

Exhibit A

Technical Analysis

Viasat submits the following showing to demonstrate that the proposed gateway-type earth station, or satellite access node (“SAN”), located in Shelby County, AL, is compatible with Upper Microwave Flexible Use Service (“UMFUS”) operations in accordance with Section 25.136(a)(4) and therefore should be authorized with the rights and protections afforded by Section 25.136(a).

The Viasat SAN antenna is configured to operate with the ViaSat-3-class satellite at 88.9 W.L., and this configuration provides the relevant operational azimuth and elevation angles. The antenna parameters used in the analysis are identified in the FCC Form 312 application and supporting exhibits and reflect measured gain patterns for the proposed earth station antenna.

A. Computation of pfd Contour

In most cases, terrain and objects on the Earth’s surface provide for additional attenuation of the signal emitted from the earth station antenna in the direction of the horizon around the earth station over and above the expected free space and atmospheric attenuation. The additional attenuation of the radio frequency signal from terrain and surface features further reduces the power flux density (pfd) of the region around the SAN antenna.

To determine whether terrain or surface obstructions around the SAN antenna would provide any further reduction of the pfd at a 10 meter reference height, an analysis was performed using Recommendation ITU-R P.452.¹ Recommendation P.452, Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 100 MHz, provides a propagation model and methodology for computing signal attenuation based on input parameters. In the computation of the contour, the attenuation above free space in the vicinity of the earth station is strongly driven by terrain and surface features rather than by atmospheric effects. To accurately predict the expected attenuation, LIDAR surface data with 1 meter resolution from Intermap was used to provide both clutter height and terrain information.

The computation of the contour around the antenna used the nominal input power density to the SAN antenna along with measured antenna gain information to determine the e.i.r.p. density along a particular azimuth. Next, path and clutter/terrain losses were taken into consideration for all the locations around a SAN site along with polarization discrimination to determine which blocks around the SAN site exceed the -77.6 dB(mW/(m² * MHz)) limit at the 10 meter reference height.

¹ In previous applications submitted in accordance with Section 25.136 of the Commission’s rules, Viasat utilized the NTIA Irregular Terrain Model (“ITM”) —an approach that the Commission has approved, and which also could have been used in the case of the instant application with similar results.

Finally, once the analysis is completed, a GIS shape file of the resulting contour is created for import into Viasat's ArcGIS tool and can be examined with respect to population and other elements of Section 25.136. An illustration of the contour is included below as Figure 1, and is also included in a .kmz file attached separately in ICFS.

B. Satisfaction of Section 25.136 Criteria

a. Section 25.136(a)(4)(i)

The earth station location is in Shelby County, AL. A search of the ICFS database indicates that there are no other earth stations licensed in the 27.5-28.35 GHz band segment in that county.

Therefore, the earth station satisfies the requirement in Section 25.136(a)(4)(i) that there be no more than two other earth stations operating or authorized to operate in the 27.5-28.35 GHz band within the county on a protected basis under Section 25.136.

b. Section 25.136(a)(4)(ii)

The total population covered by the $-77.6 \text{ dB(mW/(m}^2 * \text{ MHz))}$ contour is below the applicable threshold specified in Section 25.136(a)(4)(ii).

Overlaying the $-77.6 \text{ dB(mW/(m}^2 * \text{ MHz))}$ contour on a map depicting census blocks, Viasat has calculated an estimate of the population covered by the contour using 2020 census data and assuming that the population coverage within a partially covered census block is equal to the percentage of the geographic area of the census block covered by the contour.² Figure 1 below contains a diagram depicting the contour overlaid on a census block map.

² This approach to estimating population coverage using the most recently available decennial census block data and the actual area method is consistent with the recommended approach in the Commission's updated guidance regarding earth station siting. *See Space Bureau Updates its Guidance on Siting Methodologies for Earth Stations Seeking to Operate in the 24.75-25.25 GHz, 27.5-28.35 GHz, 37.5-40 GHz, 47.2-48.2 GHz, and 50.4-51.4 GHz Bands to Demonstrate Compliance with Section 25.136*, DA 25-206 (rel. Mar. 10, 2025) ("2025 Siting Guidance").

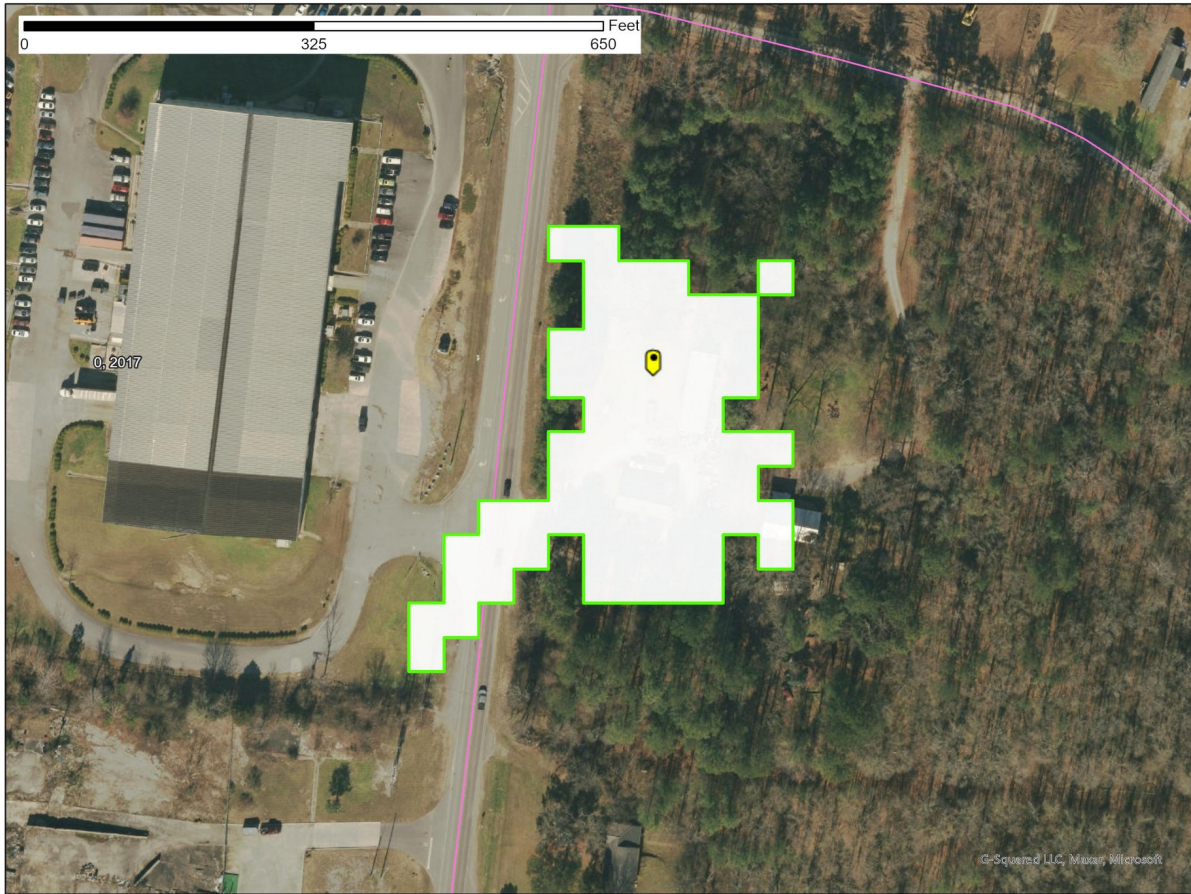


Figure 1 – Calera, AL SAN -77.6 dB(mW/(m2 * MHz)) pfd contour

The population of Shelby County is 223024, and thus the applicable population limit under Section 25.136(a)(4)(ii) is 450.

The following identifies the census block, population and the population coverage estimate as determined by the actual area method currently on file for this earth station.

Census Block Number	Total Population of Census Block	Population Coverage Estimate	Percent of Block Covered by Pattern
11170305042017	0	0	0.32%
11170305042004	55	0	0.26%
Total Estimated Population Coverage:		0	

Table 2 – Population Coverage Overview

The total estimated population covered by the contour thus is below the applicable population limit.

c. Section 25.136(a)(4)(iii)

The -77.6 dB(mW/(m² * MHz)) contour does not contain any major event venue, urban mass transit route, cruise ship port, or any road identified as an Interstate, Other Freeway and Expressway, or Other Principal Arterial road in the Federal Highway Administration Office of Planning, Environment, and Realty Executive Geographic Information System map.³ Viasat notes that the contour does appear to have a potential *de minimis* incursion onto a restricted roadway. However, for the reasons discussed below such incursion is unlikely to result in harmful interference.

The Commission's guidance regarding the computation of PFD contours and protection zones recognizes that applicants will need to use a propagation model for the proposed earth station taking into account terrain, clutter, and shielding.⁴ As a practical matter, demonstrating compliance with Section 25.136 requires the use of propagation models and assumptions, which by their nature are predictive and yield an approximation of the actual contour at a particular location. Although there necessarily would be some variation between predicted and actual contours, because Viasat has selected a conservative propagation model, the actual contour is likely to be smaller than the predicted contour reflected in this Technical Analysis.

Moreover, it is unclear that the proposed deployment would create any issue under Section 25.136 given that any potential incursion on the roadway would be *de minimis* in nature; consequently, any coverage by the actual contour is unlikely to translate into any detectable interference to UMFUS operations. A terrestrial wireless user traveling in a vehicle likely would pass through the overlapping area in an extremely short period of time and would be unlikely to detect any degradation of service.

No actual interference is likely to result based on the predicted contour. However, Viasat would accept a license condition on operations at this location in the 27.5-28.35 GHz band to take corrective action upon receipt of any complaint of actual interference occurring in the

³ See Federal Highway Administration, Office of Planning, Environment, and Realty Executive Geographic Information System Map, available at <https://hepgis.fhwa.dot.gov/fhwagis/#>; see also *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Second Report and Order, 32 FCC Rcd 10988, App'x B (2017) (“[T]he roads listed in the revision to Section 25.136 . . . can readily be identified by consulting the Federal Highway Administration (FHWA) Office of Planning, Environment, and Realty Executive Geographic Information System (HEPGIS) map HEPGIS allows the user to enter any street address in the U.S. and display an interactive map with a legend that identifies road classifications as they are defined by the Department of Transportation at 23 C.F.R. Section 470.105 pursuant to 23 U.S.C. Sections 101 and 103.”); 47 C.F.R. § 25.136(a)(4)(iii).

⁴ 2025 Siting Guidance at 2.

portions of the roadway that lie inside the actual -77.6 dBm/m2/MHz PFD contour at ten meters above ground level.⁵

To the extent the Commission finds that a waiver of Section 25.136(a)(4)(iii) for the predicted contour illustrated in this Exhibit A is necessary in order to allow a grant of the application, Viasat requests such a waiver. Good cause exists for the Commission to grant the requested waiver.⁶ As discussed above, the actual contour generated at the earth station location is unlikely to reach the restricted roadway. In addition, to the extent there is any *de minimis* overlap of the actual contour with the roadway, any interference is unlikely to be detectable by users, and Viasat would commit to taking necessary action to resolve any actual interference that may occur on the roadway at issue. Therefore, grant of the requested waiver “would not undermine the policy objective of the rule in question.”⁷ Notably, the Commission has granted waivers of Section 25.136(a)(4)(iii) under similar circumstances, including to Viasat.

d. Section 25.136(a)(4)(iv)

Viasat has completed frequency coordination with the UMFUS licensees within the area covered by the -77.6 dB(mW/(m2 * MHz)) contour with respect to existing facilities constructed and in operation by the UMFUS licensees. The Prior Coordination Notice (PCN) was sent by Comsearch on 8/1/2025 and no objections were received within the notice period. The Comsearch coordination report is attached as Exhibit C.

⁵ See, e.g., HNS License Sub, LLC, Call Sign E170169, ICFS File No. SES-LIC-20170807-00894, Condition 900592 (granted May 15, 2020).

⁶ See 47 C.F.R. § 1.3.

⁷ *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990); see also *Fugro-Chance, Inc.*, 10 FCC Rcd 2860, at ¶ 2 (1995) (waiver of U.S. Table of Frequency Allocations appropriate “when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.”).