

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

In the Matter of)	
)	
Mangata Networks LLC)	File No. SAT-PDR-20200526-00054
)	Call Sign S3068
Petition for a Declaratory Ruling Granting)	
Access to the U.S. Market for the)	
Mangata Networks System)	

PETITION TO DENY OR CONDITION OF O3B LIMITED

O3b Limited (“O3b”) requests that the Commission deny, or at a minimum, impose conditions on any grant of, the above-captioned application by Mangata Networks LLC (“Mangata”) for authority to serve the United States using a Ka-band and V-band non-geostationary satellite orbit (“NGSO”) system.¹ Mangata seeks to operate without a requirement to protect O3b and other NGSO systems authorized pursuant to the November 2016 NGSO processing round, but Mangata’s operations as proposed would create harmful interference to O3b’s authorized Ka-band NGSO network. Mangata has not justified its vague requests for waiver of the Commission’s processing round framework and has not demonstrated that it could successfully operate its system absent a waiver. Moreover, Mangata has failed to make adequate showings with respect to its ability to share mobile-satellite service (“MSS”) spectrum with O3b. These defects justify denial of the Application. If the Commission does not reject Mangata’s Application on these grounds, then the Commission must at the very least subject any grant to conditions requiring Mangata to protect O3b’s authorized operations.

¹ *Mangata Networks LLC*, Call Sign S3068, File No. SAT-PDR-20200526-00054 (“Application”).

INTRODUCTION AND SUMMARY

O3b, which began offering Ka-band NGSO service to the United States in 2014, has a strong interest in the Application. Mangata seeks authority for an NGSO system consisting of 567 satellites in medium-earth orbit and 224 satellites in four different highly elliptical orbits. Mangata asks to use Ka-band frequencies in the 17.3-17.7 GHz, 17.7-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz bands for feeder links and service links.² O3b and other parties currently operate in these frequencies, but the Mangata Application never mentions previously authorized systems or commits to protecting them.

This is a fatal omission, as O3b shows herein that Mangata's planned Ka-band operations would harmfully interfere with O3b's NGSO network and threaten the overall quality of service. Mangata's assertion that the Commission should waive all the spectrum sharing provisions in its processing round rules to allow Mangata to operate without constraint is unsupported by any compatibility analysis. In addressing the Amazon Kuiper NGSO application, the Commission has conclusively rejected the idea that later applicants are entitled to treatment on an equal basis with timely participants in a closed processing round.³ Yet Mangata seems to seek even more favorable status – a complete exemption from any sharing obligations. Nothing in the Application comes close to justifying such a drastic departure from Commission rules.

The Application is similarly silent with respect to protecting O3b's authorized MSS operations. Mangata states that it will coordinate with Iridium's use of MSS feeder link spectrum but never acknowledges the need to coordinate with O3b, which is already deploying facilities in these frequencies.

² *Id.*, Narrative at 3.

³ *Kuiper Systems, LLC*, Order and Authorization, FCC 20-102 (rel. July 30, 2020) ("Kuiper").

These defects present ample grounds for dismissal of the Application. At the very least, Mangata must be required to show that it can and will protect the Ka-band operations of O3b and other systems authorized as part of the November 2016 processing round from harmful interference, and any grant of authority to Mangata must reflect that condition.

I. MANGATA’S FAILURE TO SHOWN IT CAN OPERATE IN COMPLIANCE WITH COMMISSION RULES REQUIRES DENIAL OF THE APPLICATION

The Mangata Application reflects a total disregard for the spectrum access regime that governs NGSO systems. Mangata cites the 2017 decision in which the Commission defined the applicable regulatory framework,⁴ but there is no evidence that Mangata has actually read the order, as the company seeks to operate in a manner that would directly violate that framework.

Specifically, the Commission emphasized that its processing round policies are intended “to establish a sharing environment among NGSO systems, to provide a measure of certainty in lieu of adopting an open-ended requirement to accommodate all future applicants,” and to recognize “the need to protect existing expectations and investments.”⁵ To further those objectives, the Commission adopted a default sharing approach in Section 25.261(c), which provides that absent coordination, NGSO systems must equally split spectrum during an event that causes an increase of one system’s noise temperature by more than 6%.⁶ The Commission made clear, however, that this sharing rule would apply only to “qualified applicants in a processing round,” with later applicants considered on a case-by-case basis.⁷ In its recent Kuiper

⁴ Application, Narrative at 13 n.14, *citing* the Ka-band Plan attached as Appendix B to the Commission’s decision in IB Docket No. 16-408, *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) (“NGSO Order”).

⁵ NGSO Order, 32 FCC Rcd at 7829, ¶ 61.

⁶ *See id.* at 7825, ¶ 49; 47 C.F.R. § 25.261(c).

⁷ NGSO Order, 32 FCC Rcd at 7829, ¶ 61.

decision the Commission reaffirmed these principles, denying requests for waiver of the processing round rules and refusing to treat Kuiper as if its application had been timely filed in the NGSO processing round that closed in November of 2016.⁸

In light of this precedent, the Commission must summarily dismiss Mangata's waiver requests, which seek even more radical departures from the processing round rules and lack any valid justification. Unlike Kuiper, which asked to be retroactively inserted in the November 2016 round and to share spectrum under Section 25.261(c) on an equal basis with systems authorized in that round, Mangata appears to be suggesting that its Application should be treated outside of the processing round framework altogether and that it should be exempt from any requirements to modify its operations to accommodate another NGSO system. Mangata asks the Commission to waive both the provisions of Section 25.157 that establish the regime for consideration of NGSO applications timely filed in response to a processing round cut-off notice and the default sharing framework in Section 25.261(c).⁹

The latter request is particularly audacious. As discussed above, the Commission has explicitly held that only qualified participants in a processing round are entitled to even a portion of the spectrum during an inline event described in Section 25.261(c), but Mangata seems to think it should not have to relinquish any spectrum during such an event – an outcome that would give it more favorable status than the November 2016 round participants.

Mangata presents no rationale that could justify such an irrational and unfair result. Case law establishes that a waiver applicant must demonstrate that the requested relief would not undermine the policy objective of the rule in question and would otherwise serve the public

⁸ Kuiper at ¶¶ 2, 33-50.

⁹ Application, Narrative at 16.

interest.¹⁰ Mangata's requests, however, would directly contravene the stated purpose of the processing round framework – to provide certainty to O3b and other systems authorized as part of the November 2016 processing round that are relying on a stable interference environment in making investment decisions and serving customers.

Mangata asserts that “[g]ood faith coordination and the deployment of today's most advanced NGSO FSS technology enable co-frequency operations and in-line avoidance approaches among NGSO licenses,” making compliance with Commission rules on spectrum segmentation or sharing unnecessary,¹¹ but provides no concrete compatibility showing to back up these claims. O3b's analysis of the Mangata system conclusively demonstrates that the proposed operations would create unacceptable levels of interference to O3b's network.

Figure 1 illustrates the impact, comparing a cumulative distribution function (“CDF”) of the interference-to-noise (“I/N”) ratio in the downlink direction for an earth station at 40° N.L. with a 2.4 m parabolic antenna. For the analysis, O3b assumed an interfering EIRP density from the Mangata satellite system into the O3b system of -43.3 dBW/Hz and an interfering EIRP density from O3b toward the Mangata satellite system of -26.6 dBW/Hz. The graph shows that interference would exceed a 6% increase in system noise temperature, corresponding to an I/N of -12.2 dB, 1-4% of the time, causing the O3b system to experience link outages or other performance degradation.

¹⁰ See, e.g., *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

¹¹ Application, Narrative at 16. See also *id.*, Technical Narrative at 41 (“In combination with good faith coordination, the Mangata Networks' NGSO system, which consists of on-board processing and channelization, the use of diversity sites, steerable and shapeable spot beams, and state of the art network control facilities, will be capable of inline interference avoidance over various spectral, temporal and geographic scale and spectrum sharing among other NGSO systems. These design features and commitment to coordination will negate the necessity for band segmentation as defined in §25.261(c).”).

Figure 1 : CDF of I/N Downlink, 17.7-20.2 GHz band

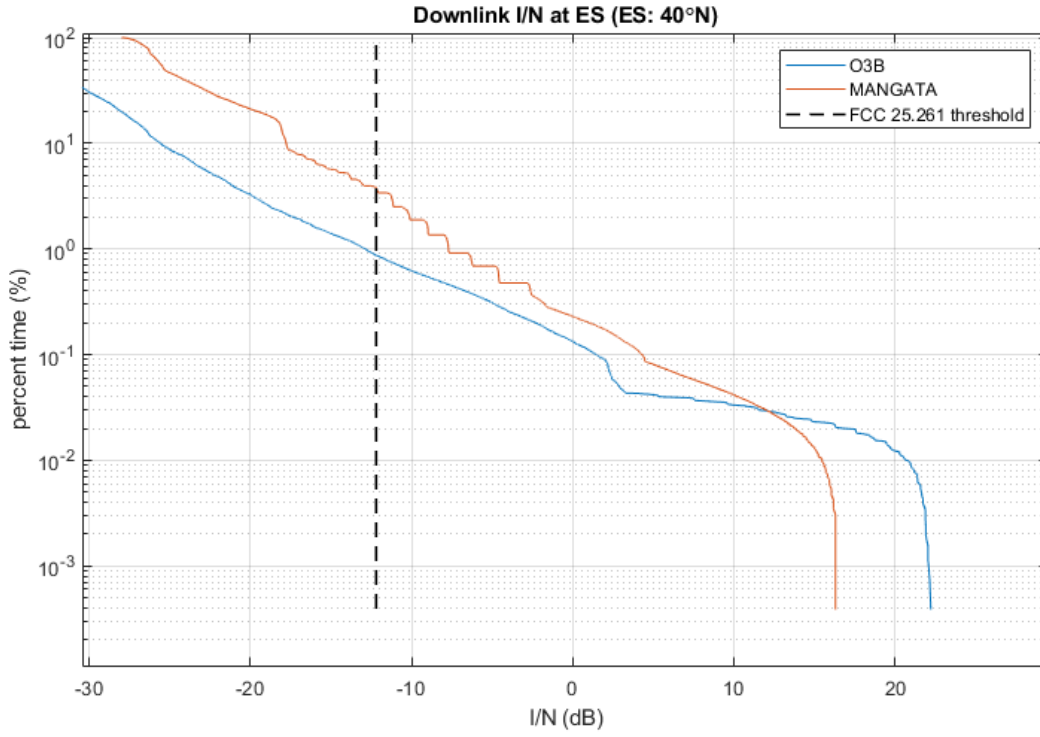
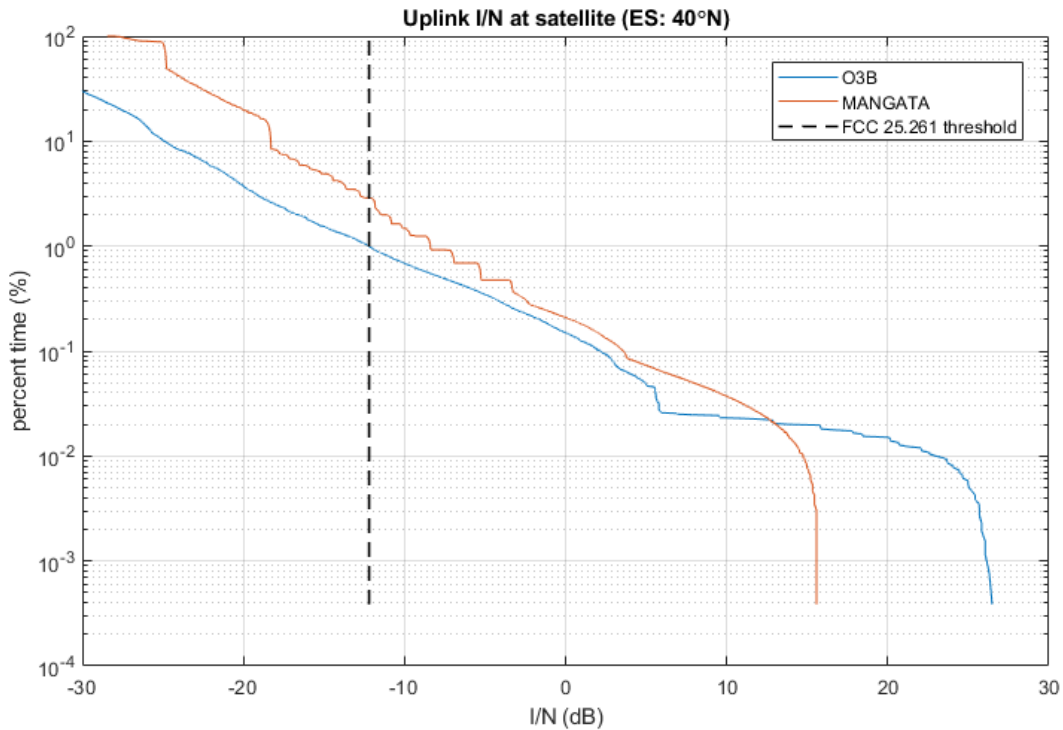


Figure 2 demonstrates interference in the uplink direction with the same earth station location and antenna size as in Figure 1, with an interfering power spectral density of -64.0 dBW/Hz at the input of the antenna port for both systems.

Figure 2 : CDF of I/N Uplink, 27.5-30.0 GHz band



As an applicant in the NGSO processing round that closed in May of 2020, Mangata is not entitled to impose such interference burdens on O3b or any other system authorized in the round that closed in November of 2016. The Commission must reject the Mangata requests for waiver of the processing round structure as directly contrary to the purpose of those rules.

The Application suggests that Mangata cannot fulfill its business plan without these waivers. Specifically, Mangata argues that “band-splitting among multiple NGSO-like constellation applicants does not provide enough spectrum to enable commercial viability for any of the individual applicants.”¹² With respect to systems authorized in the 2016 round, Mangata is not even entitled to a share of the spectrum during inline events, but must fully protect those systems from interference. Because Mangata has not shown that it can successfully operate in compliance with applicable NGSO rules, its Application must be dismissed.

¹² Application, Narrative at 16.

II. THE APPLICATION DOES NOT ADEQUATELY DEMONSTRATE MANGATA’S ABILITY TO SHARE WITH O3B’S MSS OPERATIONS

Mangata has also failed to show that it can share MSS spectrum with O3b. The Application states that Mangata will coordinate its planned operations in this spectrum, but names only Iridium.¹³

This omission must be corrected. As part of the November 2016 Ka-band NGSO processing round, the Commission authorized O3b to provide MSS in the United States supported by feeder links in the 19.4-19.6 GHz and 29.1-29.5 GHz bands.¹⁴ The initial O3b satellites that will utilize this spectrum are already in orbit, and additional spacecraft with these frequencies are scheduled for launch by 2021. Moreover, O3b has earth station applications pending before the Commission seeking to use the NGSO MSS feeder link spectrum.¹⁵ Mangata will need to accommodate these facilities and other O3b gateways as required by Commission rules¹⁶ and should be required to update its sharing analysis accordingly.

III. AT A MINIMUM, THE COMMISSION MUST REQUIRE MANGATA TO PROTECT O3B AND OTHER AUTHORIZED SYSTEMS

If the Commission authorizes the Mangata system despite these flaws, the grant must impose conditions that ensure O3b’s authorized operations will be protected. As a 2020 processing round applicant, Mangata must not cause interference to O3b operations authorized in earlier processing rounds and must be required to accept any interference generated by O3b’s authorized transmissions. Imposing this burden on Mangata is consistent with the express

¹³ See *id.*, Narrative at 14-15, Technical Narrative at 42.

¹⁴ See *O3b Limited*, Order and Declaratory Ruling, 33 FCC Rcd 5508, 5516, ¶¶ 21-22 (2018).

¹⁵ See *O3b Limited*, Call Sign E100088, File No. SES-MOD-20190207-00084, granted in part and deferred in part, Nov. 26, 2019; Call Sign E202133, File No. SES-LIC-20200721-00777.

¹⁶ See, e.g., 47 C.F.R. § 25.250 (framework for sharing among NGSO MSS feeder link earth stations in the 19.3-19.7 GHz and 29.1-29.5 GHz bands).

objective of the Commission's processing round framework,¹⁷ as it would protect O3b's reasonable expectations regarding the enforcement environment and prevent Mangata's operations from impairing O3b's service to customers.

IV. CONCLUSION

Mangata's requests for exemption from established spectrum sharing rules are entirely unjustified and must be rejected. Because the record shows that Mangata's system would create harmful interference to O3b's established Ka-band operations, the Commission should deny the Application or impose conditions to protect O3b's authorized services.

Respectfully submitted,

Of Counsel

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/s/ Suzanne Malloy

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¹⁷ NGSO Order, 32 FCC Rcd at 7829 ¶ 61 (processing rounds are intended to give participants certainty with respect to the sharing environment, and consideration of subsequent applications must take into account "the need to protect existing expectations and investments").

AFFIDAVIT

1. I am Vice President, Regulatory for O3b Limited.
2. I have reviewed the foregoing Petition to Deny or Condition of O3b Limited. 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/ Suzanne Malloy

Date: September 8, 2020

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of September, 2020, I caused to be served a true and correct copy of the foregoing “Petition to Deny or Condition of O3b Limited” on the following:

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*Service via electronic mail due to COVID-19.

/s/ _____
Suzanne Malloy