

## Exhibit A

### Description of Application and Waiver Request

ViaSat, Inc. (“ViaSat”) seeks blanket authority to operate 250,000 electrically identical earth station antennas to communicate with the ViaSat-1 satellite, utilizing the 28.35-29.1 GHz and 29.5-30.0 GHz (uplink) bands and the 18.3-19.3 GHz and 19.7-20.2 GHz (downlink) bands. In connection with these proposed operations, ViaSat requests a waiver of the U.S. Table of Frequency Allocations to use the 18.8-19.3 GHz band for GSO FSS downlink operations.<sup>1</sup> In addition, to the extent necessary, ViaSat requests a waiver of the Commission’s rule for geostationary orbit (“GSO”) fixed satellite service (“FSS”) earth station blanket licensing<sup>2</sup> to permit widespread deployment of its ground terminals utilizing the 28.6-29.1 GHz and 18.8-19.3 GHz bands. ViaSat-1 is U.S. licensed and authorized to serve the U.S. in these bands. ViaSat also seeks authority to operate these earth station antennas with the WildBlue-1 and Anik-F2 satellites using the 29.5-30.0 GHz (uplink) band and the 19.7-20.2 GHz (downlink) band. WildBlue-1 and Anik-F2 are Canadian licensed and are authorized to serve the U.S. in these bands.

ViaSat currently holds a blanket license authorization under call sign E100143 (SES-LIC-20101217-01585) to operate a large number of user terminals in the 18.3-19.3 GHz, 19.7-20.2 GHz, 28.35-29.1 GHz and 29.5-30.0 GHz bands using the ViaSat-1 satellite.<sup>3</sup> ViaSat’s affiliate, WB Holdings 1 LLC, is also blanket licensed under call sign E050033 to operate a large number of user terminals in the 19.7-20.2 GHz and 29.5-30.0 GHz bands on WildBlue-1 and Anik-F2.

This new antenna uses the same outdoor electronics as the previously authorized antenna in the ViaSat-1 Blanket License but is slightly smaller in size. The antenna proposed in this application is 78 cm wide x 62 cm tall, while the ViaSat-1 Blanket License antenna is 77 cm tall x 72 cm wide. The effective aperture diameter of the proposed antenna is equivalent to that of a nominal 69.5 cm circular reflector.

### Compatibility with GSO, NGSO and Terrestrial Users

The proposed earth station antennas will communicate with the ViaSat-1 satellite at the nominal 115° W.L. location using the 18.3-19.3 GHz, 19.7-20.2 GHz, 28.35-29.1 GHz and 29.5-30.0 GHz segments of the Ka band for which ViaSat-1 is already authorized. The antennas will also communicate with WildBlue-1 and Anik-F2, each at the nominal 111° W.L. location using the 19.7-20.2 GHz and 29.5-30.0 GHz bands. The proposed operation of these antennas will not cause harmful interference to adjacent GSO systems, NGSO systems or any primary terrestrial users in these bands.

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<sup>1</sup> See 47 C.F.R. § 2.106, n.NG165.

<sup>2</sup> 47 C.F.R. § 25.138.

<sup>3</sup> See File Nos. SES-LIC-20101217-01585; SES-AMD-20110128-00074 (granted Oct. 20, 2011) (“ViaSat-1 Blanket License”).

The proposed earth station terminal conforms to the antenna performance standards in Section 25.209 in the receive frequency bands with few minor exceptions, as demonstrated by the antenna gain patterns attached hereto as Exhibit B. ViaSat does not seek additional protection from receive interference for any shortfall in the receive antenna pattern performance.

The antenna meets the performance requirements in Section 25.138(a), as illustrated by the off-axis EIRP spectral density plots attached hereto as Exhibit C. The proposed antenna exceeds the mask for cross-polarized signals set forth in Section 25.138(a)(4) by up to 5 dB in some cases in the direction of the elevation plane in the 8.5° – 9° region. However, no systems will be impacted by this limited exceedence. As an initial matter, the cross-polarization mask is exceeded only in the elevation plane, and thus, adjacent GSO systems will not be affected. Further, the off-axis e.i.r.p. density in these cases is below the mask defined in Section 25.138(a)(2) for emissions outside the GSO plane, regardless of the polarization. The power levels specified in Section 25.138(a)(2) are more than sufficient to protect O3b's system, which is the only potentially affected NGSO system. There will be no impact on the link budgets of O3b's system, because the mask for cross-polarized signals is only exceeded at elevation angles of 8.5° to 9°. ViaSat's service area is north of O3b's service area, which is within a band that is ±10° around the equator. Given the geographic separation between ViaSat and O3b's respective operations, the slightly higher levels of the cross-polarized signals at higher elevation angles would not impact O3b's system.

In addition, the power flux-density at the earth's surface produced by emissions from each of the satellite points of communication are within the -118 dBW/m<sup>2</sup>/MHz limit set forth in Section 25.138(a)(6). Therefore, the antenna type does not require coordination with adjacent GSO satellites.

Furthermore, pursuant to the terms of the Commission's authorization of ViaSat-1, operation of the GSO FSS system in the 28.6-29.1 GHz band is on a secondary allocation, and in the 18.8-19.3 GHz band is on a non-conforming basis.<sup>4</sup> A waiver of the allocation in the 18.8-19.3 GHz band to allow the proposed operations is warranted.<sup>5</sup> The Commission has approved operation of the ViaSat-1 satellite in these bands, and has acknowledged that ViaSat can operate in these bands while protecting the primary NGSO FSS operations.<sup>6</sup> Specifically, the satellite has been designed with the capability to cease operations in the 18.8-19.3 GHz downlink band and the associated 28.6-29.1 GHz uplink band in any spot beams where the predicted physical alignment of either (i) the ViaSat-1 satellite and an earth station communicating with an NGSO

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<sup>4</sup> See File Nos. SAT-LOA-20110722-00132 (as amended) (granted Oct. 14, 2011) ("ViaSat-1 Authorization").

<sup>5</sup> 47 C.F.R. § 1.3; see also *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969); *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990).

<sup>6</sup> ViaSat-1 Authorization at Attach. ¶ 5.

space station, or (ii) a NGSO space station and an earth station communicating with ViaSat-1, is such that the angular separation between operational links of the two satellite networks would be equal to or less than a specified minimum line-of-sight separation angle. In that case, and for the short duration of the event, the affected ViaSat-1 satellite spot beam will continue providing service in other authorized bands. Therefore, operation of the proposed antennas will not cause harmful interference into NGSO systems.

Finally, when the Commission adopted allocations for the Ka-band, it established sunset provisions for the co-primary status of certain terrestrial users in the FSS downlink bands in order to protect and facilitate deployment of FSS operations.<sup>7</sup> Terrestrial microwave users maintain co-primary status in the 18.3-18.58 GHz band until November 18, 2012.<sup>8</sup> In accordance with the blanket licensing rules, no coordination with terrestrial or other users is required on the GSO frequencies. ViaSat may either accept any potential for interference from such co-primary users until the sunset date, or relocate such users. ViaSat will accept the potential for interference from such users until the relevant date.

### **Blanket Licensing of GSO Terminals is Warranted in the 28.6-29.1 GHz and 18.8-19.3 GHz Bands**

Section 25.138 permits blanket licensing and provides streamlined processing procedures for earth station antennas operating in the 18.3-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz, 29.25-29.5 GHz and 29.5-30.0 GHz bands, provided that the technical criteria set forth in that section are met. However, no blanket licensing rules have been adopted yet for the 18.8-19.3 GHz and 28.6-29.1 GHz bands.<sup>9</sup> ViaSat requests that the Commission employ blanket licensing of ViaSat's proposed earth station antennas in the 28.6-29.1 GHz and 18.8-19.3 GHz bands as it did in the grant of the ViaSat-1 Blanket License, rather than using a site-by-site licensing process. Given the large number of terminals requested and the network-wide implementation of technology that is capable of operating without interfering with primary NGSO operators, requiring the filing of individual applications for each terminal would be unduly burdensome and unnecessary.

In addition to granting the ViaSat-1 Blanket License, the Commission has implemented blanket licensing procedures on a case-by-case basis (outside of a rulemaking or other broadly-applicable

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<sup>7</sup> See, e.g., *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Serv. Use*, 16 FCC Rcd 19808, at ¶ 23 (2001)

<sup>8</sup> See *id.*

<sup>9</sup> *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, Report and Order, 15 FCC Rcd 13430, at ¶ 95 (2000) (acknowledging that specific blanket licensing requirements for NGSO systems in the 18.8-19.3 and 28.6-29.1 GHz bands would be addressed in a future proceeding).

proceeding) where circumstances have warranted such an approach.<sup>10</sup> . The Commission’s policy justifications underlying its adoption of blanket earth station licensing procedures in rulemaking proceedings and declaratory rulings are equally applicable to the subject application. Allowing processing flexibility in this case will promote the expanded use of spectrum and the rapid development and deployment of new technologies.<sup>11</sup> Such an approach serves the public interest by reducing administrative costs and delays and by accelerating system deployment, which facilitates the delivery of service to end users.<sup>12</sup> Blanket licensing of the proposed terminals in the 28.6-29.1 GHz and 18.8-19.3 GHz bands will speed the delivery of 4/1 Mbit/s broadband service to the millions of unserved consumers identified in the National Broadband Plan. Therefore, flexibility in processing this application is warranted and is consistent with recent precedent.

Further, ViaSat previously demonstrated that communications between ViaSat-1 and ViaSat’s network of earth terminals would not interfere with any primary NGSO operations currently planned or authorized in the future. As described above, ViaSat-1 is designed with the capability to cease operations in the 18.8-19.3 GHz and 28.6-29.1 GHz bands upon receipt of appropriate ground command signals. This technology is capable of preventing harmful interference into NGSO systems from any earth station terminal deployed in the satellite’s area of operation. Each of the proposed terminals covered by this application will be dynamically controlled and can shut down operations in the bands in which NGSO systems have priority when an NGSO satellite is within the minimum line-of-sight separation angle established

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<sup>10</sup> For instance, the Commission granted blanket authority for an earth station fleet prior to the adoption of the Ku band blanket licensing rules in a scenario where significant burdens would have resulted if the prospective licensee were required to submit, and the Commission were required to process, hundreds of individual license requests. *See, e.g., Applications of Schlumberger Tech. Corp.; For Authority to Construct and Operate a Fleet of 500 Transportable, Temporary Fixed Earth Stations, and to Construct Associated Fixed Earth Stations in the Domestic Fixed-Satellite Serv.*, Order and Authorization, File Nos. 1462-DSE-P/L-(500)-83, 1463-DSE-P-(50)-83, 1464-DSE-P-83, 1984 FCC LEXIS 2569 ¶ 14 (rel. June 7, 1984) (“*Schlumberger Blanket License*”). The Commission adopted blanket licensing procedures more than two years after it issued the *Schlumberger Blanket License*. *See 12/14 GHz Blanket Licensing Order*, 1986 FCC LEXIS 3692.

<sup>11</sup> *See, e.g., Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Serv. Use*, Second Order On Reconsideration, 17 FCC Rcd 24248 ¶ 20 (2002) (“*Ka-Band Blanket Licensing Order*”); *Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands*, Order, 1 FCC Rcd 1162 ¶¶ 3-5 (1986).

<sup>12</sup> *See Ka-Band Blanket Licensing Order*, 17 FCC Rcd 24248 ¶ 20; *Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands*, Declaratory Order, 1986 FCC LEXIS 3692 ¶ 6 (rel. Apr. 9, 1986) (“*12/14 GHz Blanket Licensing Order*”).

through coordination. Blanket licensing in these shared frequency bands is warranted in light of the network-wide demonstration that any and all earth station terminals in the network can operate without causing interference to primary NGSO users.

### **Radiation Hazard Analysis**

A radiation hazard analysis for the proposed antenna is attached hereto as Exhibit D. As demonstrated by the results of the analysis, the maximum permissible exposure limit (MPE) for protection of the General Population/Uncontrolled Exposures –  $1 \text{ mW/cm}^2$  averaged over a thirty minute period – is met. The automatic shut-down capabilities described in the analysis, coupled with the terminal's use of uplink power control and non-continuous operation, ensures that the general population will not be exposed to harmful levels of electromagnetic radiation.