

July 15, 2019

VIA ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC

Re: *WorldVu Satellites Limited, IBFS File Nos. SAT-MOD-20180319-00022 and SAT-AMD-20180104-00004;*
Kuiper Systems LLC, IBFS File No. SAT-LOA-20190704-00057

Dear Ms. Dortch,

WorldVu Satellites Limited (“OneWeb”) has filed two applications, referenced above, in which it proposes, among other things, to (1) create a new non-geostationary orbit (“NGSO”) satellite system of 1,980 Ku/Ka-band low-Earth orbit (“LEO”) satellites, and (2) add 2,560 mid-Earth orbit (“MEO”) Ku/Ka-band satellites. Space Exploration Holdings, LLC (“SpaceX”) and others have argued that to maintain the integrity of its processing round regime, the Commission must consider these applications in a new processing round, and have also challenged the applications on other technical and substantive grounds.¹

Recently, Kuiper Systems LLC (“Kuiper”), an indirectly wholly owned subsidiary of Amazon.com, Inc., filed the other application referenced above, for a Ka-band NGSO satellite system composed of 3,236 LEO spacecraft. This application comes nearly three years after the deadline established by the Commission for participation in the first Ku/Ka-band NGSO processing round,² and after several of the participants in that round (including SpaceX) have already begun deploying their systems. Yet it also reinforces the arguments for initiating a new processing round in which the new system applications of OneWeb, Kuiper, and other interested parties may be considered in a fair and systematic way consistent with the Commission’s rules and precedent.

Kuiper’s application correctly recognizes that the Commission presumptively will give earlier-authorized systems priority over later applicants such as Kuiper and

¹ See, e.g., Comments of Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20180319-00022 (July 30, 2018) (“SpaceX Comments”); Petition to Dismiss or Defer of SES Americom, Inc. and O3b Limited, IBFS File No. SAT-MOD-20180319-00022 (July 31, 2018) (“SES/O3b Petition”).

² See Public Notice, Satellite Policy Branch Information, 31 FCC Rcd. 7666 (2016) (establishing November 15, 2016 cut-off for additional Ku/Ka-band NGSO applications).

OneWeb, but will consider departing from that presumption on a case-by-case basis. As the Commission stated:

The purpose of the recent processing rounds was 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. . . . While we will initially limit sharing under the $\Delta T/T$ of 6 percent threshold to qualified applicants in a processing round, treatment of later applicants to approved systems must necessarily be case-by-case based on the situation at the time, and considering both the need to protect existing expectations and investments and provide for additional entry as well as any comments filed by incumbent operators and reasoning presented by the new applicant.³

The Kuiper and OneWeb applications confirm the ongoing interest in new NGSO systems comprising thousands of satellites. These new systems raise a host of common questions, including how to address interference caused by introducing more satellites into the same spectrum bands used by existing systems authorized in a prior NGSO processing round, and how to ensure a stable environment for satellite broadband systems by those who filed timely applications in a prior round and have already begun deployment – an important precondition for continued investment.

The best way for the Commission to move forward in situations where multiple operators present similar issues is to consider them side by side in a new processing round and under consistent rules. This new round will both provide the Commission a more complete record to consider these common issues and put all later-filing applicants on equal footing. Further, a new processing round will give other potential new entrants an incentive to file their applications in a timely manner, and thereby promote greater certainty and faster deployment of services to American customers.

A New Processing Round Will Allow the Commission to Address Interference Issues Raised by OneWeb's New System

OneWeb has proposed to deploy a new NGSO system with nearly three times as many LEO satellites and an entirely new layer of MEO satellites that will essentially subsume the system for which the Commission had granted it market access. As commenters have repeatedly demonstrated, the thousands of additional satellites composing OneWeb's new system will cause an enormous increase in in-line interference events for other licensees from the initial processing round.⁴ As the Commission recently

³ ¶ See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed Satellite Service Systems and Related Matters*, 32 FCC Rcd. 7809, ¶ 61 (2017). See also *id.*, ¶ 67 n.150 (similarly providing that an application to modify an authorization issued in the first processing round by increasing the number of satellites in an NGSO system “will be considered on a case-by-case basis as ‘NGSO-like’ applications filed after a processing round”).

⁴ See, e.g., SpaceX Comments at 10-16; SES/O3b Petition at 16-18 and Technical Annex.

confirmed in approving SpaceX's modification that *decreased* the number of satellites in its constellation, ensuring that the number of potential in-line events remains unchanged is "a fundamental element in assessing whether there would be significant interference problems as a result of granting the proposed modification."⁵ Although OneWeb proposed this new system over a year ago, it still has yet to provide any technical demonstration of how it would mitigate the harm its new system will cause to competition.

Fortunately, the Commission has established clear parameters and procedures to address the addition of interference created by proposals like this. As the Commission has repeatedly recognized, license modifications like OneWeb's that add potential interference are to be considered in a new NGSO processing round.⁶ This guiding principle maintains the integrity of the processing round regime by ensuring that modifications are governed by established principles and common parameters. This certainty allows operators to provide service to consumers as quickly as possible without having to constantly second guess an ever-changing spectrum environment. Further, OneWeb has so far been unable or unwilling to provide the types of interference analysis for this new proposed system that it claimed were necessary for the Commission to approve SpaceX's modification.⁷ A new processing round would give OneWeb the opportunity to develop and submit these analyses that it contends are a prerequisite for approval.

Moreover, as Kuiper's recent application demonstrates, the market for NGSO systems is thriving. The Commission should anticipate that new applications for additional systems will continue to arrive as the cost of satellite manufacturing and launch continues to drive downward. A new processing round will allow the Commission to welcome new entrants and their potential for additional competition and to consider those applications in a fair and systematic way.

Considering OneWeb's New System as Part of a New Processing Round Will Clear Up the Complexity of its Milestone Obligations

The Commission crafted its deployment milestone requirements in conjunction with its processing round rules to carefully calibrate the drive for timely provision of service for U.S. consumers with the need to prevent warehousing of spectrum and orbital resources. Unfortunately, OneWeb's attempt to cling to its status in the initial processing round while substituting its authorized constellation with a new one many times larger

⁵ See *Space Exploration Holdings, LLC*, DA 19-342, ¶ 11 (rel. Apr. 26, 2019).

⁶ See, e.g., *Teledesic LLC*, 14 FCC Rcd. 2261, ¶ 5 (IB 1999) ("if the modification application were to present significant interference problems, [the Commission] would treat the modification as a newly filed application and would consider the modification application in a subsequent satellite processing round").

⁷ See, e.g., Letter from William M. Wiltshire to Marlene H. Dortch, IBFS File No. SAT-MOD-20181108-00083 (Apr. 12, 2019) (responding to technical critiques from OneWeb).

would vitiate this careful calibration. As SpaceX has previously shown,⁸ allowing regulatory acrobatics of the kind OneWeb is attempting here would throw open the door to additional regulatory gamesmanship. For example, an applicant could seek authorization for only a few satellites in an initial processing round, only to seek a “modification” that would swell the size of its constellation yet avoid a more appropriately increased deployment requirement. This sort of arbitrage does little to drive actual deployment of constellations, much less the delivery of services for citizens. Moreover, simply setting a new milestone with a new date for the additional satellites is tantamount to treating the application as one for a new system.

This complexity once again makes clear why OneWeb’s application is in fact a proposal for a new system consisting of 1,980 to 4,540 satellites that should not be divided into subparts to skirt Commission rules. Instead of trying to indulge these unnecessary contortions, the Commission can resolve them in a more straightforward manner as part of a new processing round. This would provide OneWeb the chance to rationalize the various applications it currently has pending. The Commission could then consider that new system application along with those of Kuiper and potentially others who file after closure of the initial processing round. This new processing round will keep the integrity of the processing round regime intact while still setting the appropriate incentives to deploy actual constellations in a timely fashion.

A New Processing Round Will Allow the Commission to Consider OneWeb’s Repeated Requests for Large Orbital Buffer Zones Between NGSO Systems

In this and other proceedings, OneWeb persistently calls for large orbital buffer zones to account for its system design that cannot easily interoperate with competing constellations. OneWeb designed its initial 720-satellite system to operate with a jaw-droppingly large variation of ± 75 km from its nominal 1,200 km orbit,⁹ and maintained that it should be given a ± 125 km “buffer zone” of separation from any other NGSO system.¹⁰ The Commission has rightfully declined to grant these requests. Not only would allowing such a large buffer zone empower incumbents to prevent new competition by staking claim to enormous amounts of orbital real estate, it would also discourage operators from investing in technology that can improve the orbital environment.

But Kuiper’s application has created an opportunity for the Commission to confirm its conclusions as part of a new processing round and give certainty to new entrants designing their systems. Kuiper has proposed that its satellites operate in orbits just 40 km above those licensed for use by SpaceX and other operators. If the

⁸ See Letter from Patricia Cooper to Marlene H. Dortch, IBFS File No. SAT-MOD-20180319-00022, at 1-2 (June 27, 2019).

⁹ See, e.g., Letter from Brian D. Weimer to Marlene H. Dortch, IBFS File No. SAT-LOA-20161115-00118, at 10 (Nov. 17, 2017).

¹⁰ *Id.* at 10 n. 20.

Commission were to honor OneWeb's repeated requests for 125 km buffer zones, it would also need to require Kuiper to choose different orbits that separate it from the systems of SpaceX and others. While SpaceX believes this outcome would be inefficient and unnecessary for competent constellations, a new processing round would give the Commission the chance to consider these related issues in tandem.

A New Processing Round Would Give OneWeb the Opportunity to Finally Provide a More Robust Orbital Debris Mitigation Plan to Fully Account for its New System

OneWeb has steadfastly refused to provide complete, updated information on its orbital debris mitigation strategy for its new system. Rather than supplement the analysis it provided as part of its initial application, OneWeb simply asks the Commission – and the public – to take on faith that its new system consisting of 2,000-4,000 satellites will have the same effect on orbital debris as its old system of just over 700 satellites. A new processing round will give OneWeb the opportunity to finally give the public and the Commission the detailed analysis necessary to understand what steps it plans in order to maintain the orbital environment and safeguard lives on the ground.

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OneWeb's application to deploy a new, much larger satellite system has presented a steady stream of difficult issues that cannot be resolved in the context of individual untimely applications. OneWeb has done little to justify either its rationale for remaining in the current Ku/Ka-band NGSO processing round or the disruption its applications would cause in that context. Kuiper's recent application for its own new Ka-band system raises similar questions, but also illuminates a new path forward.

As contemplated under its rules, the Commission should consider both of these new constellation applications – along with applications for any other new systems that emerge – as part of a newly established processing round. In this way, the Commission can continue to welcome new entrants to the NGSO constellation market, give these thorny issues the full hearing they deserve, and create a new round of certainty for all new entrants alike. Ultimately, this new processing round will redound to the benefit of consumers, who will reap the benefits of new competition in the burgeoning NGSO satellite market.

Marlene H. Dortch
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Very best regards,

/s/ David Goldman

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