

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Intelsat License LLC	)	File Nos. SAT-LOA-20171027-00145
	)	Call Sign S3022
Application for Authority to Launch and	)	
Operate Intelsat 15R at 85.0° E.L.	)	

**COMMENTS OF O3B LIMITED**

O3b Limited (“O3b”) hereby comments on the above-referenced application in which Intelsat License LLC (“Intelsat”) is seeking authority to launch the Intelsat 15R geostationary orbit (“GSO”) space station and operate it in Ku- and Ka-band spectrum at 85° E.L.<sup>1</sup> The Intelsat 15R Application does not show that the proposed satellite can effectively share Ka-band frequencies with O3b’s in-orbit non-geostationary orbit (“NGSO”) fixed-satellite service (“FSS”) system or with other future NGSO constellations. The recent grant of a license for Intelsat’s proposed Galaxy 15R spacecraft,<sup>2</sup> although flawed in its formulation, confirms that Commission policy requires Intelsat to demonstrate its ability to operate on a non-interference basis in spectrum where NGSO systems are primary in advance of any shared use, not after the fact. Because Intelsat has not included such a showing, its application should be dismissed or deferred pending submission of an adequate demonstration of compatibility with U.S.-authorized NGSO systems.

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<sup>1</sup> Intelsat License LLC, Call Sign S3022, File No. SAT-LOA-20171027-00145 (the “Intelsat 15R Application”).

<sup>2</sup> Intelsat License LLC, Call Sign S3015, File Nos. SAT-LOA-20170524-00078 & SAT-AMD-20170613-00086, grant-stamped May 10, 2018 (the “Galaxy 15R License”).

**I. INTELSAT HAS NOT SHOWN THAT IT CAN USE NGSO-PRIMARY SPECTRUM WITHOUT CAUSING UNACCEPTABLE INTERFERENCE**

O3b has a strong interest in the Intelsat 15R Application because Intelsat proposes to operate in Ka-band spectrum O3b relies on for operations of its NGSO system. O3b provides high-throughput, low-latency connectivity for enterprise, government, and mobility clients via a Ka-band NGSO satellite network authorized to serve U.S. earth stations.<sup>3</sup> O3b’s offerings include supporting broadband access to areas underserved by terrestrial capacity and supplying maritime services that vastly expand the bandwidth available to the passengers and crew aboard cruise ships and other vessels. O3b currently operates sixteen satellites in a Medium Earth Orbit configuration and has requested authority for additional spacecraft and spectrum in order to accommodate growing demand for O3b’s high-performance connectivity.<sup>4</sup>

Intelsat has failed to make any showing that its proposed operations in the 28.6-29.1 GHz and 18.8-19.3 GHz bands, in which NGSO FSS systems such as the O3b network have primary status under the U.S. Table of Allocations (together, the “NGSO Primary Bands”),<sup>5</sup> are

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<sup>3</sup> O3b Limited, Call Sign S2935, File Nos. SAT-LOI-20141029-00118 & SAT-AMD-20150115-00004, grant-stamped Jan. 22, 2015, corrected and re-issued June 2, 2015.

<sup>4</sup> O3b Limited, Call Sign S2935, File Nos. SAT-MOD-20160624-00060; SAT-AMD-20161115-00116; & SAT-AMD-20170301-00026 (collectively, the “Pending O3b Applications”). Chairman Pai has circulated a draft grant of the Pending O3b Applications for consideration at the upcoming Commission open meeting on June 7. *See O3b Limited*, Order and Declaratory Ruling, FCC-CIRC1806-05 (rel. May 17, 2018).

<sup>5</sup> Prior to the Commission’s decision last fall in the NGSO proceeding, GSO FSS systems were secondary to NGSO FSS networks in the 28.6-29.1 GHz band segment, but there was no allocation for GSO FSS systems in the 18.8-19.3 GHz band. In that decision, the Commission authorized GSO FSS use of the 18.8-19.3 GHz band on an unprotected, non-interference basis with respect to NGSO FSS systems and revised footnote NG165 accordingly. *See Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809 (2017) (the “NGSO Order”) at 7813-15, ¶¶ 11-16. As a result of this action, GSO FSS

compatible with O3b's existing NGSO system. The Intelsat 15R Application is silent on protecting NGSO operations in NGSO primary bands even when addressing protection of other incumbent satellite operations.<sup>6</sup>

The Intelsat 15R Application includes no showing to establish that Intelsat's proposed operations will adequately protect existing or future U.S.-authorized NGSO constellations from harmful interference or that terminals communicating with Intelsat 15R will be able to operate successfully notwithstanding interference from primary NGSO networks. In fact, Intelsat does not even mention the existence of the O3b Ka-band NGSO system in the Intelsat 15R application.

Nor does Intelsat acknowledge the other Ka-band NGSO system proposals submitted in response to the Commission's announcement in mid-2016 of an NGSO processing round.<sup>7</sup> These systems reflect a variety of network designs and orbital characteristics. For example, in the Pending O3b Applications, O3b has proposed to add satellites to its existing equatorial orbit constellation and also to deploy a new set of inclined orbit spacecraft. In proceedings relating to the Galaxy 15R application, Intelsat – after a specific request from Commission staff – submitted a supplemental letter recognizing that NGSO systems have primary status in the 28.6-29.1 GHz

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operations are now secondary to NGSO FSS systems in both 28.6-29.1 GHz and 18.8-19.3 GHz spectrum.

<sup>6</sup> See Intelsat 15R Application, Engineering Statement at 7 and Exhibit 7.

<sup>7</sup> See *OneWeb Petition Accepted for Filing; IBFS File No. SAT-LOI-20160428-00041; Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 10.7-12.7 GHz, 14.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GHz, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, Public Notice, DA 16-804 (July 15, 2016) (“Ka-Band NGSO Processing Round Notice”).

and 18.8-19.3 GHz bands and committing to protecting such systems from interference.<sup>8</sup> Intelsat has not made that commitment here, nor has it explained how it would protect either the operational O3b network or any of the diverse Ka-band NGSO systems that are on the horizon.

Commission precedent requires additional evidence that Intelsat's proposed use of the NGSO Primary Bands will not interfere with the operations of U.S.-authorized NGSO networks. In the Galaxy 15R proceeding, Intelsat correctly observed that the Commission has allowed operations inconsistent with the Table of Allocations "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."<sup>9</sup> Yet Intelsat has not provided any basis for the Commission to determine how big a risk of interference Intelsat's planned operations pose to the in-orbit O3b NGSO system or to future NGSO constellations. Intelsat must explain what mechanism it will use to prevent interference to NGSO systems and how it will ensure that the Intelsat 15R network will terminate transmissions in the NGSO Primary Bands whenever needed to protect operations of O3b or future NGSO FSS providers.

Such a showing is essential because the NGSO Primary Bands are the only Ka-band FSS frequencies in which NGSO systems have primary status over GSO systems under the U.S. regulatory framework. NGSO systems require anchor bands in which spectrum access cannot be hindered by other services, and the recent NGSO Order explicitly emphasized that "preserving the 18.8-19.3 GHz and 28.6-29.1 GHz bands for more intensive use by burgeoning NGSO FSS

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<sup>8</sup> Letter from Cynthia J. Grady, Regulatory Counsel, Intelsat Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, File Nos. SAT-LOA-201 70524-00079 and SAT-AMD-20170613-00086, dated Nov. 21, 2017 at 1.

<sup>9</sup> Galaxy 15R Amendment, Legal Narrative at 4, *quoting The Boeing Company*, 16 FCC Rcd 22645, 22651 (IB & OET 2001).

systems will serve the public interest.”<sup>10</sup> In designing its system, O3b relied on having access to these frequencies on a primary basis, with effective protection from harmful interference due to GSO operations. The numerous applications filed in response to the Ka-Band NGSO Processing Round Notice indicate the strong interest in establishing new NGSO systems. It is therefore crucial that the Commission require that prospective GSO users demonstrate and ensure that their operations in the NGSO Primary Bands will adequately protect both existing and future U.S.-authorized NGSO operations from harmful interference.

The fact that Intelsat’s operations will not involve coverage of the continental United States does not exempt Intelsat from the obligation to comply with Commission requirements. The Intelsat 15R Application incorrectly states that “U.S. frequency restrictions and conditions in the U.S. Table of Frequency Allocations are not applicable” to its request for authority because Intelsat 15R will not operate in Region 2.<sup>11</sup> To the contrary, in the NGSO Order released just a month before the Intelsat 15R application was filed, the Commission reaffirmed its policy of applying “its Ka-band satellite designations to U.S.-licensed operations around the world.”<sup>12</sup> Moreover, Intelsat 15R’s coverage area includes U.S. territories in Region 3, such as Guam and the Northern Mariana Islands, in which Intelsat’s proposed FSS operations must conform to the U.S. Table of Allocations.

O3b currently serves American Samoa, a U.S. territory that is within Region 3 but outside the Intelsat 15R footprint, providing connectivity to a telecommunications provider that

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<sup>10</sup> NGSO Order, 32 FCC Rcd at 7814, ¶ 14.

<sup>11</sup> Intelsat 15R Application, Legal Narrative at 4.

<sup>12</sup> NGSO Order, 32 FCC Rcd at 7814, ¶ 15.

enabled it to double the broadband capacity offered to residents.<sup>13</sup> Internet service providers in other U.S. territories in the Pacific could benefit from similar services, and U.S. residents are among the passengers on cruise ships equipped with O3b's fiber-like internet service.<sup>14</sup> The ongoing expansion of the O3b fleet will enable O3b to meet growing demand for its services around the globe. Consistent with its public interest mandate, the Commission must require Intelsat to demonstrate that the proposed operations of Intelsat 15R will not cause harmful interference to primary operations authorized by the Commission that may be provided within and to U.S. territories.

Intelsat's failure to describe how it would guarantee protection of primary, U.S.-authorized NGSO operations justifies dismissal of the application. At a minimum, before it can further consider the Intelsat 15R Application, the Commission must require Intelsat to provide a substantive demonstration of its ability to operate in the NGSO Primary Bands on an unprotected, non-interference basis with respect to U.S.-authorized NGSO systems.

Indeed, the conditions imposed in the Galaxy 15R License indicate that the Commission intended that a showing of compatibility with NGSO systems would need to occur before the possibility for interference to an NGSO system could arise. Specifically, the grant includes a requirement that:

No later than sixty days before the scheduled initial launch of each NGSO FSS satellite system licensed or granted market access in the United States to operate in the 18.8-19.3 GHz and 28.6-29.1 GHz frequency bands, Intelsat must either: (1) notify the Commission in writing when an agreement has been reached with the NGSO satellite system operator, or (2) seek

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<sup>13</sup> See <https://www.ses.com/case-study/astca>.

<sup>14</sup> See <https://www.cruisecritic.com/reviews/review.cfm?ShipID=705> (noting that that passengers on Quantum of the Seas, which offers Internet speeds that rival those available on land, include travelers from the United States).

and obtain the Commission's approval of a modification of this license including detailed technical demonstrations of how Intelsat will protect the NGSO FSS satellite system. If neither condition is met, Intelsat must cease operations in the 18.8-19.3 GHz and 28.6-29.1 GHz frequency bands pursuant to this license until such time as compliance is demonstrated.<sup>15</sup>

Under this provision, Intelsat is obligated to reach a coordination agreement or make a detailed non-interference showing with respect to a given NGSO system before the NGSO system commences operations that could be disrupted by Intelsat's use of the NGSO-Primary Bands.

O3b is separately preparing a petition for clarification or reconsideration of the Galaxy 15R License because the effect of this condition with respect to protection of the O3b system, which already uses the NGSO-Primary Bands, is not clear. Intelsat cannot submit the required showing with respect to O3b sixty days before the initial launch of the O3b NGSO system, as O3b's system has been operation since September 2014. Thus, applying the condition retroactively would make it impossible to meet, rendering the Galaxy 15R License void. On the other hand, a purely prospective reading of the condition would be irrational, suggesting that Intelsat is obligated to provide a non-interference demonstration only with respect to future NGSO systems, and not with respect to the operational O3b network that is currently serving customers in the U.S. and around the globe.

To avoid these issues, if the Commission grants the Intelsat 15R application, it should impose a modified version of the Galaxy 15R condition that explicitly requires Intelsat to make the same showing about Intelsat 15R's ability to protect O3b's system that would be required for a future NGSO system. O3b suggests the Commission modify the Galaxy 15R provision by adding the underlined sentence below:

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<sup>15</sup> Galaxy 15R License, Attachment to grant at 5, ¶ 19 (footnote omitted).

At least sixty days before the scheduled initial launch of each NGSO FSS satellite system licensed or granted market access in the United States to operate in the 18.8-19.3 GHz and 28.6-29.1 GHz frequency bands, Intelsat must either: (1) notify the Commission in writing when an agreement has been reached with the NGSO satellite system operator, or (2) seek and obtain the Commission's approval of a modification of this license including detailed technical demonstrations of how Intelsat will protect the NGSO FSS satellite system. If neither condition is met, Intelsat must cease operations in the 18.8-19.3 GHz and 28.6-29.1 GHz frequency bands pursuant to this license until such time as compliance is demonstrated. Intelsat must comply with either (1) or (2) above with respect to the NGSO FSS satellite system operated by O3b Limited at least sixty days before the scheduled launch of Intelsat 15R, and must not commence operations in the 18.8-19.3 GHz and 28.6-29.1 GHz frequency bands pursuant to this license until such time as compliance is demonstrated.

## CONCLUSION

As discussed above, the Intelsat 15R Application does not show that Intelsat's proposed secondary use of the 18.8-19.3 GHz and 28.6-29.1 GHz bands will be compatible with NGSO use of these frequencies by O3b or other prospective U.S.-authorized NGSO systems. Under these circumstances, the Commission should dismiss the Intelsat 15R Application or suspend processing of the application until Intelsat demonstrates that it will not interfere with use of the NGSO Primary Bands to serve U.S. territories. At a minimum, any grant of the Intelsat 15R Application must be conditioned on Intelsat's submission of an adequate showing of its ability to



operate on a non-interference basis with respect to existing and future U.S.-authorized Ka-band  
NGSO systems.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 29th day of May, 2018, I caused a true and correct copy of the foregoing "Comments of O3b Limited" to be sent by first class mail, postage prepaid, to the following:

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