**O3b Networks**

**Application for Experimental License**

**Narrative Statement**

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

Name: Nor Powanda
O3b Limited
1129 20h Street NW, Suite 1000
Washington, DC 20006
Phone: 202-468-7179
E-mail: Nor.powanda@ses.com

**(2) Description of why an experimental license is needed**

O3b Limited ("O3b") is a satellite operator with a unique non-geostationary orbit ("NGSO") satellite system[1] that operates in a medium earth orbit 8,062 km above the earth. O3b is a wholly-owned subsidiary of SES S.A. ("SES"). SES operates a fleet of over 50 geostationary orbit ("GSO") commercial satellites.

One of O3b's current customers is interested in deploying newly developed multi-band earth station terminals capable of communicating with satellites in different orbits ("multi-band, multi-orbit terminals"). The new terminals can communicate with SES's C-band, conventional Ku-band GSO satellites and with O3b's Ka-band NGSO satellites. As part of terminal development and validation, O3b desires to conduct integration testing with its customer's application prior to deployment of the multi-band, multi-orbit terminals. O3b seeks temporary experimental authority to test how these new multi-band, multi-orbit terminals would operate from a fixed earth station located within its facilities in Port St. Lucie, Florida, and to identify and troubleshoot any issues that may arise.

**(3) Description of the operation to be conducted and its purpose**

O3b respectfully requests an experimental license to test and demonstrate the capability of two (2) 2.4m Intellian v240MT terminals. O3b will install the terminals at its facility in Port St. Lucie, Florida, and evaluate their capabilities to operate and/or integrate with the customer's application from its fixed location. The customers' applications may at times opt to switch over to SES GSO capacity.[2] O3b and its customer will evaluate how this integration of multi-band, multi-orbit terminals with the customer's application will respond to this new service delivery method and troubleshoot any complications that may arise.

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.

[1] The FCC has granted market access to the O3b 12 satellite constellation. *See* O3b Limited, Call Sign S2935, File No. SAT-LOI-20141029-00118 (granted Jan. 22, 2015).

[2] The terminals will only communicate with SES Space Stations licensed in the U.S. or on the Permitted List. *See* New Skies Satellites B.V., Call Sign S2463, File No. SAT-MPL-20120215-00017 (granted Oct. 12, 2012); SES Americom, Inc., Call Sign S2162, File No. SAT-MOD-20161025-00102 (granted Nov. 24, 2016); New Skies Satellites B.V., Call Sign S2828, File No. SAT-MPL-20120406-00065 (granted Sep. 5, 2012).

**(4) Time and dates of proposed operation**

O3b requests temporary authority for two (2) years, from September 21, 2020 to September 20, 2022. O3b will notify ViaSat, Inc., Hughes/EchoStar, Inmarsat, SES and any other U.S. authorized co-channel Ka-, Ku- and C-band satellite operators at least one week prior to any transmit testing and provide emergency contact information. O3b certifies that its operations in Port St. Lucie, Florida, will meet the EPFD levels in Table 22-2 of Article 22, Section II, and Resolution 76 of the ITU Radio Regulations.

In addition, when the earth stations will transmit in spectrum bands, mentioned below in Section 8 ("Frequencies desired") and as shared with terrestrial operators, O3b will complete frequency coordination prior to testing. In the event that there is any harmful interference, O3b will immediately cease transmissions and will not seek any protection for continued operations within the specifically affected spectrum range(s).

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

The transmitting stations will operate in fixed mode from SES's facilities in Port St. Lucie, Florida, and will communicate with SES's authorized GSO satellites and may also communicate with other satellites on the Commission's Permitted List.

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

O3b will operate the Intellian terminals in fixed mode at O3b's ground operations center in Port St. Lucie, FL.

Port St. Lucie, FL coordinates:

27° 16' 55" N, 80° 28' 59" W

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

Intellian v240MT 2.4m, two (2) units

Please note that each earth station terminal unit will include two (2) active technically identical antennas and one inactive spare.

**(8) Frequencies desired.**

Transmit:
5.925 – 6.425 GHz
14.0 – 14.50 GHz
27.5 – 29.1; 29.5-30.0 GHz

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

C-Band: 30M0G7W
Ku-Band: 36MG7D
Ka-Band: 216MG7D

**(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 the Chapter concerning notification to the FAA).**

The overall height of the antennas above existing structures will not exceed 6 meters.

Exhibit 1: Directional Antenna Information

| | | | |
|---|---|---|---|
| **Station Class** | Fixed | | |
| **Terminal Size** | 2.4m | | |
| **Antenna Manufacturer** | Intellian | | |
| **Model Number** | v240MT | | |
| **Number of Units** | 2 | | |
| **Directional Antenna?** | Yes | | |
| **Frequencies** | C-band | Ku-band | Ka-band |
| | 6.14 GHz | 14.25 GHz | 28.75 GHz |
| **Transmit Frequencies** | 5.925 – 6.425 GHz | 14.0 – 14.50 GHz | 27.5 – 29.1; 29.5-30.0 GHz |
| **Width of beam in degrees at the half-power point** | 1.2 | 0.54 | 0.31 |
| **Orientation in horizontal plane (degrees from True North)** | **N/A Circ** | **Permitted List** | **N/A Circ** |
| **Orientation in vertical plane (degrees from horizontal)** | **N/A Circ** | **Permitted List** | **N/A Circ** |
| **Input Power (watts)** | 23.8 | 20.96 | 28.1 |
| **Output Power (watts)** | 2398832.92 | 5081594.43 | 2511886.43 |
| **Emission Designators** | 30M0G7W | 36MG7D | 216MG7D |
| **Modulating Signal** | 52 Msps | 52 Msps | 180 Msps |
| **Frequency Tolerance (%)** | ±1ppm | ±1ppm | ±1ppm |