

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

In the Matter of)	
)	
O3b Limited)	SAT-AMD-20170301-00026; Call Sign S2935
)	
Amendment to Application to Modify U.S.)	
Market Access Grant for the O3b Medium Earth)	
Orbit Satellite System)	

RESPONSE OF O3B LIMITED

O3b Limited (“O3b”), hereby responds to the comments submitted by other parties regarding the above-captioned O3b Amendment, which seeks U.S. market access for additional frequencies as part of an expansion of O3b’s existing low-latency, high-throughput medium earth orbit (“MEO”) satellite system. The enhanced operations described in the O3b Amendment are consistent with Commission policies, and allowing O3b to address U.S. customer demand will serve the public interest. Accordingly, the Commission should grant the O3b Amendment subject to existing and future regulatory requirements governing sharing with other satellite systems.

I. THE COMMISSION SHOULD DECLINE TO IMPOSE ON O3B THE UNREASONABLE CONDITIONS REQUESTED BY SPACEX

The SpaceX Comments¹ provide no rationale for the imposition of onerous conditions on O3b. SpaceX misleadingly suggests that the design of the planned inclined orbit O3b system (“O3bI”), whose MEO altitude and beam steerability enable coverage over a large geographic area, will cause prolonged and frequent in-line events with the planned SpaceX

¹ Comments of Space Exploration Technologies Corp., File No. SAT-AMD-20170301-00026, dated September 25, 2017 (“SpaceX Comments”).

constellation.² In fact, however, the number and duration of in-line events between any two systems is a simple function of geometry given each system's design parameters. SpaceX's proposal to deploy 11,943 satellites and selection of low earth orbit ("LEO") altitudes make in-line events with O3b and other NGSO systems inevitable. SpaceX must accept the consequences of its own design choices and be prepared to coordinate with other systems if it hopes to deploy a constellation of this scale.

In addition to improperly attempting to shift the responsibility for in-line events involving the proposed SpaceX system, SpaceX also mischaracterizes the impact of such events. In particular, SpaceX suggests that during in-line events between a SpaceX satellite and another NGSO system's spacecraft, both operators will routinely need to default to band segmentation.³ This discussion ignores one of the key spectrum sharing measures that SpaceX touted in its own application – the ability to rely on satellite diversity to avoid a potential in-line event.⁴

Moreover, SpaceX relies on worst-case scenario predictions to propose conditions on O3b's operations without taking into account the possibility that SpaceX's concerns can be successfully addressed through coordination.⁵ As O3b noted in its Amendment, the O3b system

² *Id.* at 2-3.

³ *Id.* at 2, 4.

⁴ *See* Space Exploration Holdings, LLC, File No. SAT-LOA-20170301-00027, Technical Attachment at 23 ("The SpaceX System will provide multiple NGSO satellites in the field of view of any given earth station, providing the advantages of satellite diversity. The number of satellites in view will depend on the geographic location and the phase of deployment of the SpaceX System. Where appropriate, the system will have the intelligence to select the specific satellite that would avoid a potential in-line interference event with GSO and other NGSO operations.").

⁵ *See* SpaceX Comments at 4-5 ("Without beam pointing information, SpaceX must assume that its spacecraft are involved in an in-line event with an O3b MEO satellite in a large portion of its footprint...MEO uplink transmissions may present a significant risk of harmful interference to LEO satellites.").

is sufficiently flexible that it will be able to meet EPFD limits that the Commission may adopt in the V-band, and O3b has no objection to imposition of a condition requiring O3b to conform to the rules eventually adopted by the Commission. However, other issues raised by SpaceX – such as the claim that O3b’s earth stations *may* degrade a LEO satellite’s ability to receive uplink signals⁶ – are best addressed through the coordination process rather than by prematurely imposing restrictive conditions as part of a future O3b grant.

The Commission must also reject SpaceX’s suggestion that O3b should provide certain technical and operational characteristics, such as real-time information on the steering angle of O3b’s beams.⁷ Contrary to SpaceX’s claims, this information is not necessary to complete coordination or for the two systems to share spectrum. SpaceX provides no precedent to justify its request for this information, which is highly commercially sensitive, nor does SpaceX volunteer to provide real-time beam steering information for its own system. Under these circumstances, there is no basis for the Commission to require O3b to share this information with SpaceX or any other NGSO applicant.

II. O3B SUPPORTS REASONABLE MEASURES TO ADDRESS THE HUGHES AND VIASAT CONCERNS ABOUT PROTECTING GSO OPERATIONS

O3b agrees with Hughes⁸ and ViaSat⁹ that the Commission must develop effective regulatory measures and enforcement mechanisms to protect GSO satellites from the

⁶ See SpaceX Comments at 5.

⁷ *Id.* at 4.

⁸ Hughes Networks Systems, LLC Comments, File Nos. SAT-PDR-20170301-00023 *et al.*, dated September 25, 2017 (“Hughes Comments”) at 2.

⁹ Consolidated Comments of ViaSat, Inc., File Nos. SAT-AMD-20170301-00026, *et al.*, dated September 25, 2017 (“ViaSat Comments”) at 5-7.

potential for aggregate interference from multiple NGSO systems. O3b and its parent company raised similar concerns in their comments on the applications of other parties in both the Ku/Ka-band NGSO processing round and V-band NGSO processing round as well as in response to the NGSO NPRM.¹⁰ O3b, along with its parent company SES, previously advocated that the Commission establish a framework for NGSO-GSO sharing based on a fully developed record prior to authorizing any V-band NGSO system and maintains that position here.¹¹

In the event that the Commission chooses to grant NGSO V-band application prior to developing V-band service rules, O3b proposes that the Commission include in any grants of these applications conditions that would: 1) incorporate applicable aggregate EPFD limits; 2) require compliance with any rules adopted to address this issue by the Commission in the future; and 3) make clear that the authorization is subject to modification as necessary to keep aggregate interference levels within the specified limits. This approach is consistent with the measures discussed by Hughes and ViaSat.¹²

¹⁰ See Comments of SES S.A. and O3b Limited, File Nos. SAT-PDR-20161115-00108 *et al.*, dated June 26, 2017 at 3-6; See Comments of SES S.A. and O3b Limited, File Nos. SAT-LOI-20170301-00031 *et al.*, dated July 17, 2017 at 3-4; Comments of SES S.A. and O3b Limited in IB Docket No. 16-408, filed Feb. 27, 2017 at 21; SES/O3b NGSO NPRM Reply Comments at 6 n.21.

¹¹ See Reply Comments of SES S.A. and O3b Limited, File Nos. SAT-LOI-20170301-00031 *et al.*, dated August 11, 2017 at 6.

¹² See Hughes Comments at 3; Comments of ViaSat at 7-8.

III. CONCLUSION

For the foregoing reasons, the Commission should reject requests to impose unduly restrictive and unwarranted conditions on O3b. The Commission should continue to develop regulations and mechanisms to ensure that GSO systems are protected from aggregate interference from multiple NGSO systems and that such NGSO systems can coexist, but must do so without unnecessarily burdening NGSO operators.

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CERTIFICATE OF SERVICE

I hereby certify that on this 11th day of October, 2017, I caused to be served a true copy of the foregoing "Response of O3b Limited" by first class mail, postage prepaid, to the following:

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