



December 15, 2020

BY ELECTRONIC FILING

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street, NE
Washington, DC 20554

Re: Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056, *Ex Parte* Presentation

Dear Ms. Dortch:

Viasat, Inc. responds to the letter filed by SES Americom, Inc. and O3b Limited (collectively, "SES") on November 20, 2020. In that letter, SES urges that Viasat's pending modification application be treated as part of the 2020 processing round for non-geostationary orbit ("NGSO") systems.¹

SES made the same misguided argument in the petition it filed against Viasat's application earlier this year.² At that time, Viasat explained that its modification application uses the evaluative approach endorsed by the Commission last year when it granted a similar modification application filed by Space Exploration Holdings, LLC ("SpaceX"),³ and is therefore entitled to similar treatment. More specifically, Viasat demonstrated that its modification application:

- (i) Is subject to evaluation under Section 25.117 of the Commission's rules⁴—and not the Commission's processing round framework, which applies to applications for *new* NGSO authority;⁵

¹ See Letter from SES Americom, Inc. and O3b Limited to FCC, IBFS File No. SAT-MPL-20200526-00056 (Nov. 20, 2020) ("SES Letter"). SES makes similar arguments with respect to a separate application filed by Space Exploration Holdings, LLC. See *id.*; IBFS File No. SAT-MOD-2020-417-00037.

² See Petition to Deny or Condition of O3b Limited, IBFS File No. SAT-MPL-20200526-00056 (Aug. 31, 2020) ("O3b Petition").

³ See *Space Exploration Holdings, LLC*, 34 FCC Rcd 2526 (IB 2019) ("First SpaceX Modification Order").

⁴ 47 C.F.R. § 25.117.

⁵ 47 C.F.R. § 25.157.

- (ii) Proposes changes that would not create significant additional interference to same-round NGSO systems, based on an analysis of predicted aggregate interference-to-noise (“I/N”) levels and the availability of operational tools to maintain those I/N levels within the “interference envelope” of Viasat’s authorized system; and
- (iii) Satisfies the standard set forth in the Commission’s *Teledesic* decision,⁶ entitling Viasat to a grant of its modification application in a manner that maintains Viasat’s status in the 2016/17 processing round and preserves its priority vis-à-vis same-round and later-round NGSO applicants.⁷

The passage of time has not cured the deficiencies in SES’s position, and Viasat’s prior showing remains as compelling now as it was then. That said, in light of SES’s letter Viasat takes this opportunity to reiterate several key points for the Commission’s consideration:

1. Viasat’s modified system would provide significant public interest benefits.

Viasat’s application includes extensive information with respect to its modified system design and establishes the significant public interest benefits associated with that design.⁸ Among other things, Viasat’s modified NGSO system would:

- (i) Utilize extremely high-capacity satellites, each of which is expected to have up to 4 to 5 times the capacity of any low earth orbit satellite proposed to date;
- (ii) Support innovative, affordable, sub-100 ms latency broadband service;
- (iii) Be optimized to cover American homes and small businesses in the contiguous United States (CONUS);
- (iv) Allow the highest standards of space safety to be met for the constellation as a whole, as measured on an aggregate basis; and
- (v) Avoid creating any significant interference problems for other FCC-authorized NGSO systems.

As Viasat explained in its application, its modified system design would be better able to achieve each of these objectives than its currently authorized NGSO system.⁹

⁶ See *Teledesic LLC*, 14 FCC Rcd 2261 (IB 1999) (“*Teledesic Order*”).

⁷ See Consolidated Opposition to Petitions and Response to Comments of Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056 (Sep. 15, 2020) (“*Viasat Opposition*”).

⁸ See Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056, Exh.A at 1 (filed May 26, 2020) (“*Viasat Modification Application*”).

⁹ *Id.*, Exh. A at 4-5.

Tellingly, SES’s letter references the public interest only to express SES’s support for the unspecified “public interest goals” underlying the Commission’s processing round framework.¹⁰ But those goals simply are not implicated by Viasat’s *modification* application;¹¹ as the Commission explained just last year in granting SpaceX’s similar modification application, the processing round framework does not apply to modification applications like Viasat’s.¹² There is no inconsistency in an approach that: (i) utilizes that framework with respect to applications for initial NGSO system authority and (ii) allows operators to modify existing NGSO system authorizations (outside of the processing round framework) as long as they preserve the operating environment established by the processing round in which the underlying NGSO system authorization was granted.

2. NGSO modification applications like Viasat’s are evaluated under the Commission’s *Teledesic* standard.

As noted above, applications to modify existing NGSO systems are evaluated under Section 25.117 of the Commission’s rules and not under its processing round framework.¹³ Section 25.117 provides that an NGSO modification application *will be granted* unless the application: (i) seeks to increase authorized bandwidth or (ii) proposes changes that would not serve the public interest. Neither factor applies to Viasat’s application.¹⁴

In evaluating whether a proposed NGSO system modification would serve the public interest, the Commission applies the standard set forth in its *Teledesic* decision. In *Teledesic*, the Commission explained that the public interest is generally served by allowing NGSO licensees to update their system designs over time as long as proposed modifications would not create any significant interference problems, make sharing with other NGSO systems significantly more difficult, or otherwise conflict with Commission policies.¹⁵

The Commission reaffirmed the applicability of the *Teledesic* standard just last year when it modified SpaceX’s NGSO system authorization. In doing so, the Commission focused on

¹⁰ See SES Letter, Att. at 1.

¹¹ What one potentially *could* implement if a modification application were treated as one for a new NGSO system and evaluated as part of a later processing round is irrelevant. See *id.* The applicability of Section 25.117 is not dependent on an applicant’s commercial prospects. More fundamentally, if the Commission were to somehow evaluate Viasat’s modification application as part of a new processing round, the resulting uncertainty as to whether Viasat would have sufficient and reliable access to spectrum could actually impede its ability to implement the modified system.

¹² See, e.g., *First SpaceX Modification Order* ¶ 6 (explaining that NGSO system modification requests are evaluated under Section 25.117—and not the modified processing round procedures established by Section 25.157); *Space Exploration Holdings, LLC*, 35 FCC Rcd 5649 (IB 2020) (“*SpaceX Recon Order*”).

¹³ For this reason, references in SES’s letter to the prior treatment of Kuiper’s *initial* system application, see SES Letter, Att. at 1, are inapposite.

¹⁴ 47 C.F.R. § 25.117(d)(2) (specifying that “[a]pplications for modifications of space station authorizations will be granted” except where narrow exceptions apply).

¹⁵ *Teledesic Order* ¶¶ 5, 7.

whether the proposed modification would cause a significant increase in interference to “other NGSO FSS system[s] in the same processing round”¹⁶ The Commission answered this question in the negative, relying on SpaceX’s assessment of aggregate changes in predicted interference to same-round NGSO FSS systems, measured with reference to predicted aggregate I/N levels.

Viasat’s modification application uses the same approach to demonstrate that its modified system would not cause a significant increase in interference to other same-round systems. Indeed, Viasat utilized this approach *because* it had been endorsed by the Commission in the context of SpaceX’s application. Viasat’s analysis should be similarly accepted by the Commission and used as a basis for granting Viasat’s modification application under the *Teledesic* standard.

3. Viasat’s modification application satisfies the *Teledesic* standard and therefore should be granted in a manner that maintains Viasat’s status in the 2016/17 processing round.

Viasat has demonstrated that its modified system application meets the *Teledesic* standard. Among other things:

- Viasat has established that it will maintain the same expected operating environment with respect to other NGSO systems from the 2016/17 processing round, using the same I/N-based methodology accepted by the Commission just last year when it approved SpaceX’s modification application (see above), and currently under consideration in SpaceX’s pending third modification application.¹⁷
- Viasat has more specifically established that no other same-round system would be required to reduce spectrum more often as a result of the proposed modification.¹⁸ To the contrary, Viasat’s modified system would provide it with increased satellite diversity opportunities, reducing the potential for band-splitting events.
- Viasat has established that its modified system would be no more susceptible to interference than its currently authorized system, for reasons similar to those accepted by the Commission in granting SpaceX’s modification application last year.¹⁹

¹⁶ *First SpaceX Modification Order* ¶ 11.

¹⁷ *Id.* (relying on SpaceX assessment of aggregate changes in predicted interference into other NGSO FSS systems, measured with reference to predicted aggregate interference-to-noise levels).

¹⁸ Viasat’s modified system has been designed and will be operated such that the probability of exceeding the 6% $\Delta T/T$ threshold, above which parties are required to either coordinate or split the spectrum (*i.e.*, engage in band-splitting), is not increased. See Viasat Modification Application, Exhibit B, at 12-18.

¹⁹ Viasat would continue to operate at currently authorized PFD levels (mitigating the potential for additional downlink interference) and its earth stations could transmit at currently authorized power levels to offset any

- Viasat has established that it would employ a variety of operational tools—including dynamic power control, avoidance angles, and the number of co-frequency satellites serving a given location on the Earth at a given time—to ensure the aforementioned requirements are met, consistent with flexibility routinely afforded by the Commission to SpaceX and other NGSO operators.

Notwithstanding SES’s complaints, Viasat’s explanation of the tools it will use operationally to stay within applicable I/N limits is consistent with Commission precedent and an even more complete showing than was made when the Commission granted SpaceX’s modification application last year. In that case, the Commission granted the modification without requiring or evaluating such operational information. Similarly, the Commission has routinely afforded NGSO operators significant flexibility in determining how they will stay within applicable EPFD limits, and without requiring or evaluating information about how they will do so. There is no reason to treat Viasat’s case differently.

SES’s letter does not include any new technical analysis. Rather, it asserts, in perfunctory fashion, that Viasat’s proposed modification would increase the number of in-line events with the O3b system. In doing so, SES incorrectly conflates the concepts of *in-line events* and *band-splitting events*, as it has done previously.²⁰

In-line events occur whenever two spacecraft are aligned, and may or may not result in interference to either system. For this reason, under the Commission’s rules and precedent, it is the potential for *band-splitting events* (which are triggered by a significant increase in I/N, and would require other same-round systems to reduce spectrum) that is relevant. SES has consistently ignored this critical distinction, as Telesat has aptly detailed in its recent *ex parte* filing, which criticizes SES’s mis-application of these concepts in the context of Telesat’s own modification application.²¹

Viasat has demonstrated that its proposed modification would not increase the number of band-splitting events or otherwise create significant additional interference to same-round systems, as measured with reference to predicted aggregate I/N levels. As noted above, this is precisely the approach endorsed by the Commission last year when it approved SpaceX’s modification application.²²

additional uplink interference. See Viasat Opposition at 34-36. The Commission accepted a similar showing in SpaceX’s case. See *First SpaceX Modification Order* ¶ 14; *SpaceX Recon Order* ¶ 15.

²⁰ See Viasat Opposition at 28-29 (addressing analysis presented in O3b Petition at 7). O3b made similar arguments in its Reply, which again focused on the potential for *in-line events* and not *band-splitting events*. See Reply of O3b Limited, IBFS File No. SAT-MPL-20200526-00056, at 11-13 (Sep. 25, 2020).

²¹ See Letter from Telesat Canada to FCC, IBFS File No. SAT-MPL-20200526-00053, Exh. B at 7-20 (Dec. 9, 2020).

²² See Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20181108-00083 (filed Nov. 8, 2018), Att. A at 24-37; see also *SpaceX Recon Order* ¶ 11 (confirming that “I/N . . . is the trigger for a potential need to split bandwidth for NGSO networks”).

And, notably, in granting SpaceX’s modification application, the Commission made clear that SpaceX would maintain the same spectrum-sharing priority as other operators authorized in the 2016/17 processing round—and would not be required to protect NGSO systems authorized in later processing rounds, or operate on a non-interference basis as to any other operator.²³ Viasat is entitled to similarly maintain its processing-round status and spectrum-sharing priority when its modification is granted.

Instead of addressing Viasat’s showing or the recent SpaceX precedent, SES asserts that Viasat’s reliance on *Teledesic* is misplaced because the Commission allegedly “denied Teledesic’s claim of coordination priority over later filed systems[.]”²⁴ SES ignores that the Ka-band service rules in place when *Teledesic* was decided expressly required Teledesic—the only “first-round” Ka-band NGSO operator—to share the burden of coordination with later-round NGSO systems.²⁵ Notably, when the Commission updated its Ka-band service rules a few years later to implement an initial band-splitting approach, it explained that nominal coordination priority afforded to Teledesic was “of little significance” because all operators would share spectrum equally in the event of an in-line interference event with “no difference in quantity or kind.”²⁶ In any event, the Commission has since updated its Ka-band service rules again and made clear that “sharing under the $\Delta T/T$ of 6 percent threshold [is limited] to qualified applicants in a processing round,” with treatment of later applicants reviewed on a “case-by-case” basis.²⁷

4. The Commission has explained that the “magnitude of change” proposed in an NGSO modification application should *not* dictate whether it should be granted.

SES alleges that Viasat’s modified system would “bear no meaningful resemblance” to its currently authorized system, and suggests that Viasat’s application should therefore be evaluated as part of the 2020 processing round.²⁸ But the Commission has found that modification applications that propose substantial changes to an authorized system: (i) should still be evaluated under Section 25.117 and not the Commission’s processing round framework; and (ii) still satisfy the requirements of that rule, and the *Teledesic* standard, as long as proposed changes would not cause a significant increase in interference to other NGSO FSS

²³ See *First SpaceX Modification Order* ¶ 11 (evaluating potential impact on “other NGSO FSS system[s] in the same processing round . . .”) and ¶ 35 (requiring SpaceX to comply with the band-splitting procedures set forth in Section 25.261 only with respect to systems authorized in the 2016/17 processing round).

²⁴ SES Letter, Att. at 6.

²⁵ See *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s rules to Redesignate the 27.5-29.5 GHz Frequency Band*, 12 FCC Rcd 22310, at ¶ 38 (1997).

²⁶ See *Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-Band*, 18 FCC Rcd 14708, at ¶ 27 (2003) (“2003 Ka-Band NGSO Order”).

²⁷ See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, 32 FCC Rcd 7809, at ¶ 61 (2017) (“2017 NGSO Order”).

²⁸ SES Letter, Att. at 1.

systems in the same processing round. Stated differently, the “magnitude of change” proposed in a modification application simply is not determinative under the *Teledesic* standard.

Notably, *Teledesic* itself involved a modification application proposing to change nearly everything about the relevant system.²⁹ And just last year the Commission applied the *Teledesic* standard to allow SpaceX to make significant changes to its system design.³⁰ Subsequently, the Commission granted a second SpaceX modification application.³¹ Taken together, those changes have resulted in a system whose configuration and operating parameters are vastly different from the one the Commission initially authorized. Nevertheless, after applying the *Teledesic* standard, the Commission allowed SpaceX to maintain its same procedural rights with respect to other systems authorized in the 2016/17 processing round.

The Commission has also allowed applicants to increase the number of satellites in a planned constellation without affecting its processing-round status. For example, the Commission granted an amendment to Orbcomm’s then-pending “Little LEO” first round application to significantly increase the number of satellites in its constellation, lower its satellite orbits, and increase satellite transmit power levels (among other changes).³² Applying the more stringent standard for amendments, the Commission found that the proposed changes, taken as a whole, would not “increase the potential for harmful interference to existing or planned systems.”³³ This decision is entirely consistent with the *Teledesic* standard.

Viasat’s modification application is entitled to similar treatment. The fact that Viasat is proposing to *increase* the number of satellites in its constellation does not alter the applicability of Section 25.117 or the *Teledesic* standard.³⁴ If “counting the satellites” were the test, then having fewer satellites but causing significantly more interference would pass muster, which demonstrably is not the case. The key question is *not* how many satellites would be operated, but whether the operation of those satellites would cause significant additional interference to same-round operators. And, as noted above, Viasat has demonstrated that its modified system would not cause such additional interference, and thus should be granted.

²⁹ Teledesic proposed to change the number of satellites in its constellation, the number of orbital planes in which they would operate, the number of satellites per plane, the altitude at which they would operate, the inclination of orbital planes, relevant emission designators, and the design of intersatellite links. See *Teledesic Order* ¶ 3.

³⁰ See *First SpaceX Modification Order* ¶ 6.

³¹ *Space Exploration Holdings, LLC*, 34 FCC Rcd 12307 (IB 2019).

³² See *Orbital Communications Corporation*, 9 FCC Rcd 6476, at ¶¶ 18-19 (1994).

³³ See *id.* at ¶ 26 (emphasis supplied) (citing 47 C.F.R. § 25.116).

³⁴ SES incorrectly suggests that a footnote in the Commission’s 2017 *NGSO Order* was intended to overturn the Commission’s longstanding, holistic approach to modification applications under *Teledesic*. See SES Letter, Att. at 4; 2017 *NGSO Order* ¶ 67 n.150. Viasat has already explained that this footnote addresses the fundamentally different situation in which a party seeks to “add back” satellites eliminated from its authorization because it failed to meet applicable deployment milestones. See Viasat Opposition at 17-18.

