

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
INMARSAT HAWAII INC.)	File No. SAT-LOI-20130319-00035
)	
Letter of Intent Application for U.S. Market)	
Access for the INMARSAT-KA 63W satellite)	

PETITION TO HOLD IN ABEYANCE PENDING ADDITIONAL SHOWING¹

O3b Limited (“O3b”) hereby requests that the Commission hold in abeyance the above-referenced application (“Application”)² filed by Inmarsat Hawaii, Inc. (“Inmarsat”), pending submission by Inmarsat of an additional showing demonstrating that it will not interfere with present and future elements of O3b’s non-geostationary (“NGSO”) Fixed-Satellite Service (“FSS”) satellite system.

DISCUSSION

I. NGSO SATELLITES ARE PRIMARY AND GSO SATELLITES ARE SECONDARY OR NONCONFORMING IN THE 18.8-19.3 GHz AND 28.6-29.1 GHz BANDS.

In its Application, Inmarsat seeks a letter of intent authorization that would provide access to the U.S. market for a geostationary satellite orbit (“GSO”) satellite, INMARSAT-KA 63W, that will operate under the authority of the United Kingdom at the 62.85° W.L. orbital location. Inmarsat proposes to provide FSS using various Ka-

¹ O3b Limited hereby notes that its submission is timely filed, consistent with Sections 1.4(e) and (j) of the Commission’s rules, as the Federal government was closed on January 21, 2014 due to severe weather conditions.

² See Inmarsat Hawaii Inc., FCC File No. SAT-LOI-20130319-00035 (submitted Mar. 19, 2013).

band frequency bands. The Commission's Ka-band frequency plan specifies that in two of these bands – the 18.8-19.3 GHz and 28.6-29.1 GHz bands (the “NGSO Bands”) – NGSO satellite systems are primary and GSO systems are either non-conforming (18.8-19.3 GHz) or secondary (28.6-29.1 GHz).³

O3b operates a global NGSO system in the NGSO Bands, among other frequencies. O3b launched the first four of its satellites last year; additional satellites are planned for launch this year and in 2015. The Commission has licensed O3b to operate gateway earth stations in Haleiwa, Hawaii,⁴ and Vernon, Texas,⁵ that use the NGSO Bands. O3b has multiple earth station applications pending before the Commission,⁶ and as additional customers and services come on line, O3b and its customers will be seeking additional earth station licenses. Accordingly, O3b is an interested party in this proceeding.

II. GSO APPLICANTS SEEKING TO USE THE NGSO BANDS IN THE UNITED STATES MUST PROTECT PRESENT AND FUTURE NGSO SYSTEMS AND STATIONS.

As stated above, GSO stations are secondary in the 28.6-29.1 GHz band portion of the NGSO Bands. A GSO applicant for the 28.6-29.1 GHz band cannot simply rely

³ See 47 C.F.R. § 2.106, NG165 (“[t]he use of the band 18.8-19.3 GHz by the fixed satellite service (space to Earth) is limited to systems in non-geostationary-satellite orbits”); *In the Matter of 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*, 11 FCC Rcd. 19005, 19039, ¶59 (1996) (establishing primary status for NGSO systems and secondary status for GSO systems in 28.6-29.1 GHz band).

⁴ See FCC File No. SES-LIC-20100723-00952 (granted Sep. 25, 2012).

⁵ See FCC File No. SES-LIC-20130124-00089 (granted Jun. 20, 2013).

⁶ See FCC File Nos. SES-LIC-20130618-00516 and SES-LIC-20130528-00455 (and related amendments and requests for Special Temporary Authority thereto).

upon a duty not to interfere with an NGSO system in the band.⁷ Rather, “[t]o ensure non-interfering operations, all secondary operators [are required] to submit to the Commission a technical demonstration that it can operate on a non-harmful interference basis to the type of satellite system with licensing priority.”⁸ This showing helps to preserve the continuing integrity of the band for its primary allocated purpose.⁹

A GSO applicant seeking to use the 28.6-29.1 GHz band must demonstrate that it will protect NGSO systems, including a showing of compatibility with both presently-authorized NGSO earth stations and NGSO earth stations that may be authorized in the future. In fact, a showing would be required even if no NGSO earth stations had been authorized and the 28.6-29.1 GHz band was fallow.¹⁰ The principles enunciated above for secondary GSO operation in the 28.6-29.1 GHz uplink band apply with equal force in the downlink direction of the NGSO Bands, the 18.8-19.3 GHz band.

⁷See *In the Matter of EchoStar Satellite LLC, Petition for Reconsideration; Application for Authority to Construct, Launch and Operate Geostationary Satellites In the Fixed-Satellite Service Using the Ka And/or extended Ku-bands at the 83 [degrees] W.L., 105 [degrees] W.L., 113 [degrees] W.L. and 121 [degrees] W.L. Orbital Locations; Petition for Reconsideration, Memorandum Opinion and Order*, 21 FCC Rcd 4060, 4064-65 ¶ 12 (IB 2006). In its Application, Inmarsat acknowledged the non-conforming and secondary status of its proposed operations and that such operations may be permitted only on a non-interference basis. Inmarsat has also committed to cease operations in the NGSO Bands if harmful interference to NGSO operations is caused by its operations and has acknowledged that it must accept any interference caused by NGSO operations in the NGSO Bands. See Application, Exhibit C, pp 4-7.

⁸ *In the Matter of 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, Third Report and Order*, 12 FCC Rcd. 22310, 22326 , ¶39 (1997) (“Ka-band Order”).

⁹ *Id.* at ¶20.

¹⁰See *In the Matter of EchoStar Satellite LLC; Applications for Authority to Construct, Launch and Operate Geostationary Satellites In the Fixed-Satellite Service using the Ka and/or Extended Ku-Bands at the 83 [degrees] W.L., 105 [degrees] W.L., 113 [degrees] W.L., and 121 [degrees] W.L. Orbital Locations, Memorandum Opinion and Order*, 19 FCC Rcd 7846, 7852-53, ¶¶18-20 (IB 2004).

III. INMARSAT'S APPLICATION IS INCOMPLETE.

After Inmarsat's Application was filed, the International Bureau sent Inmarsat a letter requesting additional information.¹¹ Among other things, the Bureau asked that Inmarsat "demonstrate how it will protect O3b Limited's Ka-band NGSO FSS system from interference, by providing a technical analysis, with supporting calculations, demonstrating its compatibility with O3b Limited's earth stations."¹²

In response, Inmarsat provided an interference analysis addressing only the two licensed O3b gateway earth stations that were identified in the Bureau's letter. Inmarsat did not, however, make the broader required "technical demonstration that it can operate on a non-harmful interference basis to the type of satellite system with licensing priority."¹³ In Inmarsat's case, that would have meant showing how it proposes to avoid harmful interference to a type of satellite system, NGSO, that under the FCC's Ka-band frequency plan has priority over GSO satellite systems when it comes to the NGSO Bands. As discussed herein, such a showing would have had to take into account compatibility with both present and future O3b earth stations.

O3b also notes that Inmarsat's showing, even as to O3b's currently licensed earth stations, had inconsistencies in the following two respects:

- (i) In table A.12.1 of the Letter, the Inmarsat earth station input power density is specified as -67 dBW/Hz. Additionally, right after that table, Inmarsat states that "The INMARSAT-KA 63W gateway uplink input power density value of -67 dBW/Hz is not clear sky, but rather assumes a

¹¹ Letter from Jose Albuquerque, Chief, Satellite Division to John P. Janka, Counsel for Inmarsat Hawaii Inc. (dated Oct. 30, 2013) ("*FCC Request*").

¹² *FCC Request*, 1-2.

¹³ *Ka-band Order*, at ¶35.

worst-case faded uplink condition.” However, the gateway link budgets provided in the Inmarsat LOI show an input power density of -62.7 dBW/Hz (4.3 dB higher); and

- (ii) In the link budgets provided in the Letter, the off-axis gain that is used is based on a “ $29-25\log(\theta)$ ” pattern, instead of using the applicable pattern of “ $32-25\log(\theta)$ ” at the off-axis angles for the particular cases analyzed by Inmarsat.

IV. INMARSAT’S APPLICATION CANNOT BE GRANTED WITHOUT A MORE COMPLETE SHOWING OF NON-INTERFERENCE TO O3b’S PRESENT AND FUTURE SATELLITE SYSTEM.

As explained above, O3b’s system has just commenced its U.S. and global operations. Although O3b is currently the holder of two earth station licenses issued by the Commission, it has multiple applications pending for other licenses, and additional applications are planned. O3b’s primary status as an NGSO licensee would be meaningless if GSO systems did not have to protect, and demonstrate how they would protect, O3b’s NGSO system and O3b’s earth stations (existing and future) as an integral part of the O3b NGSO system. And the Commission’s rules and precedents entitle O3b to this protection.

The non-interference showing submitted by Inmarsat to date is insufficient because it only addresses the two earth stations for which O3b is currently licensed. Before the Application can be granted, Inmarsat should be required to amend it to provide a broader showing of non-interference to O3b’s system throughout the United States. Such a supplemental showing should also address the discrepancies noted

above with respect to the more limited showing that has already been submitted by Inmarsat.

Taking into account all the above, O3b asks at this time that Inmarsat's Application be held in abeyance pending a supplemental submission by Inmarsat that satisfies the Commission's non-interference showing requirement by demonstrating protection for O3b's NGSO system in the NGSO Bands.

Respectfully submitted,

O3b Limited

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Petition to Hold in Abeyance Pending Additional Showing was sent by United States mail, first class postage prepaid, on this 22nd day of January, 2014, to the following:

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