

Exhibit A

Description of Application

ViaSat, Inc. (“ViaSat”) seeks authority to deploy four million 0.75 m and ten thousand 1.8 m fixed earth stations. These earth stations will communicate with ViaSat’s currently-operational Ka-band satellite fleet, and also with the ViaSat-2 satellite, which is scheduled to be launched in April 2017 and is expected to enter into commercial service this fall. They will communicate over portions of the Ka band that already have been authorized with respect to each of the requested satellite points of communication.

Grant of this application will serve the public interest by enabling the provision of broadband service to a wide range of U.S. households, businesses and government users.

A. Satellite Points of Communication and Associated Band Segments

ViaSat seeks authority for these earth stations to communicate with the following satellites in the following portions of the Ka band:

- ViaSat-1, located at 115.1° W.L., at 18.3-19.3 GHz and 19.7-20.2 GHz (downlink) and 28.35-29.1 GHz and 29.5-30 GHz (uplink).¹
- ViaSat-2, which will be located at 69.9° W.L., at 17.7-19.3 GHz and 19.7-20.2 GHz (downlink) and 28.35-29.1 GHz, and 29.5-30 GHz (uplink).²
- WildBlue-1 and Anik-F2, located at 111.1° W.L., at 19.7-20.2 GHz (downlink) and 29.5-30 GHz (uplink).³
- Galaxy 28, located at 89.0° W.L., at 19.7-20.2 GHz (downlink) and 29.5-30 GHz (uplink).⁴

These spacecraft are either U.S.-licensed or authorized to serve the United States in these band segments. The US334 coordination completed for each of these satellites encompasses the operations of the proposed earth stations.

¹ See Call Sign S2747; IBFS File Nos. SAT-LOA-20110722-00132; SAT-LOI-20080107-0006, as amended (“ViaSat-1 Authorization”).

² See Call Sign S2902; IBFS File Nos. SAT-LOI-20130319-00040; SAT-MOD-20141105-00121; SAT-AMD-20150105-00002; SAT-MOD-20160527-00053 (“ViaSat-2 Authorization”).

³ See Call Sign E050033; IBFS File Nos. SES-LIC-20050207-00154 (authorizing earth stations to communicate at 19.7-20.2 GHz and 29.5-30 GHz with Anik-F2); SES-MFS-20060811-01347 (authorizing earth stations to communicate at 19.7-20.2 GHz and 29.5-30.0 GHz with WildBlue-1).

⁴ See Call Sign S2160; IBFS File Nos. SAT-MOD-20050422-00089; SAT-ASG-20130515-00070 (assigning authorization for Ka band payload of Galaxy 28 to ViaSat).

B. Description of Earth Station Operations

ViaSat seeks authority to operate two types of fixed earth stations without the need to specify the locations of the earth stations in this application. The first is a variation of ViaSat's 75 cm earth station model licensed under Call Sign E100143. The new earth station model has a modified feed attachment and employs a different transmit and receive integrated assembly (TRIA). The modem is now physically included inside the TRIA assembly so the new model is called a pTRIA indicating that it physically includes the modem. While this antenna uses a modified feed/feed attachment to accommodate the pTRIA form factor, the antenna pattern is essentially the same antenna pattern as the previously authorized 75 cm version, but due to differences in the RF signal processing and modulation, the earth station now operates at increased burst symbol rates at a higher peak power level while keeping EIRP density at similar levels to previously licensed versions. However, while peak burst power is higher, when duty cycle is taken into account, the average power is the same or lower than the previous model.

The second is a 1.8 meter earth station using an antenna reflector manufactured by General Dynamics. The antenna uses a modified feed/feed mount designed to accommodate the same pTRIA model as used with the 75 cm earth stations.

Nothing in this application adversely affects any of the technical analysis underlying ViaSat's existing authority to communicate with the specified satellite points of communication over the requested band segments.

Adjacent GSO Networks. Both earth station types have measured transmit and receive antenna gain patterns that conform to Section 25.209(a) and (b). Exhibit B contains a certification pursuant to Section 25.132(a)(1) regarding the conformance of these antennas with Sections 25.209(a) and (b). The input power spectral density into each of the antenna types will not exceed 3.5 dBW/MHz, in accordance with Section 25.212(e). Thus, these earth stations are fully two-degree compliant in each of the requested band segments.

NGSO Systems. ViaSat-1 has been operating for over six years successfully at 28.6-29.1 GHz on a secondary basis with respect to NGSO FSS operations, and at 18.8-19.3 GHz on a non-conforming basis, pursuant to a waiver of the U.S. Table of Frequency Allocations ("U.S. Table"), Section 2.106 of the Commission's rules. The Commission also has authorized ViaSat-2 to operate in these band segments, including pursuant to a waiver of the U.S. Table to allow operations at 18.8-19.3 GHz. The existing conditions in the ViaSat-1 and ViaSat-2 authorizations that are designed to protect NGSO systems at 18.8-19.3 GHz and at 28.6-29.1 GHz are adequate to manage the risk of interference from the proposed earth stations with respect to NGSO systems.⁵ To the extent necessary, ViaSat seeks a corresponding waiver to allow the operations of the proposed earth stations at 18.8-19.3 GHz with ViaSat-1 and ViaSat-2.

⁵ See ViaSat-1 Authorization, File No. SAT-LOI-20080107-00006, Attachment – Conditions for Letter of Intent at ¶ 4 (granted Aug. 18, 2009); ViaSat-2 Authorization, File No. SAT-LOI-20140204-00013, Conditions at ¶ 4 (granted Dec. 12, 2013); see also 47 C.F.R. § 25.202(a)(1) n.3.

BSS Stations. In authorizing ViaSat-2, the Commission waived footnote US271 to the U.S. Table, Section 2.106, to permit FSS downlink operations at 17.7-17.8 GHz, which is designated primarily for BSS feeder link operations in the earth-to-space direction.⁶ That waiver is based on ViaSat's demonstration that downlink transmissions from ViaSat-2 would satisfy the Section 25.208 power-flux density levels applicable to 17.7-17.8 GHz.⁷ Because the proposed earth stations would receive satellite downlinks at 17.7-17.8 GHz, those operations would have no impact on the authorized RF environment. To the extent necessary, ViaSat seeks a corresponding waiver to allow the proposed earth stations to receive signals from ViaSat-2 at 17.7-17.8 GHz. As a non-conforming user of this band segment, ViaSat accepts the risk of interference from conforming spectrum uses.

Terrestrial Operations. In authorizing ViaSat-2, the Commission waived the U.S. Table to allow FSS downlinks in the 17.7-18.3 GHz band segment, which is allocated primarily for fixed services. That waiver is based on ViaSat's demonstration that downlink transmissions from ViaSat-2 will be within the power-flux density limits at the earth's surface set forth in Article 21 of the ITU Radio Regulations.⁸ ViaSat requests a corresponding waiver to allow the proposed earth stations to receive ViaSat-2 downlinks at 17.7-18.3 GHz. Because the proposed earth stations would receive in the 17.7-18.3 GHz band segment, those operations would have no impact on the authorized RF environment. To the extent necessary, ViaSat seeks a corresponding waiver to allow the proposed earth stations to receive signals from ViaSat-2 at 17.7-18.3 GHz. As a non-conforming user of this band segment, ViaSat accepts the risk of interference from conforming spectrum uses.

A radiation hazard analysis attached as Exhibit C shows that the operation of the proposed earth stations will satisfy the maximum permissible exposure limit (MPE) for General Population/Uncontrolled Exposures.

Finally, each earth station type may be deployed throughout the coverage area of the specified satellite points of communication. To the extent necessary to authorize the operation of the proposed earth stations at 17.7-18.3 GHz, 18.8-19.3 GHz, and 28.6-29.1 GHz without specifying their locations, ViaSat seeks a waiver of Section 25.115(e) of the Commission's rules.⁹ Licensing multiple earth stations through a single authorization serves the public interest by reducing administrative costs and delays and by accelerating system deployment, and thereby facilitating the delivery of expanded services to end users. The Commission has previously issued licenses for GSO earth stations in segments of the Ka band other than those identified in

⁶ See ViaSat-2 Authorization, File No. SAT-MOD-20160527-00053, Attachment to Grant at ¶ 11 (granted Jan 12, 2016); 47 C.F.R. § 2.106 n.US271.

⁷ ViaSat-2 Authorization, File No. SAT-MOD-20160527-00053, Attachment to Grant at ¶ 12 (granted Jan. 12, 2017).

⁸ *Id.* at ¶ 11.

⁹ See 47 C.F.R. § 25.115(e).

Section 25.115(e) without specifying the locations of the earth stations in advance.¹⁰ Therefore, grant of this waiver request would be consistent with Commission precedent.

¹⁰ See, e.g., ViaSat, Inc., File No. SES-LIC-20101217-01585, Call Sign E100143 (granted Oct. 20, 2011) (authorizing large numbers of GSO earth stations, including at 18.8-19.3 GHz and 28.6-29.1 GHz, to communicate with ViaSat-1); see also File No SES-MOD-20160108-00029, Call Sign E120075 (granted June 29, 2016) (authorizing large numbers of GSO earth stations at 28.1-28.35 GHz to communicate with ViaSat-1).

Exhibit B

DECLARATION

I hereby declare that:

1. I am the technically qualified person responsible for preparation of the engineering information contained in this application and that I am familiar with Part 25 of the Commission's rules;
2. In accordance with Section 25.132(a)(1) of the Commission's rules, I have reviewed the results of a series of radiation pattern tests performed by the antenna manufacturer on representative equipment in representative configurations, and the test results demonstrate that the ViaSat RA-40750-AB and General Dynamics 3180 antennas meet relevant off-axis gain standards in Section 25.209.

The foregoing is true and correct to the best of my knowledge, information and belief.



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