



Viasat provides an estimate of the area in which its earth station will generate a power flux density (“PFD”) “at 10 meters above ground level, of greater than or equal to -77.6 dBm/m<sup>2</sup>/MHz”<sup>4</sup> for purposes of Section 25.136. But, according to Viasat’s Applications, this estimate was reduced to take into account “terrain or surface obstructions . . . using the NTIA ITS Irregular Terrain Model.”<sup>5</sup> And, Viasat does not provide any information regarding the assumptions it used to model clutter loss.

In its recent guidance on siting methodologies for earth stations operating in bands shared with Upper Microwave Flexible Use Service (“UMFUS”), the International Bureau “encourage[s] the use of widely accepted and publicly available propagation models, (e.g. ITU Recommendations such as ITU-R Rec. P. 452)” to compute an earth station’s PFD contour and states that “[a]pplicants should not use statistical models to estimate clutter loss when there are more accurate means of estimating clutter loss (e.g., the clutter model in ITU-R Rec. 452).”<sup>6</sup> The Bureau’s guidance also states that “[a]pplicants should provide a list of input parameters and formulas used to calculate the PFD contours or protection zones to allow for independent verification of the results of the propagation models used to generate the PFD contours and protection zones.”<sup>7</sup> It is imperative that UMFUS operators have an accurate and up-to-date record of the operating parameters of earth stations in their license area. By encouraging the use

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20210402-00613; SES-LIC-20210402-00614; SES-LIC-20210402-00609; SES-LIC-20210402-00610; SES-LIC-20210402-00611; SES-LIC-20210416-00706; SES-LIC-20210416-00707; SES-LIC-20210416-00708; SES-LIC-20210416-00709; SES-LIC-20210416-00713; SES-LIC-20210416-00715; SES-LIC-20210719-01082; SES-LIC-20210719-01083 (collectively, “Viasat Applications”).

<sup>4</sup> 47 C.F.R. § 25.136(a)(4)(ii).

<sup>5</sup> Viasat Applications, Ex. A, Technical Analysis at 2.

<sup>6</sup> Public Notice, *International Bureau Issues 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 Frequency Bands to Demonstrate Compliance with Section 25.136*, 35 FCC Rcd 6347 at 3 (2020).

<sup>7</sup> *Id.*

of accurate propagation models and requiring applicants to share the assumptions used in those models, the Bureau’s guidance ensures that UMFUS operators have the necessary information to reliably predict areas of interference, consistent with the Commission’s intent to “provide predictability to terrestrial licensees.”<sup>8</sup>

Viasat’s Applications state that “data with 1 meter resolution from Intermap was used to provide both clutter height and terrain information.”<sup>9</sup> However, Viasat then used a statistical model from 1982, the NTIA ITS Irregular Terrain Model, and unknown clutter variables to estimate clutter loss and reduce the contours of its earth stations.<sup>10</sup> Even setting aside the fact that the NTIA model is “for frequencies between 20 MHz and 20 GHz,”<sup>11</sup> and thus the 28 GHz band is outside its scope, Viasat’s use of this outdated model to reduce the size of its earth stations’ contours is contrary to the Bureau’s guidance. And, because Viasat’s Applications do not provide any information regarding the assumptions it used to model clutter loss or compute its earth stations’ contours, it is unclear whether Viasat’s use of this statistical clutter model on top of Intermap data double counts terrain or surface obstructions—adding extra attenuation and reducing the size of its earth stations’ contours. The Commission should thus defer granting Viasat’s Applications until Viasat has provided updated contours using only accurate data and assumptions that interested parties can verify.

Importantly, Viasat’s use of a statistical clutter model could have a significant impact on whether its earth stations satisfy Section 25.136’s criteria for operating on a protected basis.

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<sup>8</sup> Report and Order and Further Notice of Proposed Rulemaking, *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, 31 FCC Rcd 8014, ¶ 60 (2016).

<sup>9</sup> Viasat Applications, Ex. A, Technical Analysis at 2.

<sup>10</sup> *See id.*

<sup>11</sup> *See* NTIA Report 82-100 at 1 (Apr. 1, 1982), *available at*, [https://www.ntia.doc.gov/files/ntia/publications/ntia\\_82-100\\_20121129145031\\_555510.pdf](https://www.ntia.doc.gov/files/ntia/publications/ntia_82-100_20121129145031_555510.pdf).

Five of Viasat’s earth stations are located near interstates and principal arterials.<sup>12</sup> If Viasat’s use of a statistical clutter model has artificially reduced the size of these earth stations’ contours, under more realistic assumptions, the interference zones could encompass areas where the Commission “could expect to have high demand for wireless services,”<sup>13</sup> including “Interstate[s], Other Freeways and Expressways, [and] Other Principal Arterial[s].”<sup>14</sup>

Similarly, the contour of Viasat’s Bremen, Georgia earth station touches a passenger railway: the Amtrak Crescent.<sup>15</sup> Viasat states that “clutter around the site does nearly eliminate any overage of the nearby passenger railway line,” but acknowledges that “a few square meters [of the PFD contour] do fall on the railway.”<sup>16</sup> To begin with, there is no *de minimis* exception to Section 25.136. If the earth station’s PFD contour contains a passenger railroad, Viasat must use shielding to eliminate the overlap. In addition, while Viasat claims that, “[a]t normal passenger rail speeds this minor contour overlap presents no risk of interference to rail service,”<sup>17</sup> the risk of interference will be higher if Viasat’s use of a statistical clutter model has unrealistically reduced the size of the earth station’s contour.

For Viasat’s Edinburg, Virginia earth station,<sup>18</sup> “additional reduction in the pfd over and above that from terrain and clutter in the area around a SAN antenna was required to avoid coverage of locations (roadway).”<sup>19</sup> Viasat states that “[t]he wall dimensions and position were

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<sup>12</sup> See IBFS. Nos. SES-LIC-20210323-00557 (Interstate 285); SES-LIC-20210323-00558 (Interstate 285); SES-LIC-20210402-00611 (State Route 3); SES-LIC-20210416-00706 (Interstate 81 and U.S. Route 60); SES-LIC-20210416-00713 (Interstate 81).

<sup>13</sup> *Spectrum Frontiers First R&O* ¶ 54.

<sup>14</sup> 47 C.F.R. § 25.136(a)(4)(iii).

<sup>15</sup> See IBFS File No. SES-LIC-20210402-00613 (“Bremen Application”).

<sup>16</sup> Bremen Application, Ex. A, Technical Analysis at 4.

<sup>17</sup> *Id.*

<sup>18</sup> See IBFS. File. No. SES-LIC-20210416-00714 (“Edinburg Application”).

<sup>19</sup> Edinburg Application, Ex. A, Technical Analysis at 2.

adjusted until the required shielding level was reached.”<sup>20</sup> But again, Viasat used NTIA’s statistical model to reduce the size of the earth station’s contour, thus it is likely that even greater shielding and a larger wall is required.

These examples further highlight the importance of deferring Viasat’s Applications until Viasat has provided updated contours and the assumptions and data upon which its calculations are based. And, if Viasat’s updated contours encompass interstates, freeways, principal arterials, or passenger railroads, Viasat must use sufficient shielding to reduce the size of its earth stations’ contours to comply with Section 25.136 and operate without providing interference protection to stations in the Upper Microwave Flexible Use Service.

Respectfully submitted,

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September 3, 2021

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<sup>20</sup> *Id.*

## AFFIDAVIT

Pursuant to 47 C.F.R. § 25.154, I hereby certify that I am the qualified person responsible for preparation of the information contained in this filing, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the information submitted in this filing, and that it is complete and accurate to the best of my knowledge and belief.

Respectfully submitted,

/s/ Roy T. Smith  
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## CERTIFICATE OF SERVICE

I hereby certify that on September 3, the foregoing Petition was served by via First Class mail on the following:

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