## Exhibit A: Description of Amendment

Viasat's pending Petition for Declaratory Ruling ("Petition") seeks access to the United States for a nongeostationary orbit ("NGSO") satellite network operating under authority of the government of the Netherlands (the "VIASAT-NGSO" satellite network).[1] This amendment updates the Petition to reflect the current design of the VIASAT-NGSO satellite network, which has evolved since the Petition was filed with the Commission. More specifically, this amendment implements the following technical changes:

(i) The number of active satellites in the VIASAT-NGSO constellation has been reduced from 24 to 20;

(ii) The number of orbital planes in the VIASAT-NGSO constellation has been increased from 3 to 4; and

(iii) The number of satellites per orbital plane in the VIASAT-NGSO constellation has been reduced from 8 to 5.

As explained herein, these changes reduce the potential for interference into other satellite networks.

Given the limited nature of this amendment, it does not restate the initial Petition in its entirety. As such, the updated technical information provided herein should be read in conjunction with the Technical Annex included in Viasat's initial Petition, as well as the accompanying Schedule S, which has been amended and restated to reflect the changes described above.

## I. UPDATES TO THE VIASAT-NGSO TECHNICAL ANNEX

Viasat's updated constellation requires corresponding updates to certain sections of the Technical Annex included in Viasat's Petition (as set forth below).

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[1] *See* Viasat, Inc. Petition for Declaratory Ruling, IBFS File No. SAT-PDR-20161115-00120 (filed Nov. 15, 2016).

### A. §25.114(d)(1) Overall description of system facilities, operations and services and explanation of how uplink frequency bands would be connected to downlink frequency bands (Section I.A of the Technical Annex)

Section I.A of the Technical Annex describes the constellation contemplated by Viasat at the time the Petition was filed. As noted above, updated plans for the VIASAT-NGSO satellite network: (i) reduce the number of MEO FSS satellites in the constellation from 24 to 20; (ii) increase the number of orbital planes from 3 to 4; and (iii) reduce the number of satellites per plane from 8 to 5.[2] Section I.A of the Technical Annex is hereby amended to reflect these changes.

In addition, Section I.A describes the anticipated coverage area of the VIASAT-NGSO satellite network. The network's overall coverage area is not impacted by this amendment; the updated VIASAT-NGSO satellite network will continue to provide broadband access and communications to customers located in CONUS, Hawaii, Alaska, Puerto Rico, and the U.S. Virgin Islands (as well as locations outside of the United States) with the same 25° elevation mask. A snapshot of the updated coverage footprints is shown below:

[2] Viasat may also launch one or more orbital spares per plane (which would not be active from an RF perspective and for which market access is not being sought).

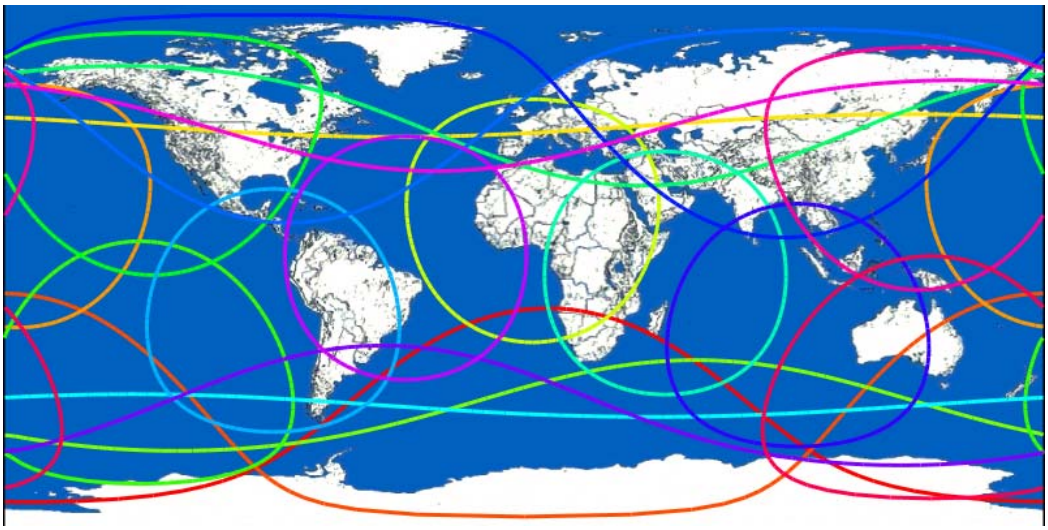

**Figure 1: Snapshot of VIASAT-NGSO Coverage Footprints**

Other aspects of Section I.A remain accurate and are not impacted by this amendment. For example, this amendment does not impact: (i) the frequency bands to be used by the VIASAT-NGSO satellite network; (ii) the orbital inclination, eccentricity, or altitude of the satellites; (iii) the design or internal operation of any satellite's payload (including the manner in which it connects uplink and downlink channels); (iv) any satellite's use of dynamically steered beams; (v) planned NGSO-to-GSO operations; or (vi) planned ground-segment operations.

### B. Additional Demonstration Required by §25.145(c) (Old Rules) / §25.146 (New Rules) (Section II of the Technical Annex)

Section II of the Technical Annex demonstrates that the VIASAT-NGSO satellite network would comply with Section 25.145(c) of the Commission's rules, which was effective when the initial Petition was filed. That section required FSS operators to meet certain domestic and international coverage thresholds. Subsequent to the filing of the initial Petition, the Commission eliminated Section 25.145(c) and imposed new and different requirements in Section 25.146. Accordingly, this amendment replaces Section II of the Technical Annex with the following technical analysis.

Section 25.146(a) provides that a NGSO FSS applicant proposing to operate in the 10.7-30 GHz frequency range must certify that it will comply with applicable PFD and EPFD levels. Viasat hereby certifies that the updated VIASAT-NGSO satellite network will so comply.

Section 25.146(b) provides that a NGSO FSS applicant proposing to operate in the 18.8-19.3 GHz or 28.6-29.1 GHz band segment must demonstrate that the proposed system is capable of providing FSS on a continuous basis throughout the fifty states, Puerto Rico, and the U.S. Virgin Islands.[3] The updated VIASAT-NGSO satellite network will exceed these coverage requirements, as reflected in the plot provided below. The plot depicts the minimum number of satellites in the VIASAT-NGSO modified constellation visible above a 25° elevation mask as a function of end-user earth station latitude. Notably, the VIASAT-NGSO satellite network's coverage is independent of end-user longitude and is identical in the Northern and Southern hemispheres. This plot shows that at least one VIASAT-NGSO satellite will be visible at every location on the Earth.

[3] The most northern and southern points in the fifty states, Puerto Rico and the U.S. Virgin Islands are Point Barrow, Alaska (71°23′20″N, 156°28′45″W) and Southwest Point, U.S. Virgin Islands (17°40′26″N, 64°54′03″W), respectively.

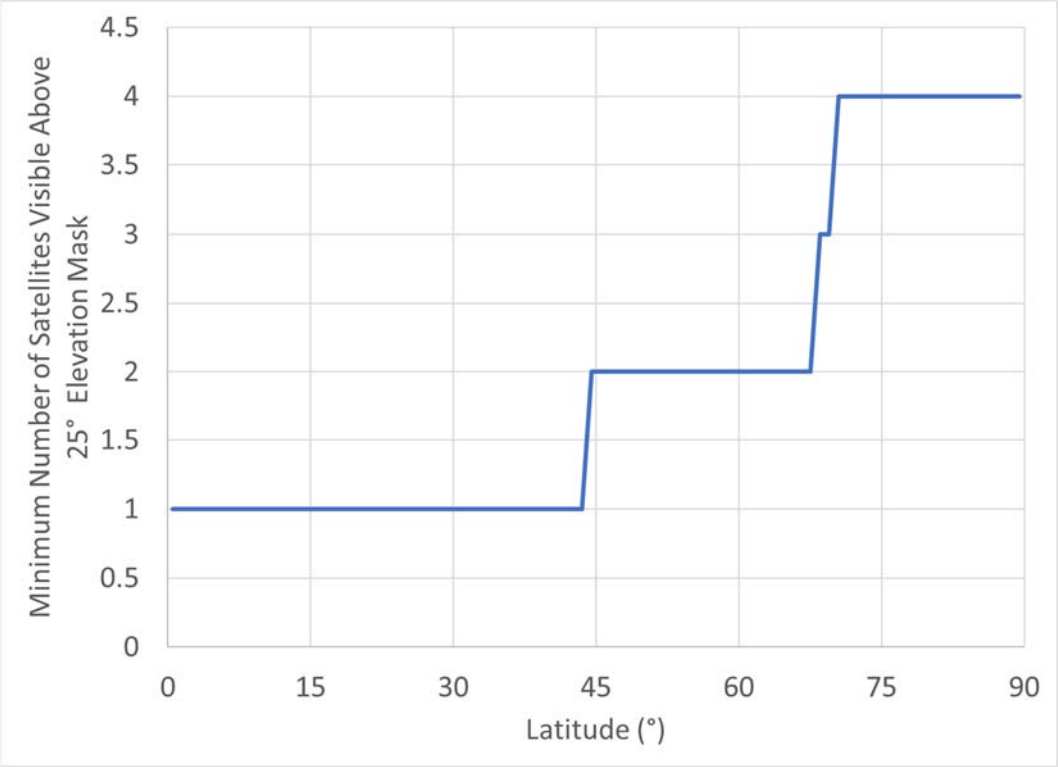


**Figure 2: Minimum Number of Visible Satellites Above 25º Elevation Mask by Latitude**

Section 25.146(c) provides that an authorized NGSO FSS operator may not provide service in the 10.7-30 GHz frequency range until it has received a "favorable" or "qualified favorable" finding from the ITU Radiocommunication Bureau regarding its compliance with applicable ITU EPFD limits. In addition, a market access holder in these bands must: (i) communicate the ITU finding to the Commission; and (ii) submit the input data files used for the ITU validation software. Viasat will comply with these requirements.

Section 25.146(e) provides that an NGSO FSS licensee or market access recipient must ensure that ephemeris data for its constellation is available to all operators of authorized, in-orbit, co-frequency satellite systems in a manner that is mutually acceptable. Viasat will comply with this requirement.

### C. Compliance with Part 25 Subpart C—Technical Standards (Section III of the Technical Annex)

Section III of the Technical Annex demonstrates that the VIASAT-NGSO satellite network will comply with various technical standards set forth in Subpart C of Part 25 of the Commission's rules. The updated VIASAT-NGSO satellite network remains compliant with all applicable Subpart C technical standards, and the analysis set forth in Section III of the Technical Annex remains valid. This amendment updates that analysis in the following respects.

First, Section III.B.1 references 24 active satellites in the VIASAT-NGSO constellation. The modified constellation now includes 20 active satellites (as described above). Notably, this change has no impact on compliance with the PFD limits set forth in Section 25.208, or the related analysis set forth in the Technical Annex.

Second, Section III addresses the ability of the VIASAT-NGSO satellite network to comply with the default service rules set forth in Section 25.217. Subsequent to the filing of Viasat's Petition, the Commission amended Section 25.217 such that it no longer incorporates by reference (*i.e.,* requires compliance with) Sections 25.142(d), 25.143(b)(2)(ii) (for NGSO FSS systems), and 25.210(d). As such, the corresponding analysis in the Technical Annex is no longer necessary.

Third, Viasat substitutes the following language for Section III.D of the Technical Annex to reflect recent changes in the Commission's rules:

> As the VIASAT-NGSO network will operate under a grant of market access in the U.S., Section 25.261 applies to VIASAT-NGSO operations with earth stations with directional antennas in the United States. Viasat will coordinate in good faith the use of commonly authorized frequencies.

In the event that Viasat is unable to reach a coordination agreement with any other NGSO FSS network(s) in a commonly authorized frequency band, Viasat will utilize only a portion of that band (as required by the Commission's rules) whenever the ΔT/T of an earth station receiver or a space station receiver (for a satellite with onboard processing) of either network exceeds 6% due to interference from emissions originating in the other network.

VIASAT-NGSO will only operate in its assigned portion of the frequency band while the ΔT/T of 6 percent threshold is exceeded and will not resume operations throughout the broader frequency band until the threshold is no longer exceeded.

**D. EPFD Compliance (Exhibit 1 to the Technical Annex)**

Exhibit 1 to the Technical Annex demonstrates Viasat's ability to comply with applicable EPFD limits. This amendment does not impact Viasat's compliance with those limits.

While the Exhibit 1 conclusion regarding EPFD limits remains unaffected, the inputs to that analysis have changed, as reflected in the modified input files included with this amendment. Out of an abundance of caution, Viasat also includes the following figures, which replace those provided in Exhibit 1 of the Technical Annex:

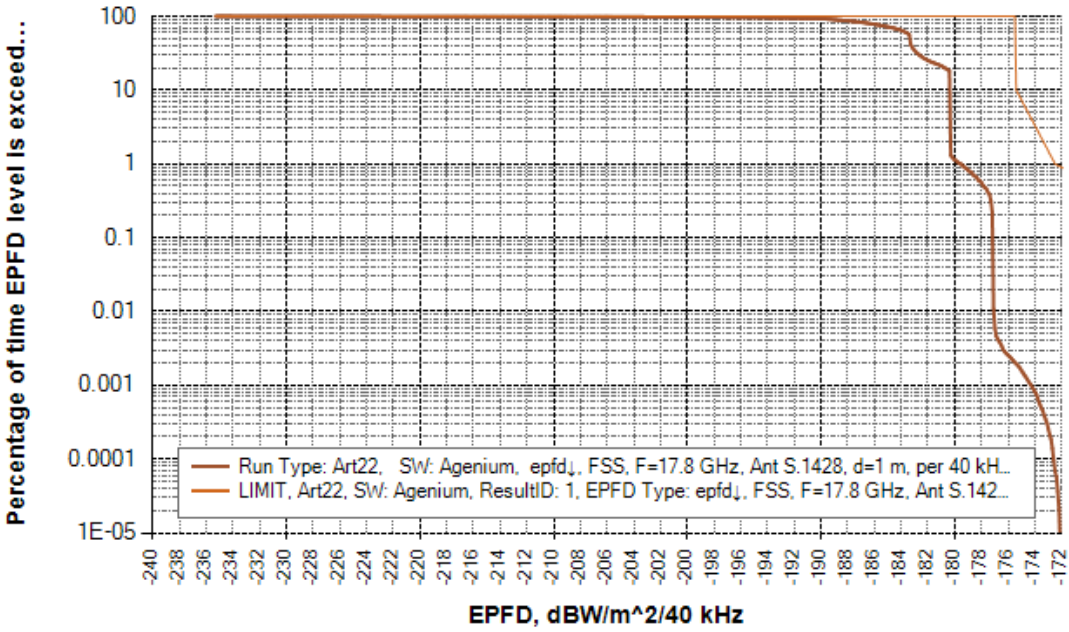


**Figure 3: 1 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

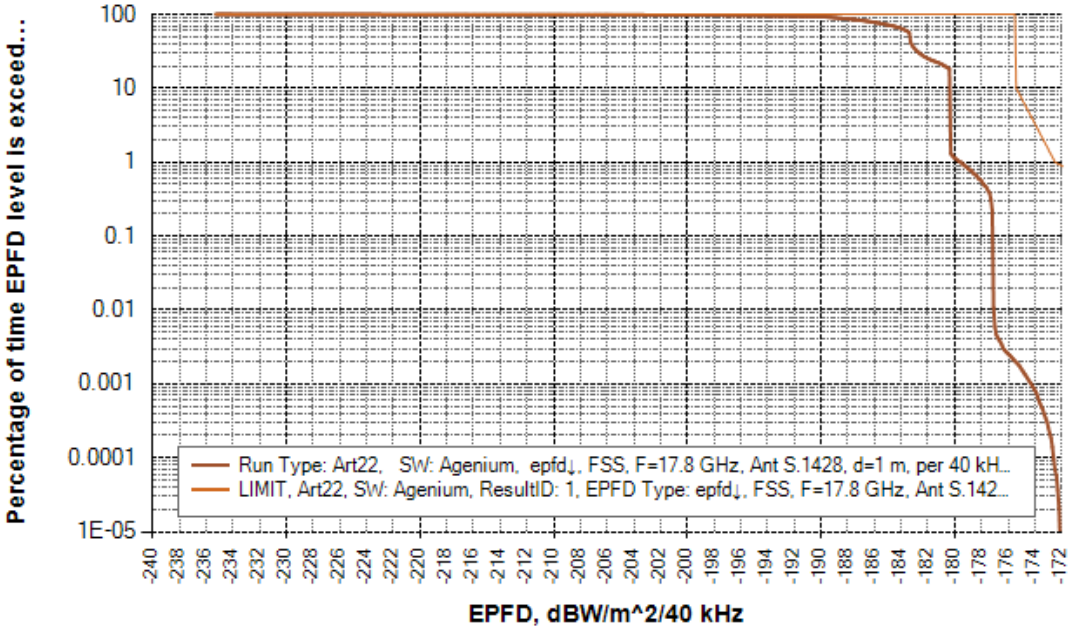


**Figure 4: 2 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

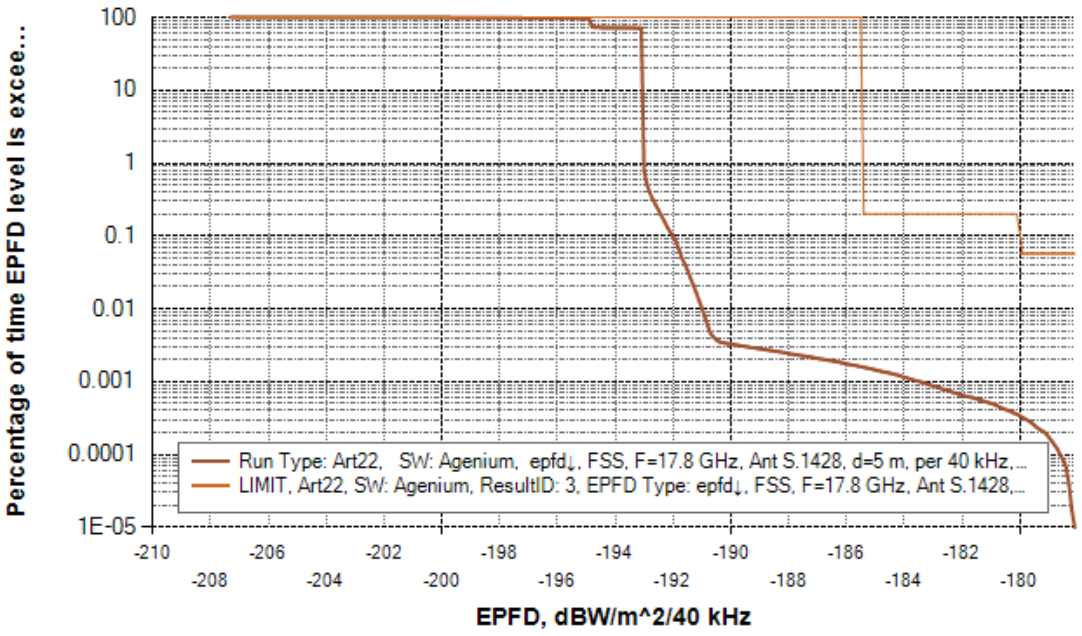


**Figure 5: 5 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

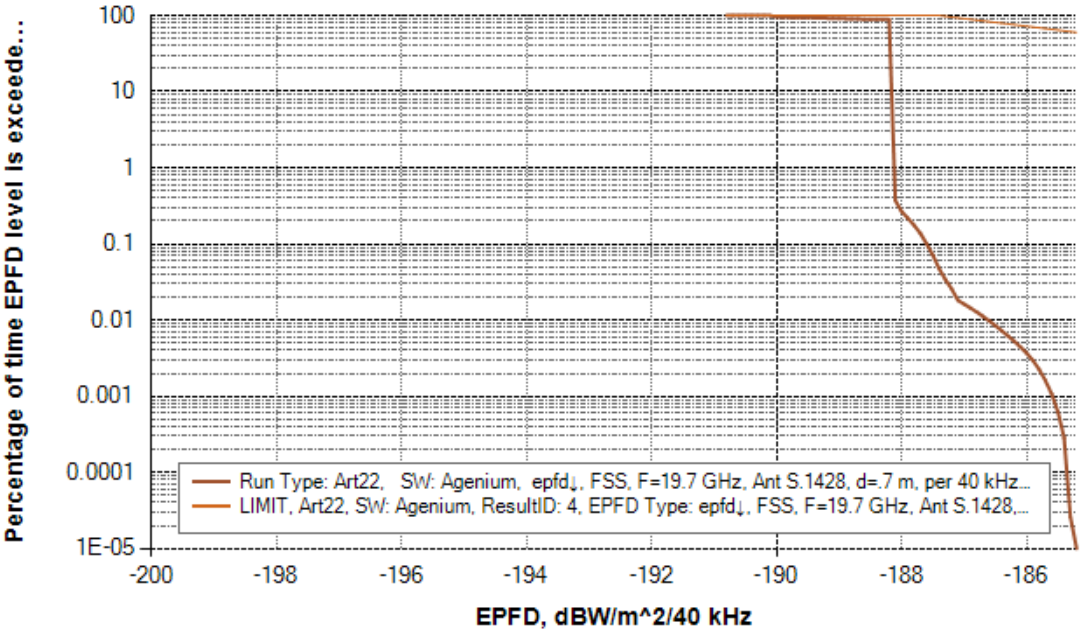


**Figure 6: 0.7 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

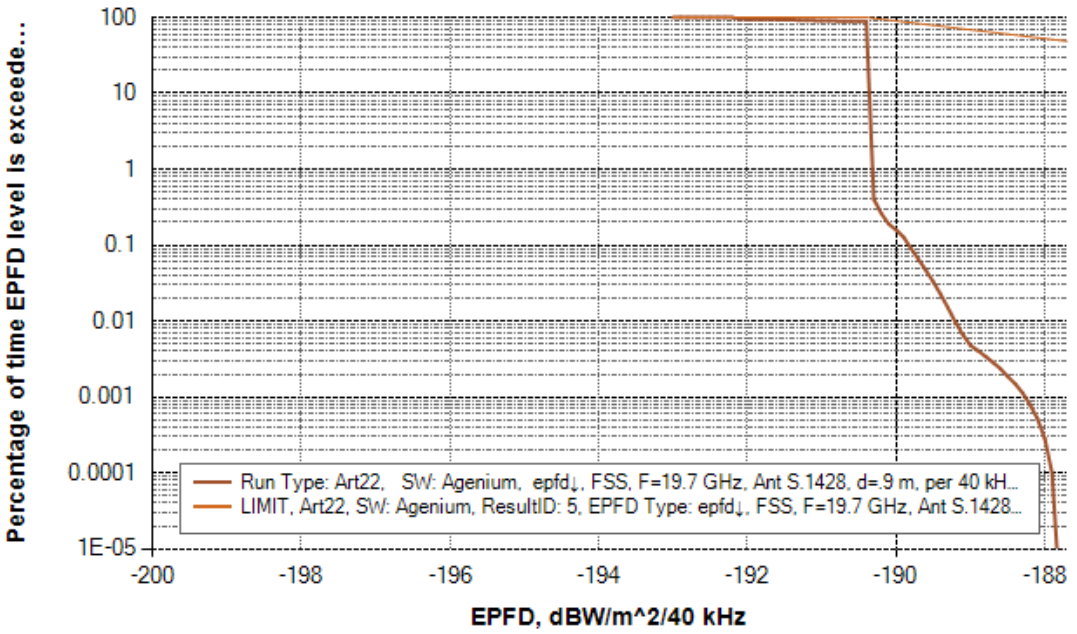


**Figure 7: 0.9 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

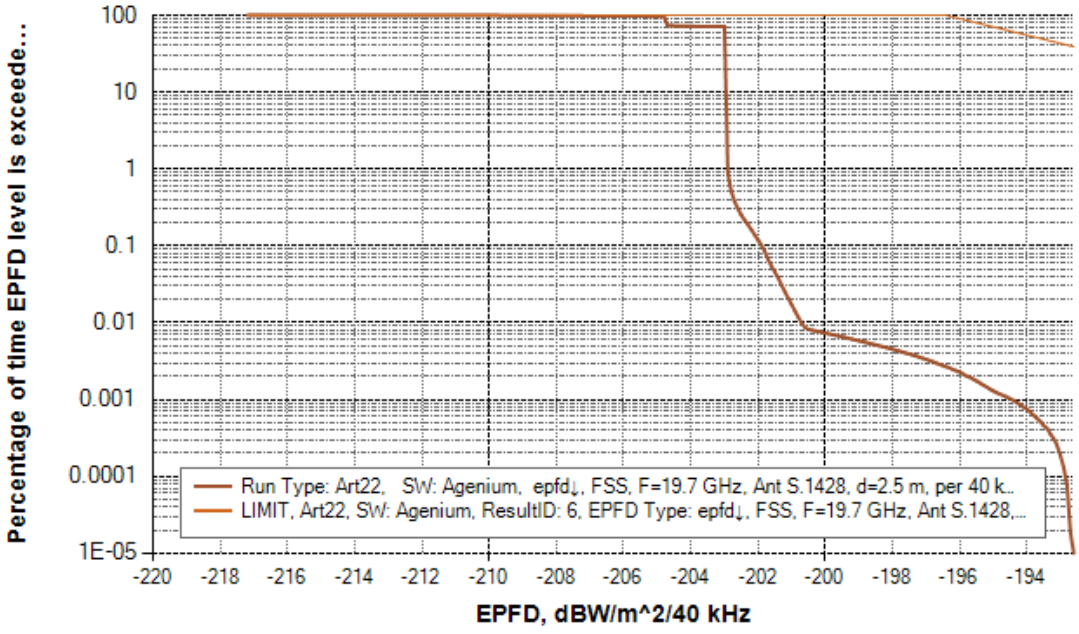


**Figure 8: 2.5 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

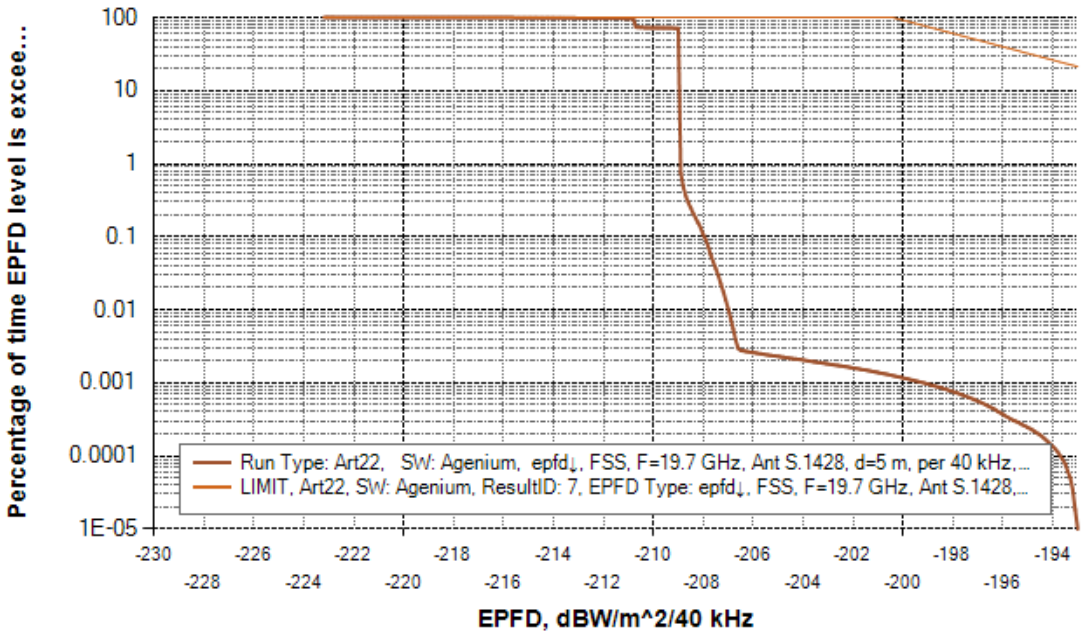


**Figure 9: 5 meter GSO Rx reference antenna; 40 kHz reference bandwidth**

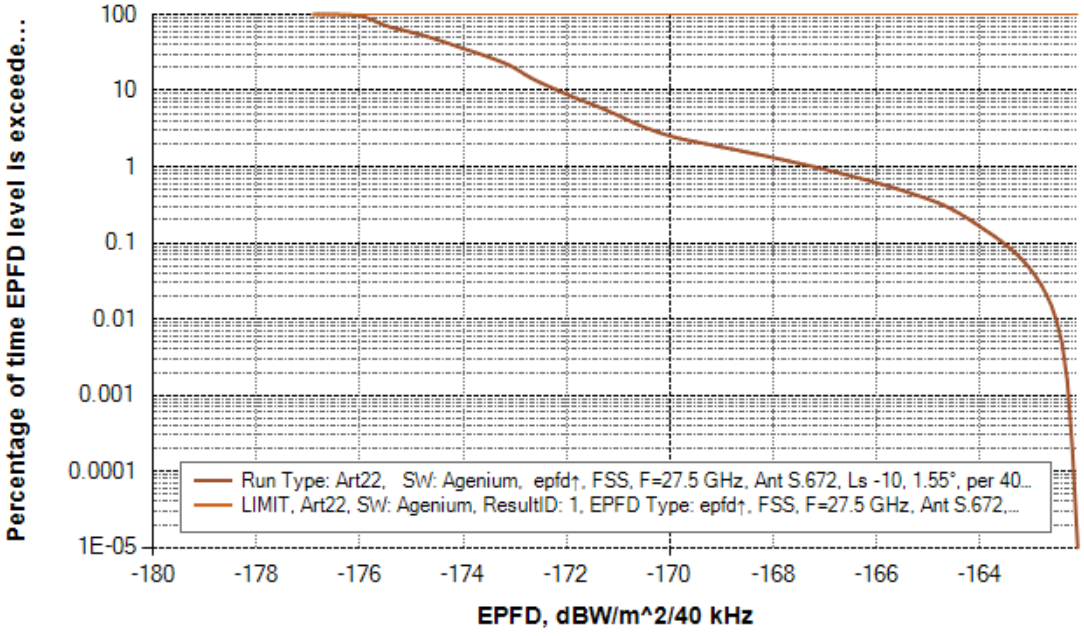


**Figure 10: 27.5-28.6 GHz. 30 cm uplink antenna, 40 kHz reference bandwidth**

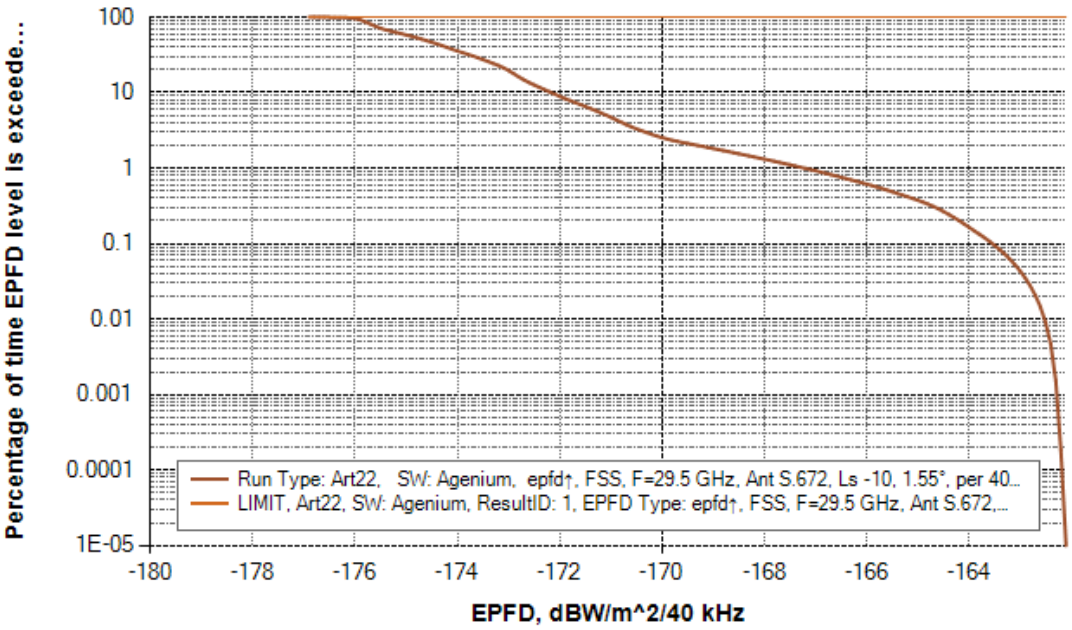


**Figure 11: 29.5-30 GHz. 30 cm uplink antenna. 40 kHz reference bandwidth**

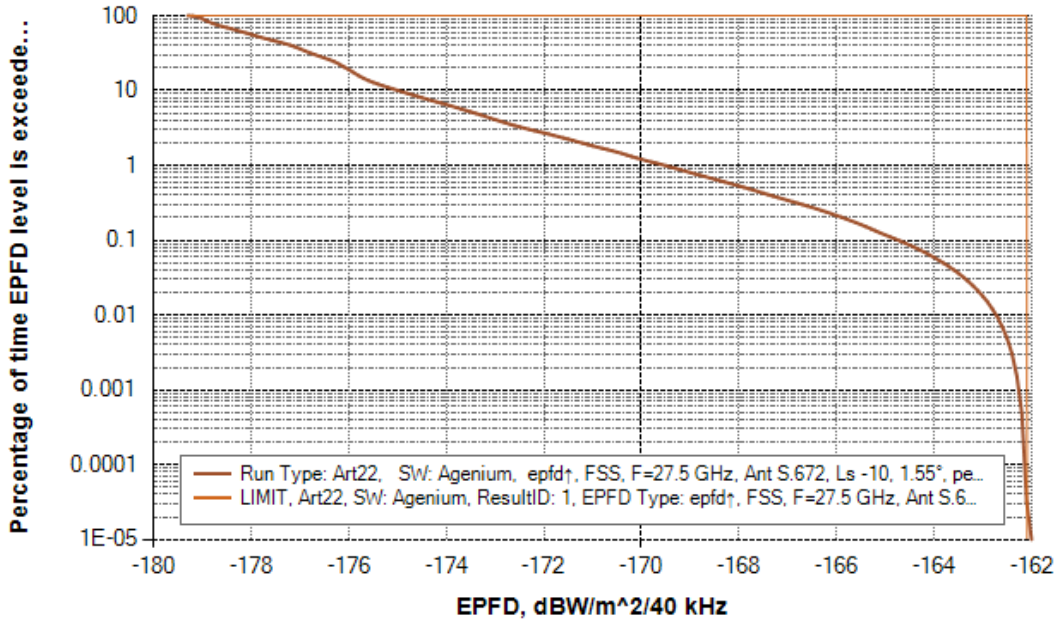


**Figure 12: 27.5-28.6 GHz. 60 cm uplink antenna. 40 kHz reference bandwidth**

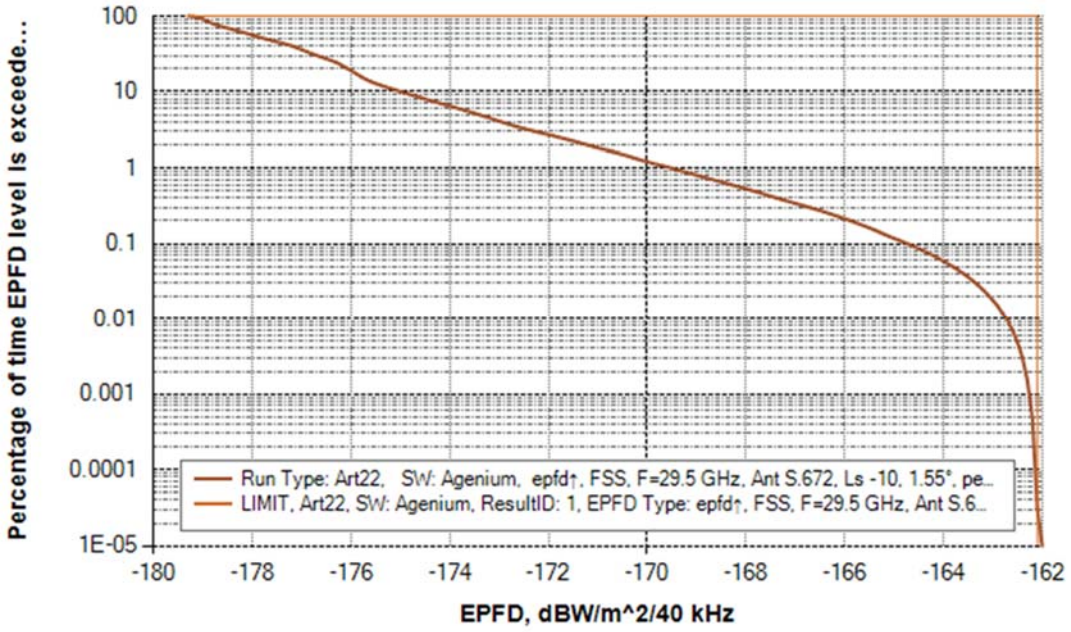


**Figure 13: 29.5-30 GHz. 60 cm uplink antenna. 40 kHz reference bandwidth**

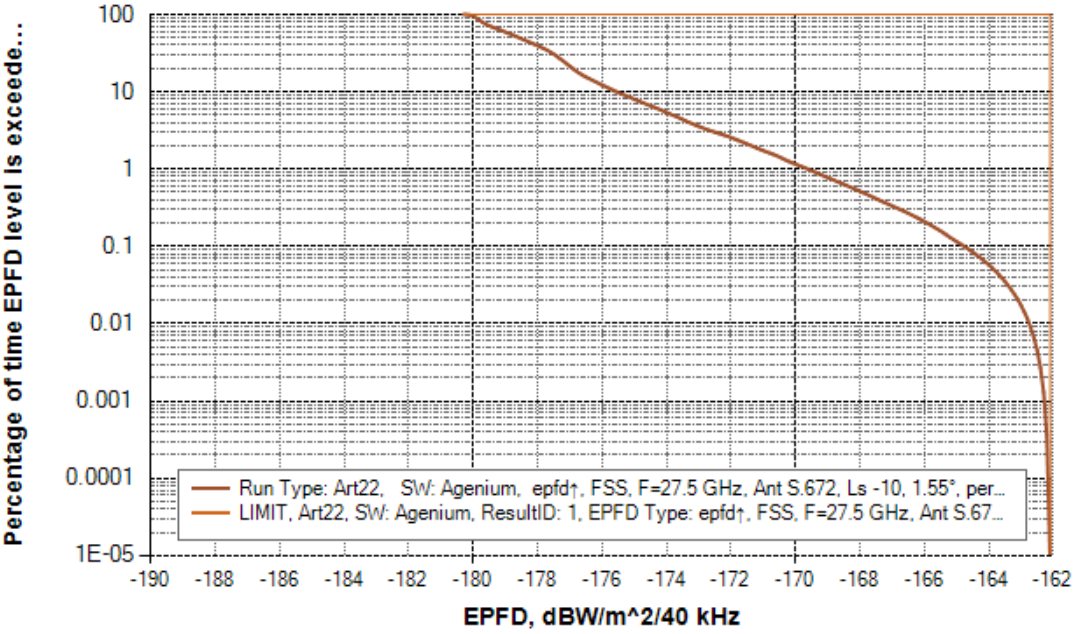


**Figure 14: 27.5-28.6 GHz. 7 m uplink antenna. 40 kHz reference bandwidth**

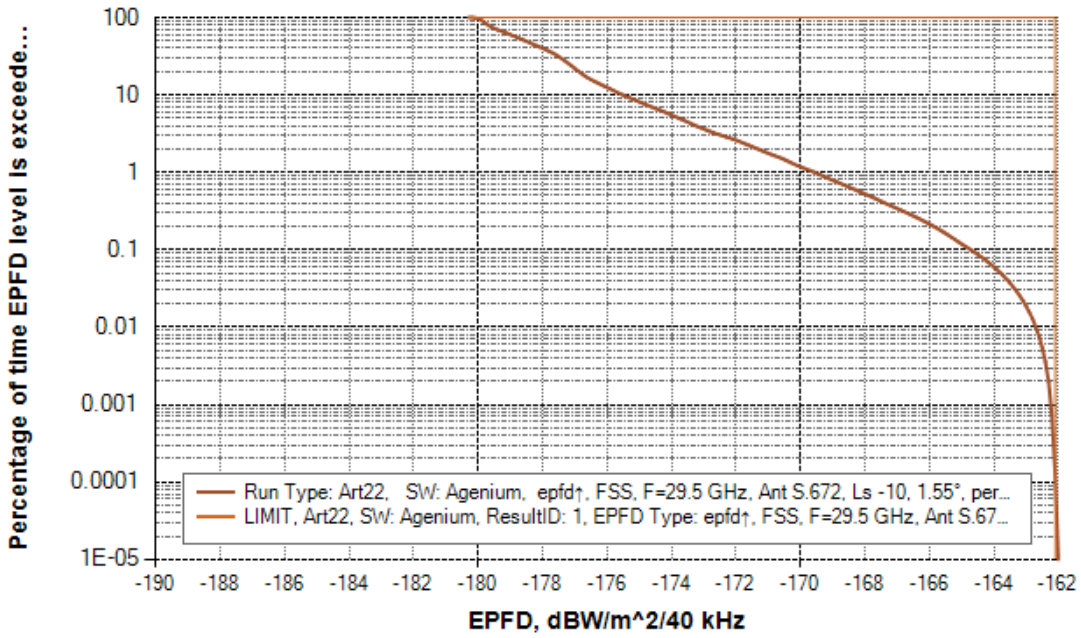


**Figure 15: 29.5-30 GHz; 7 m uplink antenna. 40 kHz reference bandwidth**

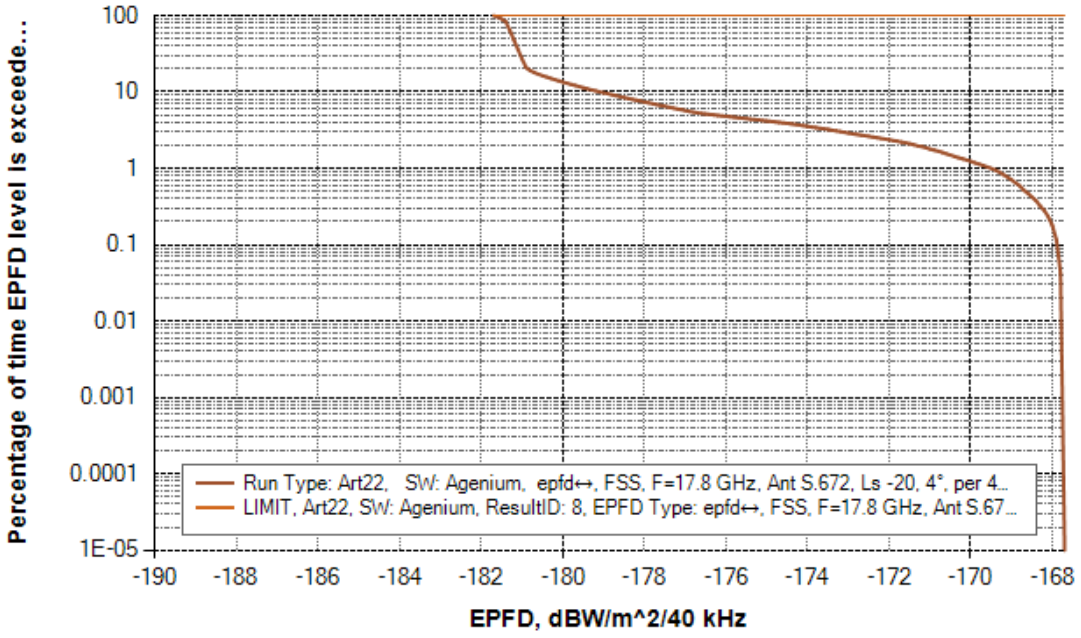


**Figure 16: Inter-satellite EPFD result; 40 kHz reference bandwidth**

### E. Technical Analyses that Are *Not* Impacted by the Instant Amendment

This amendment has no impact on most sections of the Technical Annex, including: (i) Section I.B, which includes a discussion of orbital debris mitigation and post-mission disposal; (ii) the sharing discussion presented in Section IV of the Technical Annex; (ii) the Schedule S Notes provided in Section V of the Technical Annex. Similarly, this amendment has no impact on additional technical information submitted by Viasat subsequent to the filing of its Petition—*e.g.,* in response to questions from staff, satellite-to-satellite technical information submitted in responsive pleadings.

## II. THIS AMENDMENT DOES NOT INCREASE INTERFERENCE POTENTIAL

This amendment does not increase the potential for harmful interference from the VIASAT-NGSO satellite network.[4] The updated VIASAT-NGSO satellite network has the exact same emission and reception parameters as that proposed in Viasat's initial Petition. Among other things, satellite antenna beam patterns and emission masks are unchanged. And Viasat's updated satellite network will still communicate only with earth stations that can see a satellite above a 25° elevation mask, and will continue to avoid the GSO arc with a 5° avoidance angle in frequency bands were that is required.

Furthermore, satellites in the updated VIASAT-NGSO constellation will occupy the same range of orbital positions as Viasat's initially planned network. The 24-satellite constellation described in the Petition consisted of three planes with an 87° inclination angle and 8,200-km altitude, and did not use a repeating ground track. As a result, over time every location on the sphere centered on the Earth with radius 14,578.137 km, between 87° South latitude and 87°

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[4] *See* 47 C.F.R. § 25.116(b)(1) (amendments "major" if they increase the potential for interference).

North latitude, will be occupied by a VIASAT-NGSO satellite. The updated 20-satellite constellation described in this amendment consists of four planes with the same 87° inclination angle and 8,200-km altitude and similarly will cover every location over time.

This amendment simply reduces the number of active satellites in Viasat's planned constellation and reflects corresponding adjustments to their configuration within the constellation. At bottom, this change reduces the potential for in-line events with other NGSO systems.

Namely, as the number of active satellites is reduced from 24 to 20—a 17% reduction—the potential for frequency conflicts with other NGSO systems is reduced. The average number of VIASAT-NGSO satellites visible above the horizon (0° elevation mask) is shown in the following figures. For all latitudes, the number of potentially active satellites is reduced.

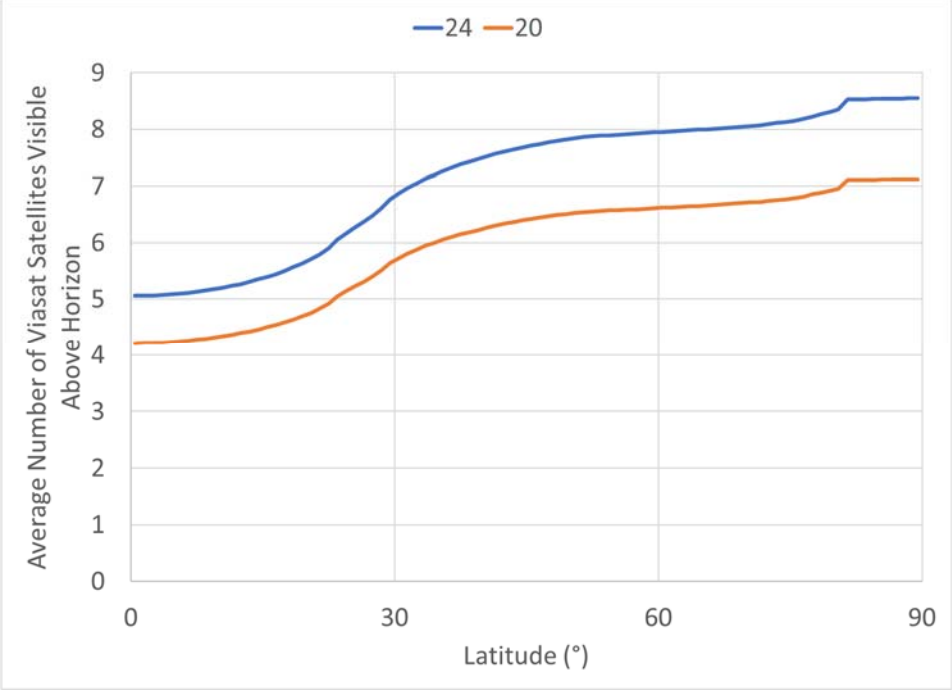


**Figure 17: Average Number of Potentially Active VIASAT-NGSO Satellites Above the Horizon (In bands with EPFD limits)**

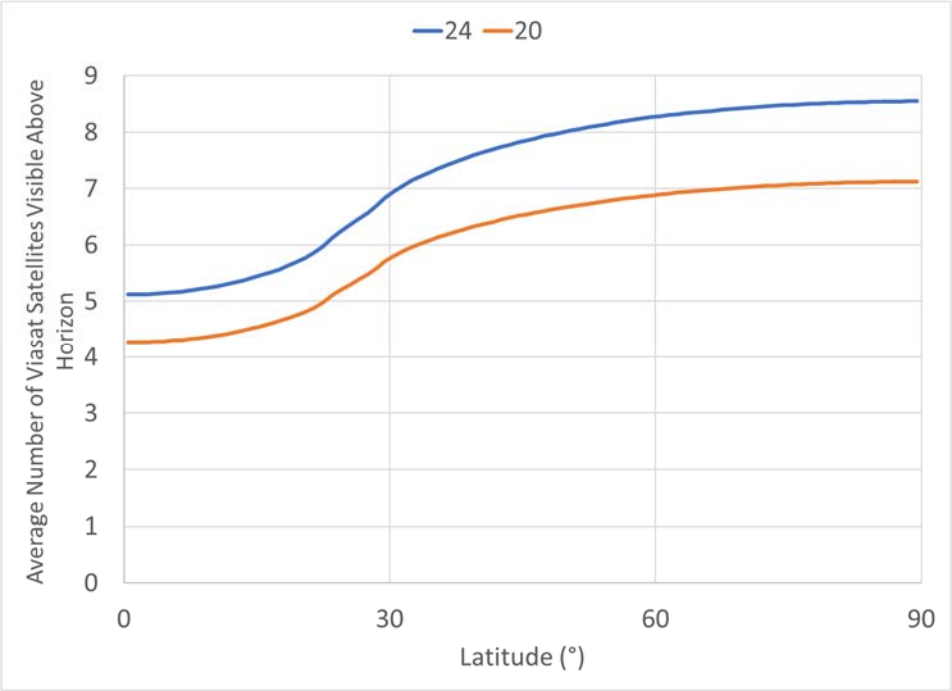


**Figure 18: Average Number of Potentially Active VIASAT-NGSO Satellites Above the Horizon (In bands without EPFD limits)**

## III. UPDATED OWNERSHIP INFORMATION

Given the passage of time since the initial Petition was filed, Viasat is providing this updated description of its ownership and officer/directors as part of this amendment. None of these changes, individually or collectively, reflects a transfer of control or otherwise constitutes a major amendment to Viasat's initial Petition.

Viasat is a Delaware corporation and a publicly traded company headquartered at 6155 El Camino Real, Carlsbad, California 92009. As a publicly traded company, the stock of Viasat is widely held. Based on publicly available SEC filings, the following entity and its affiliates beneficially owned 10 percent or more of Viasat's voting stock as of July 27, 2018:

| Beneficial Owner | Citizenship | Voting Percentage |
|---|---|---|
| The Baupost Group, L.L.C.<br>10 St. James Avenue<br>Suite 1700<br>Boston, MA 02116 | Massachusetts | 22.10% |
| Blackrock Inc.<br>55 East 52nd Street<br>New York, NY 10055 | Delaware | 10.02% |
| FPR Partners, LLC<br>199 Fremont Street<br>25th Floor<br>San Francisco, CA 94105 | Delaware | 10.17% |

No other stockholders are known by Viasat to hold 10 percent or more of Viasat's voting stock.

The following are the officers and directors of Viasat, all of whom can be reached at c/o Viasat, Inc., 6155 El Camino Real, Carlsbad, CA 92009.

Directors

Mark D. Dankberg, Chairman, CEO
Richard A. Baldridge
Frank J. Biondi Jr.
Dr. Robert W. Johnson
B. Allen Lay
Dr. Jeffrey M. Nash
Sean Pak
Varsha Rao
John P. Stenbit
Harvey P. White

Officers/Senior Management

Mark D. Dankberg, Chairman, CEO
Richard A. Baldridge, President, COO
Melinda Del Toro, Senior VP, People & Culture
Bruce Dirks, Senior VP, Treasury & Corporate Development
Shawn Duffy, Senior VP, CFO
Kevin Harkenrider, President, Broadband Services
Keven K. Lippert, Chief Commercial Officer & Executive VP of Strategic Initiatives
Mark J. Miller, Executive VP, Chief Technical Officer
Ken Peterman, President, Government Systems
Douglas Abts, VP Strategy Development, Broadband Services

Robert Blair, VP, General Counsel and Secretary
Girish Chandran, Vice President and Chief Technical Officer
Marc Agnew, Vice President, Commercial Networks
Dave Ryan, Vice President, and President of Space Systems

## DECLARATION

I hereby declare that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing narrative exhibit, 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 amendment, and that it is complete and accurate to the best of my knowledge, information and belief.


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

September 27, 2018