



November 3, 2017

*By Electronic Filing*

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 Twelfth Street, SW  
Washington, DC 20554

Re: ***Written Ex Parte Presentation***

ViaSat, Inc. Petition for Declaratory Ruling Granting Access to the U.S. Market for a Nongeostationary Orbit (“NGSO”) Satellite Network, IBFS File No. SAT-PDR-20161115-00120

Dear Ms. Dortch:

Pursuant to 47 C.F.R. § 1.1206, Hughes Network Services, LLC (“Hughes”) submits this *ex parte* letter regarding the above-referenced ViaSat, Inc. (“ViaSat”) petition for U.S. market access for a non-geostationary satellite orbit (“NGSO”) fixed-satellite service (“FSS”) system in the Ka and V bands.<sup>1</sup> Specifically, Hughes responds to ViaSat’s “Supplemental Technical Explanation of ViaSat-NGSO Satellite-to-Satellite Links.”<sup>2</sup>

As previously noted, the Commission should dismiss ViaSat’s request for inter-satellite link (“ISL”) use of Ka-band spectrum.<sup>3</sup> This use is contrary to Section 25.112(a)(3) of the FCC’s rules, requiring dismissal for “authority to operate a space station in a frequency band that is not allocated internationally for such operations under the Radio Regulations of the International Telecommunication Union [ITU].”<sup>4</sup>

Alternatively, the Commission should defer consideration of ViaSat’s proposed ISLs until appropriate technical studies have been completed and approved – preferably through the International Telecommunication Union – to ensure interference protection to geostationary satellite orbit (“GSO”) FSS operations. Although ViaSat has submitted a

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<sup>1</sup> *ViaSat, Inc. Petition for Declaratory Ruling Granting Access to the U.S. Market for the ViaSat System*, IBFS File No. SAT-PDR-20161114-00120 (filed Nov. 15, 2016) (“ViaSat PDR”).

<sup>2</sup> *ViaSat, Inc. Consolidated Opposition and Reply Comments; Supplemental Technical Explanation of ViaSat-NGSO Satellite-to-Satellite Links*, IBFS File No. SAT-PDR-20161114-00120 (filed July 7, 2016) (“ViaSat Consolidated Opposition and Reply Comments”).

<sup>3</sup> See Letter from Jennifer A. Manner, Hughes, to Marlene H. Dortch, Secretary, FCC, IBFS File No. SAT-PDR-20161115-00120, Attachment, at 1 (filed Oct. 18, 2017).

<sup>4</sup> 47 C.F.R. § 1.1206.

technical analysis in support of its proposed ISL operations, the analysis has not been fully vetted or supported domestically or internationally.<sup>5</sup>

While ViaSat represents that its proposed ISL operations will only occur within the target GSO satellite's "cone of coverage",<sup>6</sup> ViaSat's ISL proposal includes communications between any visible FSS GSO satellite and an NGSO satellite. This broad proposal includes NGSOs that are located on the other side of the Earth from the target GSO but still above the horizon.<sup>7</sup> ViaSat's technical analysis is materially deficient and fails to show that there will be no harmful interference to GSO FSS operations under most or all operating conditions described in the application. Specifically, the analysis does not demonstrate compliance with the Commission's two-degree spacing rules and policies.

As illustrated in Figure 1 below, ViaSat's proposed ISL transmissions could occur within the red cone, which would include communications with NGSO satellites on the same side of the earth as well as those NGSO satellites that are above the horizon and therefore still visible to the target GSO system. Permitting this type of operation could lead to a worst-case scenario where an NGSO satellite is located on the other side of the Earth from the target GSO but still above the horizon. In this situation, the ISL operations are likely to interfere with the operations of a victim GSO satellite, particularly one with beams pointed at or partially above the horizon. One example of a potential victim GSO satellite is the Hughes Spaceway 3, which provides critical broadband service to Alaska (as well as throughout the United States).

Thus, ViaSat's proposed operations are inconsistent with the Commission's two-degree spacing rules. The two-degree spacing rules presume that transmissions to a GSO space station will be within a cone with the target GSO at the vertex and the visible portion of the earth at the other end. This is illustrated as the green cone in Figure 1. The underlying assumptions of the two-degree spacing rules are violated when the NGSO satellite is located outside of the green cone, where there will potentially be less than two degrees of actual separation between the target GSO satellite and a nearby GSO satellite. ViaSat's NGSO satellites will be out of the target GSO satellite's cone of coverage for much of their orbit.

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<sup>5</sup> ViaSat, Inc., *Consolidated Opposition and Reply Comments of ViaSat Inc.*, IBFS File No. SAT-PDR-20161114-00120, Attachment A (filed July 7, 2017); *see also Working document toward a draft new Report: Technical feasibility of NGSO-to-GSO satellite links*, available at <https://www.itu.int/md/R15-WP4A-C-0503/en> (Oct. 10, 2017) (first contribution to ongoing ITU evaluation of ISL transmissions).

<sup>6</sup> ViaSat Consolidated Opposition and Reply Comments at A-2.

<sup>7</sup> *See* ViaSat PDR, Attachment B at 26-27.

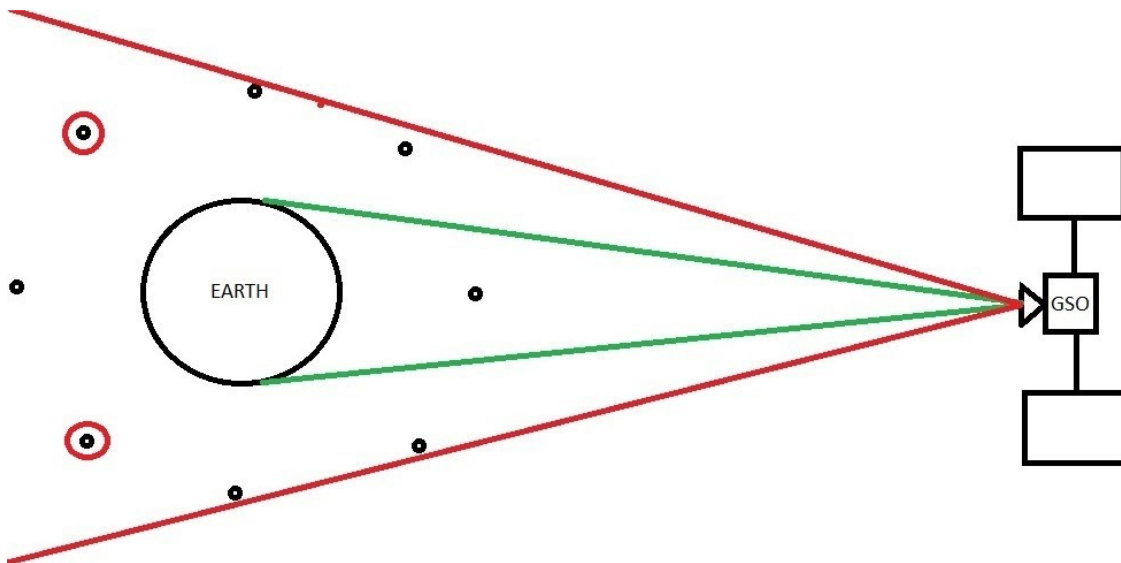


Figure 1

Nonetheless, if the Commission grants ViaSat’s application, it should at least impose specific conditions to prevent harmful interference to GSO FSS operations.

Specifically, Hughes requests that the following conditions be imposed on a grant of ViaSat’s application:

- 1) ViaSat’s NGSO-to-GSO inter-satellite service transmissions are to be conducted on a non-interference basis with respect to other GSO space stations and earth stations. These NGSO-to-GSO transmissions may not cause harmful interference to, and must accept harmful interference, from traditional GSO systems.
- 2) NGSO-to-GSO transmissions must be made from antennas that meet two-degree spacing standards and are pointed at the target GSO.
- 3) An NGSO-to-GSO transmission and a GSO-to-NGSO may only occur when the NGSO is located within the cone defined by the target GSO as the vertex and the authorized service area of the satellite on the service of the earth is defined as the base of operations. Transmissions towards the earth must be limited to those geographic areas where ViaSat is authorized to operate.

Please direct any questions regarding this matter to the undersigned.

Respectfully Submitted,

/s/ Jennifer A. Manner

Jennifer A. Manner

Senior Vice President, Regulatory Affairs