



Federal Communications Commission
Washington, D.C. 20554

January 22, 2014

DA 14-64

Ms. Joslyn Read
Vice President, Regulatory Affairs
O3b Limited
900 17th Street NW, Suite 300
Washington, DC 20006

Re: O3b Limited
IBFS File No. SES-MSC-20131101-01139

Dear Ms. Read:

On November 1, 2013, O3b Limited (O3b) filed a request for waiver of the United States Table of Frequency Allocations and the Commission's Ka-band Plan¹ in connection with O3b's plan to conduct tests and demonstrations using 2.2-meter and 1.2-meter antennas aboard two maritime vessels that are registered to the Bahamas and that will operate in and near U.S. territorial waters.² O3b states that it holds licenses to operate the antennas aboard the two maritime vessels from the Utilities Regulation and Competition Authority of the Bahamas.³ The tests will be conducted while the vessels are in motion at sea and while docked at U.S. ports. During the tests, O3b will use the 2.2-meter and 1.2-meter antennas to communicate with O3b's non-geostationary orbit (NGSO) Fixed-Satellite Service (FSS) system licensed by the United Kingdom.⁴ The antennas will transmit in the 28.6-29.1 GHz frequency band and receive in the 18.8-19.3 GHz frequency band.⁵ O3b states that testing will occur for a period of six

¹ The Commission issued a series of related Orders in CC Docket No. 92-297. *The First Report and Order* in the proceeding established an allocation plan for use of the Ka-band by non-Federal users. 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, *First Report and Order and Fourth Notice of Proposed Rulemaking*, 11 FCC Rcd 19005 (1996) (Ka-band Report and Order), modified by *Third Report and Order*, 12 FCC Rcd 22310 (1997).

² IBFS File No. SES-MSC-20131101-01139 (O3b Waiver Request). The request was placed on Public Notice, Satellite Applications Accepted for Filing, Report No. SES-01600 (Nov. 27, 2013). No comments were filed.

³ O3b Waiver Request, Narrative at 1. The two maritime vessels are cruise ships operated by Royal Caribbean - the Allure of the Seas and the Oasis of the Seas. *Id.*

⁴ O3b launched its first set of four satellites in 2013. The second set of four satellites is planned to launch in 2014.

⁵ It is our understanding that O3b's operations will comply with coordination agreements reached between the United Kingdom and other Administrations, including all coordination agreements reached between the United Kingdom and the United States (*see e.g.*, UK Telefax SSU 2000 dated 29 May 2009). Further, O3b will not receive transmissions from O3b's NGSO space stations in the 18.8-19.3 GHz frequency band (space-to-Earth) until O3b Limited has completed coordination of its NGSO FSS system with all Federal FSS systems in the 18.8-19.3 GHz frequency band under 47 C.F.R. § 2.106, Footnote US 334.

months, and seeks a waiver to conduct its planned testing during that six-month period.⁶

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.⁷ The Haleiwa, Hawaii, earth station provides gateway and telemetry, tracking and command (TT&C) services and the Vernon, Texas, earth station provides gateway and back-up TT&C services. O3b also has pending an application for authority to operate earth stations aboard U.S.-registered maritime vessels that will communicate with O3b's Ka-band NGSO FSS system (Blanket Application).⁸

O3b states that the proposed testing aboard non-U.S. registered vessels will facilitate the planned commercial operations proposed in its pending Blanket Application. During the tests, O3b will utilize its U.S. authorized gateway earth stations to communicate with its NGSO FSS Ka-band system.⁹ O3b states that the antenna testing aboard the non-U.S.-registered vessels will be technically identical to the operations proposed in its pending Blanket Application. O3b further states that it has demonstrated that these technical characteristics protect satellite and terrestrial services, and that, therefore, these services will be protected during the planned tests as well.¹⁰

Although the Commission does not license transmissions on non-U.S. registered vessels, O3b is nevertheless required to comply with the Commission's interference regulations to the extent its signals are received within the United States.¹¹ The use of the radiocommunication frequencies in the United States must be in accordance with the Table of Frequency Allocations contained in Section 2.106 of the Commission's rules. O3b plans to conduct its tests in frequency bands allocated to NGSO FSS on a primary basis, and seeks a waiver to the extent necessary to allow use of these bands aboard maritime

⁶ O3b Waiver Request, Narrative at 1.

⁷ 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.

⁸ IBFS File No. SES-LIC-20130528-00455, Call Sign: E130098 (O3b Blanket Application). In the O3b Blanket Application, O3b requests a license to operate up to 100 earth stations with 2.2-meter antennas and up to 100 earth stations with 1.2-meter antennas aboard U.S.-registered vessels that will operate in U.S. territorial waters, international waters, and foreign waters. The O3b Blanket Application was placed on Public Notice as accepted for filing. Satellite Applications Accepted for Filing, *Public Notice*, Report No. SES-01600 (Nov. 27, 2013). No comments were filed.

⁹ See O3b Waiver Request, Narrative at 2-3, incorporating by reference the technical operations proposed in O3b's Blanket Application.

¹⁰ *Id.*

¹¹ See 47 U.S.C. § 306. This section provides that Section 301 of this title shall not apply to any person sending radio communications or signals on a foreign ship while the same is within the jurisdiction of the United States, but such communications or signals shall be transmitted only in accordance with such regulations designed to prevent interference as may be promulgated under the authority of this chapter. See also *United States v. McIntire*, 365 F. Supp. 618, 622 n.11 (D.N.J., 1973)(The Commission has authority to take action against a party broadcasting in violation of its rules, without a license, and whose broadcasts causes interference to Commission-licensed broadcasters, even though the broadcaster was operating from a boat outside U.S. territorial waters).

vessels.¹² Because the Commission has not adopted technical rules governing satellite operations in the Ka-band NGSO FSS bands aboard maritime vessels,¹³ we view O3b's planned tests as requiring a waiver of the Commission's Table of Frequency Allocations and the Ka-band Plan. In considering requests for non-conforming spectrum uses, the Commission has indicated it would generally grant such waivers when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.¹⁴ O3b represents that its testing operations will not cause harmful interference to present or future users.¹⁵ In particular, O3b provides an analysis that it will not cause interference to any GSO satellite network operating in these bands¹⁶ and will accept interference from any terrestrial users.¹⁷ At the present, there are no other NGSO FSS satellite systems operating in these bands. No parties commented on its proposed operations.¹⁸ Based on the information on file with the Commission, the limited tests planned do not pose a risk of interference to other users of the band. Consequently, we grant O3b's waiver request, terminating six months from the date that O3b receives this letter, conditioned on operations on an unprotected, non-interference basis in the 28.6-29.1 GHz (Earth-to-space) and 18.8-19.3 GHz (space-to-Earth) bands. Accordingly, O3b's testing operations must accept interference from any authorized users in these bands and may not cause harmful interference to any authorized user in these bands.

¹² O3b Waiver Request, Narrative at 2.

¹³ 47 C.F.R. § 2.106; *Ka-band Report and Order*, 11 FCC Rcd 19005 (1996) and *Third Report and Order*, 12 FCC Rcd 22310 (1997). *See also* O3b Waiver Request, Narrative at 2-3 (noting that in the 28.6-29.1 GHz and the 18.8-19.3 GHz frequency bands the Table of Frequency Allocations and Ka-band plan makes "no provision for using NGSO FSS systems to communicate with earth stations on mobile platforms such as ships.").

¹⁴ *Contactmeo Communications, LLC*, Order and Authorization, 21 FCC Rcd 4035, 4044 (IB 2006); *see also* 47 C.F.R. § 1.3.

¹⁵ O3b Waiver Request, Narrative at 2-3 (providing a synopsis of its technical showing and citing the O3b Blanket Application, Technical Narrative at 17-20, providing an analysis that its earth station terminals will not cause unacceptable interference into any GSO satellite networks, potential future NGSO systems, or existing domestic U.S. terrestrial licensees).

¹⁶ *Id.* at 3. GSO FSS satellites operate in the 28.6-29.1 GHz frequency band (Earth-to-space) on a secondary basis and in the 18.8-19.3 GHz frequency band on a non-interference basis (space-to-Earth). Among other things, in its waiver request and blanket license application, O3b explained that there will always be an off-axis discrimination of more than 2.6 degrees between GSO orbits and O3b's NGSO orbit as viewed from the terminals aboard the ships and O3b's system will operate within acceptable power flux density limits applicable to GSO FSS operations. O3b Waiver Request, Narrative at 2-3; O3b Blanket Application at 17-20).

¹⁷ There are no Fixed Service allocations in the 28.6-29.1 GHz frequency band. Terrestrial fixed licenses in the 18.8-19.3 GHz are no longer grandfathered. *See* 47 C.F.R. § 101.85(b)(2). O3b's earth stations receive in the 18.8-19.3 and agree to accept any interference from any terrestrial users. O3b Waiver Request at 3.

¹⁸ *See* footnotes 2 and 8 above.

Grant of O3b's waiver request is without prejudice to any other pending application seeking to communicate with O3b's NGSO FSS system, *e.g.*, IBFS File Nos. SES-LIC-20130528-00445 and SES-LIC-20130618-00516.

Sincerely,

Jose Albuquerque
Chief, Satellite Division
International Bureau

Mark Settle
Chief, Policy and Rules Division
Office of Engineering and Technology