

BEFORE THE  
**Federal Communications Commission**  
WASHINGTON, D.C. 20554

In the Matter of )  
 )  
**ViaSat, Inc.** ) File No. SES-STA-20120815-00751  
 ) Call Sign E120075  
Application for Special Temporary Authority to )  
Operate 5 Aircraft-Mounted Transmit/Receive )  
Earth Stations in the Ka-band )

To: Chief, Satellite Division  
International Bureau

**PETITION TO DENY OR DISMISS**

Row 44, Inc. (“Row 44”), by counsel, hereby petitions to deny the above-captioned request for special temporary authority (“STA”) filed by ViaSat, Inc. (“ViaSat”) on August 15, 2012. In the application (“ViaSat Ka-Band STA Request”), ViaSat seeks an STA on or before October 1, 2012 to operate five (5) identical aeronautical mobile-satellite service (“AMSS”) earth station terminals in the 28.25-29.1 and 29.5-30.0 GHz bands in the Earth-to-space direction and the 18.3-19.3 GHz and 19.7-20.2 GHz bands in the space-to-Earth direction for a period of sixty (60) days. These AMSS earth terminals would communicate with three previously authorized Ka-band geostationary (“GSO”) fixed-satellite service (“FSS”) satellites at the 115.1° W.L. and 111.1° W.L. orbital locations. Full licensing authority has been sought for up to 4,000 terminals in a pending application filed in late April, but not yet formally accepted for filing by the FCC. *See* ViaSat Ka-band AMSS Application, SES-LIC-20120427-00404, Call Sign E120075 (filed April 27, 2012) (“ViaSat Application”).

Row 44 urges the Bureau to deny this STA request, or to dismiss it as premature, because the underlying application is not yet complete, and has not yet been placed on Public Notice for comment. The process established under the Communications Act serves an essential vetting function for any application for new authority, especially one such as the instant ViaSat application, which is the first request for authority to provide AMSS using Ka-band FSS frequencies, a service for which no rules exist, or have even been proposed. Although AMSS and other mobile-satellite services are currently being offered by several licensees in Ku-band frequencies, the introduction of this service into the Ka-band raises distinct regulatory and policy questions, particularly because Ka-band satellite services are at a much earlier stage of development than Ku-band, and the same regulatory approaches cannot be assumed to apply.

**I. ViaSat's Application is Incomplete.**

At the outset, Row 44 notes that the underlying ViaSat Application does not yet include all necessary information to allow the FCC to process the application. Although this application was initially placed on an "Accepted for Filing" Public Notice on August 1, 2012,<sup>1</sup> the action was taken in error. One week later, the FCC issued a second "Informative" notice stating that the ViaSat Application "was inadvertently placed on the Accepted for Filing Public Notice, and that the application is still undergoing acceptability for filing review."<sup>2</sup> The second Public Notice did not reveal which elements of the ViaSat Application remain subject

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<sup>1</sup> See Satellite Communications Services, Accepted For Filing Public Notice, Report No. SES-01471, at 1-2 (dated August 1, 2012).

<sup>2</sup> See Satellite Communications Services, Accepted For Filing Public Notice, Report No. SES-01473, at 5 (dated August 8, 2012).

to acceptability review, but as Row 44 observes below, there are several outstanding issues that could render the application incomplete, and therefore unacceptable for filing.

Leaving aside the absence of any service rules – particularly any technical rules – to govern AMSS operations in these bands, among the other potential issues is the fact that ViaSat has not filed any evidence of completion of coordination with any of the affected GSO or NGSO satellite networks. In the application as originally filed, ViaSat stated that its proposal “can be coordinated with” all affected parties and that it expected “to complete the formal coordination arrangements shortly.”<sup>3</sup> In the ViaSat Ka-band STA Request, it is now asserted that “ViaSat has completed coordination with ... all operating Ka-band GSO satellite networks within six degrees” of each of the three satellites requested as points of communication, as well as “potentially affected Ka-band GSO satellite networks outside of the six-degree range,” one potentially affected non-geostationary (“NGSO”) network, and the recently launched EchoStar XVII satellite at 107.1° W.L.<sup>4</sup> Despite these sweeping representations, ViaSat has yet to submit any publicly-available documentation to the FCC that memorializes or otherwise corroborates the completion of these coordination discussions. Moreover, and as further discussed in the following section, it is not clear that ViaSat has identified all “potentially affected Ka-band GSO satellite networks outside of the six-degree range” with which it would need to coordinate. This is so due to the fundamentally non-compliant nature of its proposed Ka-band antenna, which has the clear potential to cause harmful interference at orbital locations well beyond the standard twelve-degree coordination range (six degrees in each direction).

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<sup>3</sup> ViaSat Application, Exhibit A at 5.

<sup>4</sup> ViaSat Ka-band STA Request at 1.

**II. ViaSat's Technical Proposal is Deficient, and Requires Thorough Examination in the Context of the Underlying Application.**

Row 44 intends to comment on the ViaSat Application if it is appropriately supplemented to include complete coordination documentation, and to make any additional technical changes that ViaSat deems appropriate. Based on the current, as filed, proposal, however, Row 44 has significant concerns regarding the technical acceptability of the proposed Mantarray antenna.

As ViaSat concedes in the underlying application, the proposed antenna does not comply with Section 25.138 of the FCC's rules in the elevation plane.<sup>5</sup> Of greatest concern is the fact that the spacing (pitch) of the feed horns utilized in the antenna design is fundamentally inconsistent with sound engineering practice for the reduction of grating side lobes. The optimal approach to avoid harmful impact from grating side lobes is to employ a maximum horn pitch of one wavelength ( $\lambda$ ). The ViaSat antenna exceeds this benchmark spacing by a factor of two. For both right and left circular polarization senses, the antenna pattern for operation at all of the measured frequencies ranging from 28.1 to 30 GHz exhibits side lobes and grating lobes that greatly exceed the co-polarization elevation mask in Section 25.138.<sup>6</sup> Moreover, for both right and left circular polarization senses, the antenna pattern for operation with 22 to 31 degrees skew considered at all of the measured frequencies ranging from 28.1 to 30 GHz exhibits grating lobes that significantly exceed even the co-polarization azimuth mask set forth in Section 25.138 of the Commission's Rules.<sup>7</sup> This unacceptable side lobe radiation at 22 to 31 degrees skew will not only occur in a large geographical region

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<sup>5</sup> See ViaSat Application, Exhibit A at 4.

<sup>6</sup> See ViaSat Application, Exhibit C.

<sup>7</sup> See *id.*

within the continental U.S. but can also be directly brought into the Clarke Belt by aircraft maneuvers in pitch and roll at any position over the continental U.S., likely resulting in interference throughout much of that region.

Accordingly, ViaSat's claim that only the AMC-16 satellite at 85° W.L. would be affected by these grating lobes<sup>8</sup> is incorrect. Indeed, it can be inferred from the ViaSat Application itself that the skew angle range for which grating lobes point to the geostationary arc ranges from at least 22 degrees to 31 degrees.<sup>9</sup> Within a large geographical area of the U.S., these grating lobes point to the GSO arc, with an affected orbital range extending from 76° W.L. to 90° W.L., at a minimum. If geometrical considerations are included, this range of impact is likely extended from 70° W.L. to 95° W.L, and potentially over an even wider area.

These are far from the only troubling, and potentially harmful interference causing, aspects of ViaSat's technical proposal. The exigency of submitting this Petition during the pendency of the STA request, however, precludes the submission of a more complete technical critique as may be prepared in the context of a full 30-day public notice period mandated for applications under the Communications Act and the Commission's Rules.<sup>10</sup>

### **III. Ka-Band AMSS Presents Distinct Regulatory and Policy Issues Not Present for Ku-band AMSS.**

At a more fundamental policy level, it is far from clear, even if ViaSat is able to document coordination with each of the current licensed operators within six degrees of its requested points of communication in each direction, as well as those within the zone of concern created by the outlying grating lobes, that ViaSat should be permitted to proceed based

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<sup>8</sup> See ViaSat Application, Exhibit A at 8.

<sup>9</sup> See ViaSat Application, Attachment 1, Technical Description at 8 (Fig. 3).

<sup>10</sup> See 47 U.S.C. § 309 and 47 C.F.R. § 25.154.

solely on these coordination agreements with the relatively few current Ka-band satellite operators. The presentation of completed coordination arrangements with all adjacent satellite operators within six degrees of any AMSS point of communication has been for several years an accepted means to secure licensing for this service in the Ku-band.<sup>11</sup> But it is far from clear that this same approach is appropriate for new Ka-band operations. Unlike the Ku-band GSO FSS, which is a mature service where most orbital locations over the continental U.S. have an established operator/licensee motivated to protect its interests, these same characteristics do not apply to Ka-band, which has only recently begun to be developed for provision of both GSO and NGSO satellite services. Because of the relatively early stage of development of Ka-band satellite services, many potentially usable orbital locations in these frequency bands are not yet licensed to any service provider. Ka-band FSS thus is not yet a mature segment of the satellite services industry, and may not be for many more years. As a result, any rushed effort to implement non-conforming services in these bands could have unintended long term consequences for the development of the primary service offerings in this band, including the delivery of broadband satellite services to remote and underserved areas. These considerations must be carefully evaluated before the FCC moves down the road toward ubiquitous deployment of aircraft-mounted terminals in these bands. Indeed, the International Telecommunication Union remains engaged in examining issues related to Ka-band Earth Stations on Mobile Platforms (“ESOMPs”), including aircraft, to ensure that no greater interference will occur in the band than results from existing FSS applications.

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<sup>11</sup> See, e.g., *Row 44, Inc.*, 24 FCC Rcd 3042 (Sat. Div. 2009) (“*Row 44*”).

**IV. The Past Ku-Band STA Grants Cited by ViaSat Provide No Precedent for The Action It Requests.**

Finally, ViaSat makes a very specific and ultimately unsupportable claim concerning a particular STA grant about which Row 44 has intimate knowledge. ViaSat asserts that “the Commission has granted STA under similar circumstances” on prior occasions. ViaSat Ka-band STA Request at 1. The lone precedent cited by ViaSat, however, is Row 44’s own 2009 STA grant in connection with the development of its current AMSS in-flight service.<sup>12</sup> In fact, the circumstances that led to an STA grant in that case were markedly different from the facts set before the Bureau in this case. In Row 44’s case, all of the potentially-affected adjacent satellite operators signed coordination letters that supported Row 44’s STA request as a means of allowing the company to conduct in-flight testing evaluating the capability of its network to operate on a non-interference basis.<sup>13</sup> Moreover, Row 44 committed in that proceeding to provide the results of the in-flight testing to both the FCC and the operators filing letters in support of the STA request.<sup>14</sup> Finally, it was also the case that Row 44’s underlying AMSS application had been placed on Public Notice, and had already been subject to a full round of comments and replies in the Fall of 2008 before the FCC entertained and acted upon the STA Request in March 2009.

None of these factors is present here. While ViaSat asserts that grant of the requested “STA would serve the public interest by facilitating the assessment of the terminal while in

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<sup>12</sup> ViaSat Ka-band STA Request at 1, *citing Row 44*, 24 FCC Rcd 3042.

<sup>13</sup> *See Row 44*, 24 FCC Rcd at 3043-44.

<sup>14</sup> *Id.* Notably, ViaSat objected to grant of the STA even under these conditions, demanding, inter alia, that Row 44 make test data publicly available, that the authority be limited to a single aircraft-mounted antenna, and that “the acquiescence of the adjacent satellite operators is not conclusive and that the Commission has an obligation to act based on its own technical evaluation.” As noted above, this last argument has far more relevance in the relatively undeveloped Ka-band than it did with respect to Ku-band operations.

flight and under typical user conditions,”<sup>15</sup> it makes no commitment to submit a test report containing the data gathered in this assessment phase to the Commission or to the affected satellite operators. Nor, as noted above, has ViaSat even provided coordination letters which affirmatively demonstrate the agreement of the adjacent satellite operators to such a testing program. In addition, the ViaSat application has yet to even be accepted for filing, let alone been subject to a full pleading cycle in which members of the public can raise concerns regarding the proposed operations.

Indeed, the true intent of the “testing” period proposed is not to establish the technical acceptability of the highly-suspect ViaSat antenna but, as the applicant phrases it, “to permit *market access* trials and testing and tuning of the system in a *commercial operations* context.” ViaSat Ka-band STA Request at 1 (emphasis added). Given the legitimate technical concerns outlined herein, which require the sunlight of public notice and comment in the context of the pending application proceeding, any STA on these grounds would be extremely premature, at best. This is particularly the case given ViaSat’s presumptuous justification for STA, based on its customer JetBlue having already “scheduled its commercial trials of satellite broadband using these Earth stations, commencing on October 1, 2012.” *Id.* This is not an acceptable rationale for an STA grant under the Commission’s Rules, which plainly state, “Convenience to the applicant, such as marketing considerations or meeting scheduled in-service dates, will not be deemed sufficient” to satisfy the requirement that “extraordinary circumstances” be demonstrated such that delay instituting operations “would seriously prejudice the public interest.”<sup>16</sup> ViaSat’s meager showing does not come close either to meeting this requirement

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<sup>15</sup> ViaSat Ka-band STA Request at 1.

<sup>16</sup> 47 C.F.R. § 25.120(b)(1).



or to demonstrating similarity to the 2009 Row 44 STA grant upon which ViaSat relies exclusively as precedent.

**V. Conclusion**

For all of the foregoing reasons, Row 44 respectfully urges the Bureau to deny the ViaSat Ka-band STA Request as insufficiently justified, or alternatively, to dismiss the request as unacceptably premature.

Respectfully submitted,

**ROW 44, INC.**

By: *s/ David S. Keir*  
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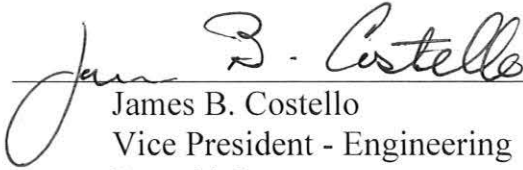
September 5, 2012

Its Attorney

**TECHNICAL CERTIFICATE**

I, James B. Costello, hereby certify that I am the technically qualified person responsible for the preparation of the technical discussion contained in the foregoing "Petition to Deny of Dismiss," that I am familiar with Part 25 of the Commission's Rules (47 C.F.R., Part 25), and that I have either prepared or reviewed the technical information and supporting facts contained herein and found them to be complete and accurate to the best of my knowledge and belief.

September 5, 2012

By:  \_\_\_\_\_  
James B. Costello  
Vice President - Engineering  
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**CERTIFICATE OF SERVICE**

I, Sharon A. Krantzman, do hereby certify that on this 5th day of September 2012, I sent a copy of the foregoing "Petition to Deny or Dismiss" via first-class mail to:

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