Federal Communications Commission
Washington, D.C. 20554

January 29, 2016

DA 16-99

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

Re: O3b Limited
IBFS File No. SES-MSC-20151021-00760

Dear Ms. Malloy:

On October 21, 2015, O3b Limited (O3b) filed a request for waiver of the United States Table of Frequency Allocations and the Commission's Ka-band Plan[1] in connection with its plan to conduct tests and demonstrations, and provide commercial service using earth stations on thirty non-U.S. registered maritime vessels while they are in and near U.S. territorial waters.[2] O3b Limited's service will use up to three 2.2 meter diameter antennas per maritime vessel. The earth stations will operate using the 27.6-28.4 GHz (Earth-to-space) and 17.8-18.6 GHz (space-to-Earth) frequency bands to communicate with non-geostationary orbit (NGSO) Fixed-Satellite Service (FSS) satellites licensed by the United Kingdom.[3]

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[1] The Commission issued a series of related Orders in CC Docket No. 92-297 and IB Docket No. 98-172 establishing a designation 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); Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite Service Use, *Report and Order*, 15 FCC Rcd 13430 (2000) (*18 GHz Report and Order*).

[2] O3b states that the maritime vessels will be located in or near U.S. waters in the Gulf of Mexico, adjacent to Puerto Rico and the U.S. Virgin Islands, and along the U.S. east coast as far north as Maine, and as far south as Florida. The areas served will be north of 13° north latitude. O3b Limited Waiver Request, IBFS File No. SES-MSC-20151021-00760 (O3b Waiver Request), Attachment A at 2.

[3] O3b launched its first four satellites in 2013, and eight satellites in 2014. O3b was granted U.S. market access for all 12 satellites in January 2015. *See* O3b Limited, IBFS File Nos. SAT-LOI-20141029-00118 and SAT-AMD-20150115-00004 (granted Jan. 22, 2015). The Satellite Division granted O3b a blanket license to operate up to one hundred 2.2 meter diameter antennas, and one hundred 1.2 meter diameter antennas on U.S. registered maritime vessels using the 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) frequency bands. IBFS File No. SES-LIC-20130528-00455 (granted May 13, 2014). *See also* Letter to Joslyn Read, VP Regulatory Affairs, O3b Limited, from Jose Albuquerque, Chief, Satellite Division, International Bureau, and Mark Settle, Chief, Policy and Rules Division, Office of Engineering and Technology, 29 FCC Rcd 5057, DA 14-637 (IB/OET May 13, 2014), and Letter to Suzanne Malloy, VP Regulatory Affairs, O3b Limited, from Jose Albuquerque, Chief, Satellite Division, International Bureau, and Mark Settle, Chief, Policy and Rules Division, Office of Engineering and Technology, DA 15-601 (May 20, 2015).

O3b states that at least some of the ships on which its maritime earth stations will operate are Bahamian-registered, and the earth stations on those ships will be authorized by the Utilities Regulation and Competition Authority of the Bahamas. O3b states that it will not commence tests or services on a ship until authorized by the appropriate administration.[4]

Although the Commission does not license transmissions on non-U.S. registered maritime vessels,[5] O3b is nevertheless required to comply with the Commission's interference regulations, including the U.S. Table of Frequency Allocations contained in Section 2.106 of the Commission's rules.[6] O3b plans to operate the earth stations on non-U.S. registered maritime vessels in the 27.6-28.4 GHz (Earth-to-space) frequency band. The 27.6-28.4 GHz band is allocated in the United States to Fixed Service (FS), FSS (Earth-to-space), and Mobile services on a primary basis for non-Federal use, and, according to the Ka-band Plan, the 27.6-28.35 GHz portion of the band is designated to Local Multipoint Distribution Systems (LMDS) on a primary basis, and to FSS on a secondary basis.[7] The 28.35-28.4 GHz portion of the band is designated to geostationary orbit (GSO) FSS operations on a primary basis and non-geostationary satellite orbit (NGSO) FSS operations on a secondary basis.[8] O3b also plans to operate using the 17.8-18.6 GHz (space-to-Earth) frequency band, of which 17.8-18.3 GHz is allocated in the U.S. Table of Frequency Allocations and designated under the Ka-band Plan for terrestrial FS on a primary basis for non-Federal use, with no provision for NGSO FSS operations.[9] The 18.3-18.6 GHz band is allocated to FSS operations, and under the Ka-band plan designated for GSO FSS.[10] Because the Commission has not adopted technical rules governing Ka-band operations aboard maritime vessels,[11] we view O3b's planned operations as requiring a waiver of the Commission's U.S. Table of Frequency Allocations and the Ka-band Plan.[12]

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

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[4] O3b Waiver Request, Narrative at 4.

[5] *See* 47 U.S.C. § 306.

[6] 47 C.F.R. § 2.106.

[7] *Ka-band Report and Order*, 11 FCC Rcd at 19025.

[8] *Id.* at 19029.

[9] 47 C.F.R. § 2.106; *18 GHz Report and Order*, 15 FCC Rcd at 13445.

[10] 47 C.F.R. 2.106; *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, Second Order on Reconsideration, 17 FCC Rcd 24248, at 24257-58 (2002).

[11] 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).

[12] The Ka-band Plan provides that GSO FSS and NGSO FSS systems will be permitted to operate on a non-interference basis to LMDS in the 27.5-28.35 GHz frequency band for the purpose of providing limited gateway-type services. O3b characterizes its service as "gateway-type" and claims it has secondary status in the band. O3b Limited Waiver, Narrative at 6. We disagree and note that note that O3b is proposing operations aboard maritime vessels, for which there are no technical rules. Consequently, O3b's operations have no status in this band.

authorized under the U.S. Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.[13] O3b represents that its operations will not cause harmful interference to present or future users of these bands. In particular, O3b provides an analysis that it will not cause interference to any service authorized under the U.S. Table of Frequency Allocations, and will accept interference from services authorized by the Commission.[14]

O3b states that it can operate its maritime earth stations without causing interference to LMDS licensees, and that no objections were received in response to the coordination notice it sent to all existing and proposed terrestrial licensees in the 27.6-28.35 GHz band within applicable coordination distances.[15] O3b also states that it will not operate its maritime earth stations with an elevation angle of less than 10 degrees.[16] Similarly, O3b states that its use of the 17.8-18.3 GHz band will not cause harmful interference to FS operations in this band because it will comply with all applicable FCC and ITU downlink power flux density limits.[17] O3b also demonstrated that the operations addressed in the waiver will provide the protection for GSO FSS systems consistent with ITU regulations.[18] O3b's waiver request was placed on public notice on November 18, 2015.[19] No comments or other pleadings were filed. Based on O3b's information on file with the Commission, the proposed operations do not appear to pose a risk of interference to other users of the band.[20] Accordingly, we grant O3b's waiver request conditioned on

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

[14] O3b Waiver Request, Narrative at 2. It is our understanding that O3b will operate within the EPFD limits of Article 22 (Articles 22.5C, 22.5D, and 22.5F) of the International Telecommunication Union (ITU) Radio Regulations. *See* O3b Waiver Request, Attachment at 7-12.

[15] O3b Waiver Request, Narrative at 6-7, and Letter to Marlene H. Dortch, Secretary, FCC, from Suzanne Malloy VP Regulatory Affairs, O3b Limited (Oct. 23, 2015).

[16] O3b Waiver Request, Attachment A at 2.

[17] O3b Waiver Request, Attachment A at 13-14.

[18] O3b Waiver Request, Attachment A at 5.

[19] *Satellite Radio Applications Accepted for Filing*, Public Notice, Report No. SES-01800 (Nov. 18, 2015).

[20] O3b Waiver Request and attachments.

operations on an unprotected, non-interference basis in the 27.6-28.4 GHz (Earth-to-space) and 17.8-18.6 GHz (space-to-Earth) frequency bands. O3b's operations on non-U.S. registered maritime vessels must accept interference from any authorized users in these bands and may not cause harmful interference to any authorized user in these bands.

Sincerely,

Jose Albuquerque

Jose P. Albuquerque
Chief, Satellite Division
International Bureau

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