O3b Limited dba SES
Application for Experimental License

Narrative Statement

(1) Name, address, phone number (also e-mail address and facsimile number, if available) of the applicant.

Name: O3B LIMITED
Address: 1129 20th Street, NW #1000 Washington, DC 20012[1]

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(2) Description of why an experimental license 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. O3b is. SES operates a fleet of over 50 geostationary orbit ("GSO") commercial satellites.

O3b hereby seeks expedited experimental authority to test and demonstrate the capabilities of a new satellite antenna, the Honeywell Jetwave MCX terminal, which will eventually support communications on mobile platforms, including aeronautical and maritime services.

Expedited grant requested: Due to logistical considerations and satellite capacity availability, O3B request expedited grant of this experimental license to the greatest extent possible. To facilitate a quick grant, O3b has requested in this experimental application only FSS transmission frequencies that are not shared with terrestrial systems and for which NGSO systems are primary to GSO system. O3b hopes that the narrow request for these frequencies will facilitate expeditious grant of this license.

O3b is requesting experimental authorization to conduct on-the-ground tests of the Honeywell Jetwave MCX terminal for fixed and short-range mobile within 1.6 km of 33°58'00.9"N 84°13'45.0"W in Norcross, Georgia. The new terminal will communicate with O3b's Ka-band NGSO satellite constellation (Call Sign S2935).

(3) Time and Date of Proposed Operation

O3b requests temporary authority for 2 years, from October 15, 2021 through Oct 15, 2023.

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[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 terminal during phase 1 of testing at and within a 1-mile (1.6 km) radius of the designated coordinates: 33°58'00.9"N 84°13'45.0"W.

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.

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

The transmitting stations will operate as mobile satellite earth stations.

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

O3b will operate the terminals within 1.6km radius of 33°58'00.9"N 84°13'45.0"W

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

The maximum transmitted EIRP will be 46 dBW.

(7) Emission Designator

202MG7D

(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 above ground level is 1 meters.

(9) Summary of antenna, site, and miscellaneous characteristics

a. EIRP Density (dBW/4 KHz): 12.76 (-23.24 dBW/Hz)

b. Input Power: 20 watts; Output Power: 20 watts

c. Antenna Size: 906 x 238.76mm (35.7 x 9.4")

d. Antenna Gain: TX 34 dBi; RX 32 dBi)

e. Uplink EIRP (dBW): 46

f. Emission Designator: 202MG7D

g. Modulating Signal: QPSK 1/9

h. Frequency Tolerance (%): 0.03 ppm

i. Min. Elevation Angle: 32 degrees

j. Transmit: 29000-30000 MHz

k. Receive: 19200-21200 MHz

l. Point of Communication: O3b Constellation ((Call Sign S2935).

m. Antenna class: mobile earth station

n. Test location: 1.6km radius of 33°58'00.9"N 84°13'45.0"W

o. Is a directional antenna (other than radar) used? Yes

    i. If yes, provide the following information

    ii. Width of the beam in degrees at the half power point: Az=1.3 degrees and El= 2.2 degrees

    iii. Orientation in horizontal plane (degrees): Azimuth from 32.0 to 35.5 degrees

    iv. Orientation in vertical plane (degrees): Elevation from 151 to 200 degrees

p. Overall height above ground level: 1m

q. Elevation of ground at antenna site above mean sea level in meters: 19m

O3b Networks
Application for Experimental License Annex A