O3b Limited
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.

Name of Applicant: O3b Limited
Address: 1129 20th Street, NW #1000 Washington, DC 20036

O3b Representative Contact Information
Name: Kelsie Rutherford
Phone Number: (202) 478-7191
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(2) Description of why an STA is needed.

O3b Limited ("O3b")[1] respectfully requests special temporary authority to test and evaluate the capabilities of one CGC 5.5 meter antenna that will operate as part of a gateway earth station for O3b's next-generation Medium Earth Orbit ("MEO") satellite constellation called mPOWER,[2] which will be launched later this year.

The tests will be conducted at the joint SES/Microsoft Azure ground station facility in El Mirage, AZ, and the CGC 5.5 meter antenna will be mounted on a fixed platform. O3b seeks authority to test the antenna with the AMC-15 geostationary orbit ("GSO") satellite at 105.05° W.L.[3] operated by an affiliate of O3b.[4] Although the antenna will communicate with O3b's NGSO system once the gateway earth station is licensed, GSO satellites are more suitable for testing the antenna due to their fixed orbital locations. By using a GSO satellite, the signals will need to be transmitted only to a single fixed point and will not need to track satellite locations as they would for communications with the MEO constellation.

O3b will test the antenna using conventional Ka-band spectrum, transmitting in the 28.4-28.6 GHz and 29.5-30 GHz uplink frequencies and receiving in the 18.6-18.8 GHz and 19.7-

[1] O3b, a wholly-owned subsidiary of SES S.A., operates a U.K.-authorized, Ka-band non-geostationary orbit ("NGSO") system that has been granted U.S. market access to provide Fixed-Satellite Service and Mobile-Satellite Service capacity. *See O3b Limited*, Order and Declaratory Ruling, 33 FCC Rcd 5508 (2018).

[2] O3b's request for a license for this gateway earth station is pending. *See* O3b Limited, Call Sign E210037, File No. SES-LIC-20210217-00350.

[3] SES Americom, Inc., Call Sign S2180, File No. SAT-MOD-20200227-00020, granted June 11, 2020 ("AMC-15 License").

[4] SES Americom, Inc., the licensee of AMC-15, and O3b are indirect wholly-owned subsidiaries of SES S.A.

20.2 GHz downlink frequencies. AMC-15 is authorized to operate on all of these frequencies, and O3b will comply with the conditions set forth in the AMC-15 License.

(3) Time and Date of Proposed Operations

O3b requests an STA for 6 months, from September 23, 2021 through March 23, 2022. O3b will test and evaluate the antenna over a 6-month timeframe, but testing will not be continuous as any given test will last for a maximum of five days.

O3b expects that the antenna will be installed at the gateway facility and ready for testing by September 23, 2021. It is important to test the antenna shortly after installation to allow O3b sufficient time to evaluate the antenna's performance prior to launch of the mPOWER satellites later this year.

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

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

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

O3b will operate and test the CGC 5.5 meter antenna in El Mirage, AZ.

Geographic Coordinates:
33° 33' 48.4" N
112° 20' 14.9" W

Address:
12901 W. Olive Avenue
El Mirage, AZ, 85335

Site Elevation: 334.46 meters

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

The maximum transmitted EIRP of the antenna will be 86.0 dBW. For all operations, O3b will comply with the radiofrequency radiation exposure limits in 47 C.F.R. § 1.1310 and apply the measures recommended in the FCC's OET Bulletin 65 to ensure compliance.

(7) Emission Designators

54M0G7D and 850MG7D

(8) Overall height of antenna of antenna structure above the ground.

The overall height of the antenna will be 10 meters.

ANNEX 1

Is a directional antenna used? Yes

Width of beam in degrees at the half-power point: 0.12 degrees

Orientation in horizontal plane (degrees from True North): 166.89 degrees

Orientation in vertical plane (degrees from horizontal): 50.22 degrees

Antenna Gain Specifications

Downlink frequencies:
18.7 GHz: 59.22 dBi
20 GHz: 59.78 dBi

Uplink frequencies:
28.5 GHz: 62.98 dBi
29.7 GHz: 63.20 dBi