellite services for its many U.S. customers. To further that goal, SES will be conducting antenna performance measurements using a transmitting drone aircraft. These measurements will provide critical reference data on a commonly used antenna system in the U.S. for the intersystem interference analyses needed to establish safe emission standards. The drone aircraft will transmit at very low power in the 3.7-4.2 GHz band to replicate the strength of a space-to-earth transmission as it reaches an earth station.

SES proposes to operate at two locations, one in Florida and one in Arizona. SES seeks experimental special temporary authority so that testing can be conducted simultaneously at both of these locations. During the test, the drone aircraft will be positioned at an altitude of 400 feet (122 meters) and will be approximately 3,000 feet (914 meters) from a simulated earth station that will be receiving its signals. The drone will fly in a 700 meter radius around the coordinates at each site specified below.

SES will provide an analysis from Comsearch to the Commission that assesses the likelihood of potential harmful interference to local licensees. SES will also notify and coordinate with licensed operators in close proximity to the test sites and provide them with the relevant points of contact in the event of harmful interference.

(3) Time and dates of proposed operation

SES Americom requests temporary authority for 6 months, from October 8, 2018 through April 8, 2019. In addition, SES Americom will complete frequency coordination with any potentially affected terrestrial operators prior to testing. In the event that there is harmful interference, SES Americom 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 mobile mode. The drone will fly in a 700 meter radius around the coordinates at each site specified below.

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

SES will operate the drones at the following locations: The drones fly in a 700m radius around the coordinates at each site provided below:

Lakeland, Florida site: 28° 2' 3.88" N, 82° 2' 49.55" W
Chandler, Arizona site: 33°18' 40.36" N, 111° 57' 12.24" W

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

Electro-Metrics EM-6937: 2 Units

(7) Frequencies desired.

Transmit:
3.7 – 4.2 GHz

(8) Maximum equivalent isotropically radiated power (EIRP).

The maximum transmitted EIRP will be .5 W.

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

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Technical Annex

Information Requested	**Value**
Width of beam in degrees at the half power point	E Plane: 70º H Plane: 125º
Orientation in horizontal plane (degrees from True North)	The orientation of the transmitting antenna will be adjusted to point towards the receiving Antenna on the ground. The orientation will be adjusted to create the necessary test points.
Orientation in vertical plane (degrees from horizontal)	The orientation of the transmitting antenna will be adjusted to point towards the receiving Antenna on the ground. The orientation will be adjusted to create the necessary test points.
Frequency Tolerance	2.5ppm frequency accuracy
Power	0.5 W EIRP