



Federal Communications Commission
Washington, D.C. 20554

October 31, 2013

Joslyn Read
Vice President, Regulatory Affairs
O3b Limited
900 17th St., NW, Suite 300
Washington, D.C. 20006

Re: O3b Limited
IBFS File No. SES-LIC-20130618-00516
Call Sign: E130107

Dear Ms. Read:

This letter requests additional information regarding O3b Limited's above-referenced application for authority to operate a fixed earth station in Bristow, Virginia, that will communicate with O3b's Ka-band non-geostationary satellite orbit (NGSO) Fixed-Satellite Service (FSS) system licensed by the United Kingdom (Bristow Application). In particular, O3b indicates that the earth station will consist of two fixed 2.4-meter antennas that will operate in the 17.8-18.3 GHz, 18.3-18.6 GHz, and 18.8-19.3 GHz (space-to-Earth), and 27.6-28.35 GHz, 28.35-28.4 GHz, and 28.6-29.1 GHz (Earth-to-space) frequency bands. For both the 17.8-18.3 GHz and 18.3-18.6 GHz frequency bands, O3b seeks waivers of the Ka-band Plan and Footnote NG164 to Section 2.106 of the Commission's rules.¹ O3b also seeks waivers of Sections 25.145(c) and 25.210(i)(1) of the Commission rules.² O3b intends to operate the earth station to monitor the system and to provide customer demonstrations.³

The Commission previously authorized O3b to operate two FSS earth stations to communicate with O3b's NGSO FSS Ka-band system. The first authorization was for a fixed earth station in Haleiwa, Hawaii, and the second authorization was for a fixed earth station in Vernon, Texas.⁴ Both of these fixed earth stations use 7.3-meter antennas to continuously track visible in-orbit O3b satellites, with the Haleiwa, Hawaii, earth station providing gateway and telemetry, tracking and command (TT&C) services and the Vernon, Texas, earth station providing gateway and back-up TT&C services. O3b explained that if it sought to use U.S. earth stations to provide services to customers in the United States, it would file an application for authority to operate such earth

¹ 47 C.F.R. § 2.106, NG164.

² 47 C.F.R. §§ 25.145 (c) and 25.210(i)(1).

³ Bristow Application, Narrative at 1. The earth station will communicate with O3b's in-orbit NGSO FSS system, designated O3B-A internationally.

⁴ O3b Limited, IBFS File No. SES-LIC-20130124-00089 (Vernon, Texas, Call Sign E130021), granted June 20, 2013 and IBFS File No. SES-LIC-20100723-00952 (Haleiwa, Hawaii, Call Sign E100088), granted Sept. 25, 2012.

stations.⁵ As a result, the technical waivers and legal issues addressed by the gateway authorizations were limited to the proposed gateway and TT&C services requested.⁶

O3b also has a pending application for authority to operate earth stations aboard maritime vessels that will communicate with O3b's Ka-band NGSO FSS system (Blanket Application).⁷ In connection with reviewing the Blanket Application, we sent a letter to O3b on September 25, 2013, requesting information about the O3b system design, pursuant to Section 25.111(a) of the Commission's rules.⁸

Although the information in the Haleiwa, Hawaii, and Vernon, Texas, earth stations, and the Blanket Application, is useful in understanding O3b's NGSO constellation, certain additional information would facilitate processing of O3b's Bristow Application. Accordingly, we request, pursuant to Section 25.111(a) of the Commission's rules,⁹ O3b to amend the Bristow Application to include the following information:

1. The September 25 letter to O3b regarding the Blanket Application contained a number of information requests that are relevant to the Bristow Application. As a result, O3b should provide the same kind of information requested in paragraphs 2, 3, 4, 6, 11, and 12 of the September 25 letter in its amendment to the Bristow Application.
2. Please provide a showing that demonstrates that the O3b satellite system complies with No. 22.5D of the ITU Radio Regulations.
3. Please provide the measured antenna performance data for the 2.4-meter antenna. Please provide a series of radiation pattern measurements, performed on a calibrated antenna range. To facilitate processing, we request O3b to provide pattern measurements at the bottom, middle, and top frequencies of the 27.6-29.1 GHz (Earth-to-space) frequency band, as described in Section 25.138(d) of the Commission's rules applicable to GSO FSS earth stations.

⁵ Haleiwa, Hawaii Application, Narrative at 5.

⁶ The International Bureau processed both applications as fixed gateway applications and expressly limited each authorization to such services. Haleiwa, Hawaii Authorization, condition 90033 ("This authorization is limited to earth station call sign E100088, and does not permit O3b space stations to operate with any other earth station in the United States."); Haleiwa, Hawaii Authorization and Vernon, Texas Authorization, condition 90044; Vernon, Texas Authorization condition 90089 ("This authorization is limited to earth station call sign E130021, and does not permit O3b space stations to operate with any other earth station in the United States.").

⁷ IBFS File No. SES-LIC-20130528-00455, Call Sign: E130098. In the Blanket Application, O3b requests a blanket license to operate up to 100 earth stations with 2.2-meter antennas and up to 100 earth stations with 1.2-meter antennas on U.S.-registered vessels that will operate in U.S. territorial waters, international waters, and foreign waters.


⁸ Letter from Jose Albuquerque, Chief, Satellite Division, International Bureau, FCC, to Joslyn Read, Vice President, Regulatory Affairs, O3b Limited (dated September 25, 2013).

⁹ 47 C.F.R. § 25.111(a).

4. O3b seeks to operate in the 27.6-28.35 GHz band on a secondary basis. The Commission has indicated that FSS operations in this band are limited to gateway-like operations.¹⁰ Please explain how O3b's operations are consistent with the Commission's statements regarding this band.
5. Based on our review of O3b's Hawaii application, portions of which O3b incorporates by reference in the Bristow Application, it appears that there is a possibility that O3b space stations could receive signals from terrestrial Fixed Service stations operating in the O3b uplink frequency bands and retransmit these signals in the O3b downlink frequency bands that are used by other Fixed Service systems. Please provide an interference analysis that demonstrates that retransmission of Fixed Service signals by O3b space stations will not occur or will not cause unacceptable interference to any potentially-affected radiocommunication systems. One method of satisfying this request would be to explain whether O3b can shut off transponders transmitting in the 17.8-18.3 GHz frequency band in any beams that are illuminating geographic areas from which the satellite is at a low elevation angle.

Please submit the requested information by December 2, 2013. Failure to do so may result in the dismissal of O3b's pending application pursuant to Section 25.112(c) of the Commission's rules, 47 C.F.R. § 25.112(c).

Sincerely,


for Jose Albuquerque
Chief, Satellite Division
International Bureau

cc: Joseph A. Godles
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¹⁰ *Rulemaking To Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, CC Docket No. 96-311, First Report and Order and Fourth Notice of Proposed Rulemaking, 11 FCC Rcd 19005, 19025, ¶ 45 (indicating that in the 27.5-28.35 GHz band NGSO FSS operations will be "for the purpose of providing limited gateway-type service."). *See also, Rulemaking To Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, CC Docket No. 92-297, Third Report and Order, 12 FCC Rcd 22310, 22317, ¶ 42 (1997).