O3b Limited dba SES Networks
Application for Experimental Authorization

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 experimental authorization is needed.

O3b Limited ("O3b"), a wholly-owned subsidiary of SES S.A. and an affiliate of SES Americom, Inc. (collectively "SES"), is a satellite operator with a unique non-geostationary orbit ("NGSO") satellite system[2] that operates in a medium earth orbit 8,062 km above the earth. SES operates a fleet of over 50 geostationary orbit ("GSO") commercial satellites.

O3b hereby seeks experimental authority to test and demonstrate the capabilities of three satellite antennas, which will eventually support communications on mobile platforms, including aeronautical and maritime services. These terminals have the potential to deliver high-throughput, low-latency satellite capacity to mobile platforms, particularly small mobile platforms such as UAVs, and is being developed to help enable critical applications for the U.S. Government. The three satellite antennas are the following (hereinafter referred to as the "**Terminals**"):

- GetSat Microsat
- GetSat Nanosat H
- Intellian X130D

O3b is requesting special temporary authority to conduct on-the-ground tests of the Terminals for fixed and short-range mobile operations at and around its testing facilities in Manassas, VA and Port St. Lucie, FL. The Terminals will communicate with O3b's Ka-band NGSO satellite constellation.

(3) Time and Date of Proposed Operation

O3b requests temporary authority for 2 years, from July 1, 2021 through July 1, 2023.

[1] Given the on-going COVID-19 pandemic, O3b 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, Call Sign S2935, File No. SAT-AMD-20171109-00154 (granted June 4, 2018) ("O3b Market Access Grant).

O3b will operate the Terminals at and around SES's testing facility in Manassas, VA and Port St. Lucie, FL in both fixed and mobile mode. All mobile operations will be conducted within a 2-mile (3.22 km) radius of the designated coordinates 38° 47' 46" N 77° 34' 36" W (Manassas, VA)[3] and 27° 16' 55" N 80° 28' 59" W (Port St. Lucie, FL).

O3b will notify any U.S. authorized co-channel Ka-band satellite operators of testing at each location, coordinate with co-frequency terrestrial licensees and provide emergency contact information. O3b certifies that its operations in the test locations will meet the EPFD levels in Table 22-2 of Article 22, Section II, and Resolution 76 of the ITU Radio Regulations in order to protect secondary GSO operations in the band.

O3b certifies that its proposed operations will comply with all existing or future coordination agreements between O3b and other satellite operators and will abide by all the terms and conditions of the O3b Market Access Grant.

For operations in the 27.5-30 GHz band, O3b will operate on a non-interference basis. For operations in 27.5-28.35 GHz will coordinate with UMFUS licensees and Fixed Microwave licensees where applicable.

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

The transmitting stations will operate as fixed and mobile satellite earth stations. SES has submitted each antenna on its Form 412 as a mobile station to encompass both mobile and fixed operations.

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

O3b will operate the terminals at SES's testing facilities in Manassas, VA and Port St. Lucie, FL and within a 2-mile (3.22 km) radius of the designated coordinates on the application listed below:

Mobile and fixed testing within 3.21 km of 38° 47' 46" N 77° 34' 36" W (Manassas, VA)
Mobile and fixed testing within 3.21 km of 27° 16' 55" N 80° 28' 59" W (Port St. Lucie, FL)

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

The maximum transmitted EIRP of each of the Terminals will be the following:

- GetSat Microsat → 46.30 dBW
- GetSat Nanosat H → 37.70 dBW
- Intellian X130D → 60.2 dBW

(7) Emission Designator

The emission designator for each of the Terminals will be the following:

[3] This radius will include testing at SES's Washington Media Port at 8000 Gainsford Ct, Bristow, VA 20136.

- GetSat Microsat → 50MG7D
- GetSat Nanosat H → 3M07G7W
- Intellian X130D → 54M0G7W

(8) 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 for each of the Terminals is the following:

- GetSat Microsat → 2 meters
- GetSat Nanosat H → 2 meters
- Intellian X130D → 1.25 meters

(9) Points of communication

The terminals will communicate with the O3b Limited NGSO constellation (call sign S2935).

O3b Networks
Application for Experimental License Annex A
(Applicable to all Terminals)

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: 1.6 degrees

ii. Orientation in horizontal plane (degrees): Manassas: 206 to 168 degrees; Port St. Lucie: 241 to 210 degrees

iii. Orientation in vertical plane (degrees): Manassas: 24 to 29 degrees; Port St. Lucie: 19 to 39 degrees