

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

| | | |
|--|---|-----------------------------------|
| In the Matter of |) | |
| |) | |
| Viasat, Inc. |) | File Nos. SAT-PDR-20161115-00120, |
| |) | SAT-APL-20180927-00076 |
| Amendment to Petition for Declaratory |) | |
| Ruling Seeking Access to the U.S. Market |) | Call Sign S2985 |
| for the VIASAT-NGSO Satellite Network |) | |
| |) | |
| |) | |

OPPOSITION TO PETITION TO DISMISS OR DEFER AND REPLY TO COMMENTS

Viasat, Inc. (“Viasat”) opposes the petition of Hughes Network Systems, LLC (“Hughes”)¹ requesting that the Commission either dismiss or defer consideration of Viasat’s petition for U.S. market access for the VIASAT-NGSO satellite network, as amended by Viasat’s September 27, 2018 amendment (the “Amendment”) to reduce and reconfigure the number of active satellites in the constellation (as amended, the “Petition”). Viasat also replies to the comments of SpaceX, which observe that the Amendment should be deemed to be “minor” for purposes of the Commission’s processing rules because it does not alter the frequencies, and maintains the service area, of the initially-planned network.²

Hughes mischaracterizes the Amendment as a “major amendment” and therefore incorrectly argues that the Petition should be treated as a newly filed application and thus rendered ineligible for consideration in the current Ku/Ka-band NGSO processing round. Notably, Hughes does not demonstrate that the Amendment increases the potential for

¹ Comments and Petition to Dismiss or Defer of Hughes Network Systems, LLC, File Nos. SAT-PDR-20161115-00120 & SAT-APL-20180927-00076, Call Sign S2985 (filed Dec. 3, 2018) (“Hughes Comments”).

² See Comments of Space Exploration Technologies Corp., File No. SAT-APL-20180927-00076, Call Sign S2985, at 4 (filed Dec. 3, 2018) (“SpaceX Comments”).

interference or otherwise adversely affects any other authorized NGSO network or pending NGSO application. Hughes's request therefore should be denied, and Viasat's Petition should be expeditiously granted.

I. OVERVIEW

As detailed in the Amendment, Viasat proposes to reduce the number of active satellites in its NGSO constellation from 24 to 20 and reconfigure the orbits into four, instead of three, orbital planes, using the very same inclination angle and 8,200 km altitude as originally proposed. Notably, the Amendment does not change the coverage area of the network, nor does it change any radiofrequency characteristics of any satellite in the constellation, including any satellite's use of dynamically steered beams.³ In fact, reconfiguring the 20 active satellites into four orbital planes (instead of three) allows the same network coverage to be achieved with fewer active in-orbit resources. The orbital configuration for both the original 24-satellite constellation and the amended 20-satellite constellation enables the satellites to trace the entire Earth's surface between 87° South latitude and 87° North latitude over time, resulting in whole-Earth coverage within those latitudes. In other words, the satellites in the amended constellation will occupy the same range of positions vis-à-vis the Earth as the satellites in Viasat's initially-planned network.

As explained in the Amendment, the radiofrequency characteristics of the individual satellites and the overall coverage area remain unchanged, and the Amendment presents no potential for increased interference.⁴ The Amendment presents the results of Viasat's analysis of the number of satellites visible above the horizon under both configurations and illustrates the

³ See Petition, Exhibit A: Description of Amendment at 15.

⁴ See *id.*

magnitude of the reduction at a range of latitudes.⁵ Simply reconfiguring the orbital planes using the same inclination and altitude does not materially change the interference analyses previously provided.⁶ As demonstrated in the Amendment, the results of the EPFD calculations revised to reflect the amended constellation are unchanged from those of the original constellation.⁷ Rather, the Amendment reduces the potential for in-line events with other NGSO systems because fewer satellites will now be operating, and therefore reduces the potential for interference with other NGSO systems in the processing round.

II. THE AMENDMENT IS NOT A “MAJOR AMENDMENT”

Section 25.116(b) provides the rules for major amendments of applications for space stations and earth stations. Specifically, Section 25.116(b)(1) provides that an amendment will be deemed to be a major amendment if the amendment “increases the potential for interference, or changes the proposed frequencies or orbital locations to be used.”⁸

Hughes claims that Viasat’s proposal to add an orbital plane will cause the satellites in the VIASAT-NGSO constellation to “move through space in a different configuration than originally proposed,” and equates such a change to a change in the proposed “orbital location,” which Hughes asserts is a major modification.⁹ Hughes suggests the Amendment “will affect spectrum sharing analyses, including calculating the potential for in-line interference caused by Viasat’s proposed new orbital pattern.”¹⁰ In particular, Hughes claims that Viasat has not

⁵ *See id.* at 16.

⁶ *See id.* at 15.

⁷ *See id.* at 7-14.

⁸ 47 C.F.R. § 25.116(b)(1).

⁹ Hughes Comments at 3.

¹⁰ *Id.*

provided sufficient technical information to allow third parties to evaluate the potential impact of the Amendment on other NGSO networks.¹¹

It bears emphasis that Hughes does not allege that the Amendment affects Hughes in any way.¹² Notably, Hughes is not an applicant for an NGSO system. Moreover, Hughes acknowledges that Section 25.116(b) is “intended to prevent NGSO applicants from seeking material changes affecting *other NGSO proposals under consideration in the same processing round.*”¹³ Indeed, the Commission has made clear that Section 25.116 is not intended to affect consideration of an application within a processing round simply because the amendment is alleged to affect parties, such as Hughes, outside of the processing round.¹⁴

Significantly, no NGSO applicant has raised any concerns about the Amendment. In fact, the only other party to comment on Viasat’s Amendment is SpaceX, which agrees that the Amendment simply is not a major amendment under Section 25.116(b). SpaceX, having access only to the technical information and demonstrations that Viasat provided on the record, was able to discern that the Amendment will “reduc[e] the potential number of in-line interference events for other NGSO systems by proposing fewer satellites in view from a given point on the Earth.”¹⁵ SpaceX’s conclusion, along with a plain reading of the Petition (as amended), should

¹¹ *See id.* at 4.

¹² Moreover, Hughes’s petition for relief is unsupported by an affidavit and fails to demonstrate that it is a “party in interest” in this proceeding, as required by Section 25.154(a)(4). *See* 47 C.F.R. § 25.154(a)(4).

¹³ Hughes Comments at 2 (emphasis added).

¹⁴ *See O3b Limited*, IBFS File Nos. SAT-MOD-20160624-00060, SAT-AMD-20161115-00116, SAT-AMD-20170301-00026, SAT-AMD-20171109-00154, Call Sign S2935, Order and Declaratory Ruling, FCC 18-70 ¶ 39 (rel. June 6, 2018).

¹⁵ SpaceX Comments at 4.

show the baseless nature of Hughes’s claim that Viasat has provided insufficient information about the impact of the Amendment on other NGSO networks.¹⁶

Hughes provides no technical analysis to support its assertion that the Amendment somehow would increase the potential for interference. Hughes relies merely on a tenuous legal argument that adding an orbital plane to an NGSO network is the same as changing the orbital location of a GSO system, and thus constitutes a major amendment under Section 25.116(b).

A. Part 25 Uses the Term “Orbital Location” in the Context of GSO Spacecraft

Read within the context of Part 25, Section 25.116(b)’s reference to “orbital location” is applicable only to GSO satellites—not the NGSO network at issue in this case. Notably, Section 25.114(b)(5)(i) requires applicants for GSO space stations to identify the “orbital location” requested,¹⁷ which is defined with reference to a fixed location relative to the Earth¹⁸ (*i.e.*, a specified longitude on the Earth’s surface, capable of serving no more than about 1/3 the Earth’s surface from that location). Thus, a change of orbital location could adversely affect the ability of another GSO operator to serve the same (or a nearby) geographic area from another orbital location of its choosing.

In the case of the VIASAT-NGSO constellation, the ground tracks of both the original and the amended constellations are designed to trace over *the entire Earth’s surface* between the North and South latitudes corresponding to the same specified inclination angle. That is, these

¹⁶ See Hughes Comments at 4.

¹⁷ See 47 C.F.R. § 25.114(b)(5)(i) (requiring applicants for GSO space stations to identify the *orbital location* requested, along with station-keeping range and accuracy to which antenna axis attitude will be maintained).

¹⁸ See 47 C.F.R. § 25.103 (defining “Geostationary-orbit (GSO) satellite” as a “geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth’s equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth”).

NGSO spacecraft would not operate at fixed locations relative to the Earth, but instead would operate at constantly varying locations relative to Earth, but at the same altitude. This is why NGSO networks are defined by different parameters, rather than the “orbital location” used to define a GSO system. As noted above, salient parameters such as orbital inclination, eccentricity, altitude of the satellites, and overall coverage area of the VIASAT-NGSO network, are unaffected by the Amendment. In short, no other NGSO applicant’s ability to serve the same (or any nearby) geographic area in the same frequencies is adversely affected by the Amendment. Thus, the cases that Hughes cites regarding changes in the orbital locations of GSO systems are simply inapposite.¹⁹

B. Treating the Amendment as “Minor” Is Consistent with Commission Precedent

Treating the Amendment as a minor amendment is consistent with Commission precedent, which recognizes that changes to orbital configurations of an NGSO network can occur without any increased potential for interference. Specifically, the Commission has deemed an amendment to an NGSO application to be “minor” even where significant changes to the orbital parameters were proposed, including an increase in the geographic coverage of each satellite, changes in altitude, and changes in inclination, because the changes on balance did not increase the potential for interference.²⁰ The Commission evaluated the amendment and concluded there was no increase in potential interference under Section 25.116(b)(1), without taking into consideration the changes in the physical “locations” of the satellites in space.

¹⁹ See Hughes Comments at 3-4 & n.15 (citing cases addressing Lockheed Martin and Columbia Communications Corporation amendments to change the orbital locations of GSO-like spacecraft on the GSO arc).

²⁰ See *Orbital Communications Corporation*, Order and Authorization, 13 FCC Rcd 10828 ¶ 24 (1998).

Thus, the relevant consideration in this case is whether any potential for interference is occasioned by the Amendment. As explained above, the satellites in the amended constellation will occupy the same range of positions vis-à-vis the Earth as the satellites in Viasat's initially-planned network. Because there are fewer satellites in the amended constellation, the overall number of in-line events with other NGSO networks will be lower, thereby reducing the number of incidents of band-splitting or coordination that will be required with other NGSO networks in the processing round. Furthermore, because the technical parameters of each satellite in Viasat's constellation will remain the same, the results of the sharing analyses remain unchanged from Viasat's initially-planned network, and the Amendment results in no increase in potential interference.

C. Even Being Deemed a “Major” Amendment Would Not Change the Result Here

Hughes appropriately recognizes that deeming the Amendment as “major” would not be the end of the analysis. Rather, the analysis would need to continue to determine whether an exception under Section 25.116(c) applies, including the exception for an amendment that resolves frequency conflicts with authorized stations or pending applications but that does not create new or increased frequency conflicts.²¹ As Viasat explains here and in the Amendment, the proposed reduction in the number of satellites in the VIASAT-NGSO constellation reduces the number of in-line events, and this helps resolve frequency conflicts with other NGSO networks. The Amendment does not create new or increased frequency conflicts. Hughes does not demonstrate otherwise.

²¹ See *id* at 4 (citing 47 C.F.R. § 25.116(c)(1)).

III. CONCLUSION

Viasat's Amendment to its pending application for an NGSO network does not change the coverage area of the network, nor does it change any radiofrequency characteristics of any satellite in the constellation. It reduces the number of active satellites, and, in order to maintain the same network coverage as originally planned, the Amendment reconfigures the satellites into four orbital planes instead of three, using the same inclination angle. No one, including Hughes, has demonstrated that doing so increases the potential for interference. The Amendment is fully consistent with Commission precedent and rules allowing minor amendments to NGSO applications in a processing round. Therefore, Hughes's request to dismiss or defer processing of Viasat's Petition should be summarily denied, and the Petition should be expeditiously granted.

Respectfully submitted,

/s/

Christopher J. Murphy
Associate General Counsel, Regulatory
Affairs
Daryl T. Hunter
Chief Technical Officer, Regulatory Affairs
VIASAT, INC.
6155 El Camino Real
Carlsbad, CA 92009

John P. Janka
Elizabeth R. Park
LATHAM & WATKINS LLP
555 Eleventh Street, NW, Suite 100
Washington, DC 20004

December 18, 2018

DECLARATION

I hereby declare that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing Opposition to Petition to Dismiss or Defer and Reply to Comments (“Opposition and Reply”) of Viasat, Inc., that I am familiar with Part 25 of the Commission’s rules, that I have either prepared or reviewed the engineering information submitted with this Opposition and Reply, and that it is complete and accurate to the best of my knowledge, information and belief.



A handwritten signature in blue ink that reads "Daryl T. Hunter". The signature is written over a horizontal line.

Daryl T. Hunter, P.E.
Chief Technical Officer, Regulatory Affairs
ViaSat, Inc.
6155 El Camino Real
Carlsbad, CA 92009

December 18, 2018

CERTIFICATE OF SERVICE

I, Kayla Ernst, hereby certify that on this 18th day of December, 2018, I served a true copy of the foregoing Opposition to Petition to Dismiss or Defer and Reply to Comments via first-class mail upon the following:

Jennifer A. Manner
Jodi Goldberg
HUGHES NETWORK SYSTEMS, LLC
11717 Exploration Lane
Germantown, MD 20876

Tim Hughes
Patricia Cooper
SPACE EXPLORATION TECHNOLOGIES CORP.
1155 F Street, NW
Suite 475
Washington, DC 20004

William M. Wiltshire
Paul Caritj
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, NW
Suite 800
Washington, DC 20036

Counsel to SpaceX

_____/s/
Kayla Ernst