

Description of Application

ViaSat, Inc. (“ViaSat”) seeks authority to operate a 7.3 meter transmit/receive earth station in the 2025-2110 MHz band (“S-band”) and the 8025-8400 MHz band (“X-band”). The earth station will serve as a telemetry, tracking and control (“TT&C”) station and a data reception facility for the Earth Exploration Satellite Service (“EESS”), nongeostationary orbit (“NGSO”) satellite system licensed by the Commission to DigitalGlobe, Inc. (“DigitalGlobe”) under call sign S2129. DigitalGlobe’s system currently consists of the QuickBird-1, WorldView-1 and WorldView-2 satellites.¹ The Commission has authorized DigitalGlobe’s system as a point of communication for other earth station facilities similar to that requested here.² The frequencies and associated technical parameters proposed herein are consistent with those authorized for the DigitalGlobe system.

S-Band Operations

The 2025-2100 MHz band is allocated primarily to terrestrial fixed and mobile services. US Footnote 347 to the U.S. Table of Frequency Allocations allows EESS operations in the 2025-2110 MHz band on a non-interference basis with all other allocated services.³

The Commission has granted DigitalGlobe authority to operate a 132 kHz channel at the 2085.6957 MHz center frequencies for uplink TT&C operations on a secondary, non-interference basis.⁴ ViaSat’s proposed S-band TT&C operations would be consistent with this grant of authority, and also is proposed on a secondary, non-interference basis.

In order to ensure compatibility with nearby terrestrial users, ViaSat has completed the coordination process for the proposed operations in the S-band pursuant to Section 25.203(c) and includes the coordination report as Exhibit A to this application. Comsearch reports that no interference concerns were raised during the notice period.

¹ See *EarthWatch Incorporated, Authority to Construct, Launch, and Operate a Remote Sensing Satellite System*, Order and Authorization, 10 FCC Rcd 10467 (1995); *EarthWatch Incorporated, Modification of Authorization to Construct, Launch and Operate a Remote Sensing Satellite System*, Order and Authorization, 12 FCC Rcd 21637 (1997); *DigitalGlobe, Inc., Modification of Authorization to Construct, Launch and Operate a Remote-Sensing Satellite System*, File No. STA-MOD-20040728-00151, Order and Authorization, DA 05-2640 (rel. Sept. 30, 2005) (“*WorldView Authorization*”), modified by File No. SAT-MOD-20070730-00107 (stamp grant Oct. 4, 2007).

² See, e.g., *DG Consents Sub, Inc.*, File No. SES-LIC-20040607-00808, Call Sign E040264 (granted Nov. 23, 2004), as amended and modified.

³ 47 C.F.R. § 2.106 n.US347.

⁴ *WorldView Authorization* ¶ 17; File No. SAT-MOD-20070730-00107.

X-Band Operations

The Commission has granted DigitalGlobe authority to operate in the 8025-8400 MHz band, and to conduct uplink TT&C in a 2 MHz channel at 8380 MHz center frequency.⁵ ViaSat's proposed X-band operations would be consistent with that grant of authority. The earth station would receive in the 8025-8400 MHz band data collected from the DigitalGlobe satellites. The earth station facility also would use a 2 MHz channel at the 8380 MHz center frequency for downlink TT&C.

The 8025-8500 MHz band is allocated in the U.S. Table of Frequency Allocations on a primary basis to non-government EESS in the U.S., subject to a case-by-case electromagnetic analysis of compatibility with U.S. government and other authorized operations in the band.⁶ The band is allocated on a co-primary basis to government FSS and EESS, and on a secondary basis to government MSS. In addition, the 8175-8215 MHz band is allocated on a co-primary basis to government Meteorological-Satellite (Earth-to-space) service ("MetSat").

The Commission has not adopted band specific service rules for EESS NGSO operations in the X-band, and it has granted DigitalGlobe a waiver of the Section 25.217(b) default service rules. Under that waiver, operations in the X-band are required to comply with the technical requirements in Part 2 of the Commission's rules and the applicable ITU rules.⁷ The Commission has determined that these requirements have been sufficient in the past to prevent harmful interference in the X-band, and has declined to impose additional technical requirements on X-band operations.⁸ To the extent necessary, ViaSat requests that the Commission extend the applicability of that DigitalGlobe waiver to this earth station that will serve the DigitalGlobe network.

The Commission granted authority for the DigitalGlobe satellites based on a demonstration that the satellites were coordinated with NTIA for government operations and that the PFD limits set forth in the ITU Radio Regulations for compatibility with FSS systems and MetSat systems were satisfied.⁹ The PFD limits in Table 21-4 and in Article 22.5 Section 4 of the ITU Radio Regulations are satisfied regardless of the location of the ground terminal communicating with the DigitalGlobe satellites. Furthermore, the proposed earth station operations at X band are consistent with DigitalGlobe's coordination arrangements with other EESS systems.

⁵ *WorldView Authorization* ¶¶ 18, 29; File No. SAT-MOD-20070730-00107.

⁶ *Id.* at n.US258.

⁷ *WorldView Authorization* ¶ 15.

⁸ *See, e.g., Space Imaging, LLC, Application for Authority to Modify its Norman, OK Earth Station License to Add the Indian Remote-Sensing Satellite, ResourceSat-1, as a Point of Communication, Declaratory Order and Order and Authorization, 20 FCC Rcd 11964 ¶ 25 (2005).*

⁹ *WorldView Authorization* ¶¶ 22-24.

Antenna Patterns

ViaSat includes a sample antenna gain pattern as Exhibit B. Because this earth station will operate in the EESS and will communicate with an NGSO-like system, neither Section 25.209 nor Section 25.132 applies.¹⁰

Radiation Hazard Analysis

A radiation hazard analysis for the proposed antenna is attached hereto as Exhibit C. As demonstrated by the results of the analysis, this earth station complies with applicable Commission requirements regarding near field and far field radiation. In addition, the earth station will be located in an environment with controlled access by trained personnel.

FAA Notification

FAA notification is not required for this application. The maximum height at any operating angle of the 7.3 meter antenna for which authority is sought is 9.98 meters and is below the height limits set forth in Section 17.7 that require notification.¹¹

¹⁰ See 47 C.F.R. §§ 25.217(b), 25.209 (applying to “transmission from an earth station in the fixed-satellite service”).

¹¹ See *id.* §§ 17.7(a)-(d) (listing notification criteria related to antenna height, proximity to airports, heliports, and military bases, and other special circumstances).