

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

In the Matter of )  
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**O3b Limited** ) File No. SAT-AMD-20171109-00154  
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 )  
Amendment to Pending Applications for )  
U.S. Market Access for the O3b Medium )  
Earth Orbit Satellite System )

**PETITION TO DENY OR REMOVE FROM PROCESSING ROUND**

Iridium Constellation LLC (“Iridium”), pursuant to 47 C.F.R. § 25.154, hereby requests that the Commission deny the above-captioned filing submitted by O3b Limited (“O3b”) or remove the filing from the current processing round.

**I. INTRODUCTION AND SUMMARY**

O3b has been granted U.S. market access for its non-geostationary satellite orbit (“NGSO”), Fixed-Satellite Service (“FSS”) system.<sup>1</sup> O3b previously filed an application to modify its grant of U.S. market access, by adding satellites and frequencies, and an amendment to the modification application. The application as amended was accepted for filing as part of the Commission’s NGSO processing round.<sup>2</sup>

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<sup>1</sup> See *Grant Stamp*, O3b Limited, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the O3b MEO Satellite System, Call Sign S2935, SAT-LOI-20141029-00118, granted Jan 22, 2015, reissued/corrected on Feb 11, 2015, Mar 12, 2015, and Jun 2, 2015; as amended by SAT-AMD-20150115-00004.

<sup>2</sup> See *Public Notice, Applications Accepted for Filing, Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 12.75-13.25 GHz, 13.85-14.0 GHz, 18.6-18.8 GHz, 19.3-20.2 GHz*,

In the above-captioned Amendment,<sup>3</sup> O3b has made additional changes to its modification application. Among other things, O3b proposes to add a mobile satellite service (“MSS”) designation to its requested use of the 19.7-20.2 GHz and 29.5-30.0 GHz bands. Based on this change, O3b seeks to use the 29.1-29.5 GHz and 19.3-19.7 GHz bands for NGSO MSS feeder links.

O3b’s application, as amended by its Amendment, has the following defects:

- (i) O3b’s proposal to add an MSS designation for its operations in the 19.7-20.2 GHz and 29.5-30.0 GHz bands is inconsistent with the Commission’s Ka-band plan. O3b, therefore, should be limited to FSS operations in the 19.7-20.2 GHz and 29.5-30.0 GHz bands, as it previously had proposed.
- (ii) Without an MSS designation, there is no basis for O3b’s request to use the 29.1-29.5 GHz and 19.3-19.7 GHz bands for MSS feeder links.
- (iii) Even if O3b were permitted to add an MSS designation to the 19.7-20.2 GHz and 29.5-30.0 GHz bands as an outside the band plan, non-conforming use, its request to use the 29.1-29.5 GHz and 19.3-19.7 GHz bands for NGSO MSS feeder links should be denied. Scarce feeder link spectrum should be reserved for supporting conforming MSS operations that are consistent with the Commission’s band plan.
- (iv) If O3b nevertheless were permitted to use the 29.1-29.5 GHz and 19.3-19.7 GHz bands for NGSO MSS feeder links, its Amendment should be classified as a major amendment because O3b has upgraded its requested use of the bands from non-conforming to primary, which increases the potential for interference. Classifying the Amendment as a major amendment means that O3b’s modification application, as amended, should be treated as newly filed and should be removed from the current processing round.

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*and 29.1-29.5 GHz Bands*, DA 17-524, File Nos. SAT-MOD-20160624-00060 and SAT-AMD-20161115-00116 (May 26, 2017) (“*Original O3b NGSO Application Public Notice*”).

<sup>3</sup> See *Public Notice, Space Station Applications Accepted for Filing*, Report No. SAT-01284, File No. SAT-AMD-2011109-00154 (Nov. 24, 2017).

## II. INTEREST OF IRIDIUM

Iridium operates a constellation of 66 non-geostationary satellite orbit (“NGSO”), mobile satellite service (“MSS”) space stations in low earth orbit. Through its satellite constellation, the largest in the world, Iridium can deliver communication services to first responders, public safety personnel, the U.S. Department of Defense, border security officers, the aviation industry, and the energy sector in addition to providing essential backup communications across urban and rural areas.

The Commission has authorized Iridium to replace its initial constellation, in stages, with next generation space stations known as “Iridium NEXT.”<sup>4</sup> Iridium already has completed multiple launches of these replacement satellites and is integrating the new satellites into its constellation. Once fully deployed, Iridium NEXT will enable new broadband multi-service capability while providing the technical flexibility to support innovative new services and technologies. As the Commission has stated, Iridium NEXT will “provide mobile voice and data services to end users on a network with improved voice quality and enhanced data transmission speeds.”<sup>5</sup>

Every user communication on the Iridium satellite system is routed through a gateway earth station. Iridium’s gateways operate on feeder link frequencies in the 29.1-29.3 GHz and 19.4-19.6 GHz bands O3b proposes to use on a primary basis for its

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<sup>4</sup> *Application of Iridium Constellation LLC for Modification of License to Authorize a Second-Generation NGSO MSS Constellation*, Order and Authorization, 31 FCC Rcd 8675 (IB 2016).

<sup>5</sup> *Id.* at ¶ 1.

system. Iridium also employs these bands for the TT&C links it uses to control and command its space stations.

### **III. THE COMMISSION SHOULD REJECT O3b'S PROPOSED MSS OPERATIONS AS INCONSISTENT WITH THE KA-BAND PLAN**

The Commission has in force a band plan that governs operations in the Ka-band. The Commission adopted the band plan, which it revisited as recently as three months ago, based on its determinations as to which services are compatible and which are incompatible.

In its Amendment, O3b seeks to add an MSS designation for its proposed operations in the 19.7-20.2 GHz and 29.5-30.0 GHz bands. The Commission's band plan, however, contains no MSS allocation in these bands. Rather, it has designations only for geostationary satellite orbit ("GSO") FSS operations on a primary basis in both bands and for NGSO FSS operations on a secondary basis in the 29.5-30 GHz band.<sup>6</sup> Accordingly, O3b's proposal to add an MSS designation should be denied, and O3b should be limited to FSS operations in the 19.7-20.2 GHz and 29.5-30.0 GHz bands, as it previously had proposed.

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<sup>6</sup> The Commission's currently-effective Ka-band plan can be found in Appendix B of *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Notice of Proposed Rulemaking, 31 FCC Rcd 13651 (2016). The Commission's adopted but not effective Report and Order in that proceeding adds a secondary NGSO FSS designation in the 19.7-20.2 GHz band but continues to exclude MSS operations in both bands. See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report & Order and Further Notice of Proposed Rulemaking, IB Docket 16-408, FCC 17-122 (rel. Sept. 27, 2017) at Appendix B.

**IV. WITHOUT AN MSS DESIGNATION, THERE IS NO BASIS FOR O3b'S REQUEST TO USE THE 29.1-29.5 GHz AND 19.3-19.7 GHz BANDS FOR NGSO MSS FEEDER LINKS**

O3b's request to use the 29.1-29.5 GHz and 19.3-19.7 GHz bands for MSS feeder links is premised on it having MSS authority in the 19.7-20.2 GHz and 29.5-30.0 GHz bands. But as demonstrated above, O3b's MSS proposal for these bands is inconsistent with the Commission's band plan and should be rejected. Absent an MSS designation, O3b has no basis for seeking to operate MSS feeder links in the 29.1-29.5 GHz and 19.3-19.7 GHz bands. Accordingly, O3b's request for authority to use these bands also should be denied.

**V. EVEN IF O3B WERE PERMITTED TO OPERATE MSS ON A NON-CONFORMING BASIS, ITS REQUEST FOR FEEDER LINK SPECTRUM SHOULD BE DENIED**

Iridium has demonstrated that O3b's request for an MSS designation in the 19.7-20.2 GHz and 29.5-30.0 GHz bands should be denied as inconsistent with the Commission's band plan. Even if the Commission were to permit O3b to add an MSS designation in these bands on a non-conforming use basis, however, O3b's proposal to employ NGSO MSS feeder links in the 29.1-29.5 GHz and 19.3-19.7 GHz bands to support these MSS operations should be denied. Scarce feeder link spectrum should be reserved for supporting conforming MSS operations that, unlike O3b's proposed operations, are consistent with the Commission's band plan.

Iridium makes highly efficient use of its feeder link spectrum. Iridium's feeder link transmissions are limited to 100 MHz of spectrum in each direction that it shares with GSO FSS systems and terrestrial stations. All traffic carried on the Iridium system must be routed via this 100 MHz through a limited number of gateway earth stations in the United States and other countries. Intersatellite links enable Iridium to optimize network operations by directing traffic to particular gateways.

Iridium's feeder link needs are expanding. The enhanced capabilities of Iridium's second-generation system, Iridium NEXT, will place greater demands on Iridium's feeder links, and Iridium may need to add gateway earth station locations. It is essential in this environment that careful consideration be given to every use of the feeder link band.

The Commission values the importance of preserving expansion capabilities for Iridium in the NGSO MSS feeder link band. It has recognized that allowing access to this spectrum based on non-conforming uses "may not be compatible with the deployment of new Iridium earth stations,"<sup>7</sup> and it has cautioned that "[a]ny future Commission grant for ... use of the band will consider the aggregate effect on Iridium and LMDS and will not be approved based only on the interference caused by the new earth station(s) being proposed."<sup>8</sup> Although the Commission made these statements in

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<sup>7</sup> *Inmarsat Mobile Networks, Inc., Application to Operate a Fixed-Satellite Service Gateway Earth Station Facility in Lino Lakes, Minnesota with the Inmarsat-5 F2 Space Station*, Order and Authorization and Declaratory Ruling, DA 15-392 (IB and OET, March 30, 2015) ("*Inmarsat Waiver Grant*"), at ¶ 18.

<sup>8</sup> *Inmarsat Waiver Grant*, at ¶ 18.

the context of adding GSO FSS uses in the feeder link band, the statements apply with equal force to adding NGSO FSS uses based on non-conforming MSS designations.

Granting O3b access to the NGSO MSS feeder link band unquestionably would complicate Iridium efforts to add gateway earth station locations. NGSO gateways communicate with satellites that are in motion with respect to ground stations. Furthermore, Iridium's NGSO gateways must maintain communication with satellites at elevation angles as low as five degrees, which increases the region in which Iridium's gateways and satellites experience interference. As a result, the geographic isolation required between Iridium's system and co-frequency NGSO systems often involves larger exclusion zones than is required with co-frequency GSO systems.

These considerations highlight the dangers of introducing more players in the feeder link band, such as O3b, based on non-conforming MSS designations.

## **VI. O3B'S AMENDMENT IS A "MAJOR AMENDMENT" THAT CANNOT BE CONSIDERED IN THE CURRENT KA-BAND NGSO PROCESSING ROUND**

Iridium has shown that O3b should not be granted access to the 29.1-29.5 GHz and 19.3-19.7 GHz NGSO MSS feeder link bands. If O3b's request to operate in these bands nevertheless is accepted, then O3b's Amendment should be deemed a major amendment.

The Commission's rules classify an amendment that "increases the potential for interference" as a "major amendment."<sup>9</sup> O3b's Amendment fits within this category.

O3b originally sought to operate NGSO MSS feeder links in the 29.1-29.5 GHz and 19.3-19.7 GHz bands on a non-conforming use basis.<sup>10</sup> Now O3b seeks to operate NGSO MSS feeder links in these bands on a primary basis.<sup>11</sup> Primary operations have inherently more interference potential than non-conforming operations, which must not cause harmful interference. O3's Amendment, therefore, "increases the potential for interference" and is a major amendment.

The Commission's rules provide that "[a]ny application for an NGSO-like satellite license ... will be considered to be a newly filed application if it is amended by a major amendment (as defined by paragraph (b) of this section) after a 'cut-off' date applicable to the application."<sup>12</sup> As O3b's Amendment is a major amendment and it was filed after the NGSO Ka-band processing round cut-off date, O3b's modification application should be considered newly filed. Accordingly, if O3b's request to operate in the 29.1-29.5 GHz and 19.3-19.7 GHz bands is accepted, O3b's application as amended by the Amendment should be removed from the current processing round.

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<sup>9</sup> 47 C.F.R. § 25.116(b)(i).

<sup>10</sup> See Amendment, O3b Narrative at 5.

<sup>11</sup> *Id.* O3b explicitly has withdrawn its request for access to the 29.1-29.5 GHz and 19.3-19.7 GHz bands on a non-conforming use basis.

<sup>12</sup> 47 C.F.R. § 25.116(c). That provision is qualified by certain exceptions, none of which applies in these circumstances.



**VII. CONCLUSION**

In view of the forgoing, the Commission should deny O3b's application as amended or remove it from the current processing round.

Respectfully submitted,

**IRIDIUM CONSTELLATION LLC**

/s/ \_\_\_\_\_  
Maureen C. McLaughlin  
Vice President, Public Policy  
**IRIDIUM SATELLITE LLC**  
**IRIDIUM CARRIER SERVICES LLC**  
1750 Tysons Boulevard, Suite 1400  
McLean, VA 22102  
(703) 287-7518

/s/ \_\_\_\_\_  
Joseph A. Godles  
**GOLDBERG GODLES WIENER & WRIGHT**  
1025 CONNECTICUT AVENUE, NW  
SUITE 1000  
Washington, DC 20036  
(202) 429-4900  
Its Attorney

December 26, 2017

DECLARATION OF MAUREEN C. MCLAUGHLIN

1. I am Vice President Public Policy for Iridium Constellation LLC.
2. I have reviewed the foregoing Petition to Deny of Iridium Constellation LLC (“Petition”). All statements made therein are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the foregoing is true and correct.

By: /s/Maureen C. McLaughlin

Date: December 26, 2017

## CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **PETITION TO DENY OR REMOVE FROM PROCESSING ROUND** was sent by first class mail, postage prepaid, this 26<sup>th</sup> day of December, 2017, to:

Ms Suzanne Malloy  
O3b Limited  
900 17th Street, NW,  
Suite 300  
Washington, USA

Karis Hastings  
SatCom Law LLC  
1317 F St, NW  
Suite 400  
Washington, DC 20004

/s/\_\_\_\_\_  
Vicki Taylor