

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

REPLY TO OPPOSITION

Row 44, Inc. (“Row 44”), by counsel and pursuant to Section 25.154(d) of the Commission’s Rules, hereby replies to the Opposition of ViaSat, Inc. (“ViaSat”) filed September 14, 2012 in the above-captioned proceeding,¹ in which ViaSat is seeking special temporary authority (“STA”) to operate five (5) aeronautical mobile-satellite service (“AMSS”) earth station terminals in the Ka-band frequencies at 28.25-29.1 and 29.5-30.0 GHz (Earth-to-space) and 18.3-19.3 GHz and 19.7-20.2 GHz (space-to-Earth). Because ViaSat has failed to address the significant technical and regulatory deficiencies in its STA Request, the Bureau should either deny the request as defective or dismiss it as premature. At a minimum, consistent with its past

¹ The ViaSat Opposition responded to Row 44’s Petition to Deny or Dismiss, which was filed on September 5, 2012. Under the Commission’s Rules, ViaSat had ten days to submit an Opposition to the Petition, and was afforded an additional three days to file because Row 44 served its Petition by mail, yielding an opposition deadline of Wednesday, September 19, 2012. *See* 47 C.F.R. § 25.154(c) & § 1.4(h). Any reply to an opposition filed pursuant to Section 25.154(c) of the Rules is due “within 5 days after the time for filing oppositions has expired.” 47 C.F.R. § 25.154(d) & § 1.4(g). Accordingly, this Reply is timely today – Wednesday, September 26, 2012 – having been filed within five business days following the expiration of the opposition filing period, notwithstanding the fact that ViaSat filed its Opposition on Friday, September 14, 2012, five days prior to the actual opposition filing deadline.

approach in similar proceedings, the Commission should defer action on the ViaSat STA Request until it has established a complete record with respect to the underlying ViaSat application in the context of that closely-related proceeding.²

I. ViaSat's Request to Use a Non-Compliant Antenna to Provide Aeronautical Mobile-Satellite Service Does Not Conform to the Ka-band Fixed-Satellite Service Rules

In its Petition, Row 44 pointed out that ViaSat's application, which benefits from no established Commission rules governing AMSS operations in the Ka-band, was incomplete because it had failed to demonstrate that satellite operators with networks adjacent to its intended points of communication concur with ViaSat's proposed non-conforming use of its non-compliant antenna.³ Row 44 further suggested that the early stage of development of the Ka-band FSS made it questionable whether such coordination agreements alone could be adequate to protect the growth and development of Ka-band services, given the relative dearth of satellites now operating in the band.⁴

In its Opposition, ViaSat seeks to limit the scope of Row 44's argument by asserting that it relies solely on the fact that Ku-band FSS is a nascent service.⁵ Arguing that the fact that Ka-band FSS rules have been in place for a dozen years renders this service well-established, ViaSat asserts that it is entitled to rely on the terms of Section 25.138 of the Rules as governing the

² See ViaSat Ka-band AMSS Application, SES-LIC-20120427-00404, Call Sign E120075 (filed April 27, 2012) ("ViaSat Application") (seeking authority to operate up to 4,000 technically-identical AMSS terminals). This application has not yet been placed on Public Notice as "Accepted for Filing." See Row 44 Petition at 2-3.

³ Row 44 Petition at 3.

⁴ Row 44 Petition at 5-6. In this connection, it is a relevant consideration that ViaSat itself is an existing Ka-band satellite operator and may therefore be less concerned about constraints its Earth station deployments may impose upon operators seeking to launch new Ka-band satellites in the future.

⁵ ViaSat Opposition at 3

requirements for its AMSS blanket license application.⁶ This is the sole basis for its contention that its application is “complete” under the Commission’s Rules.⁷

ViaSat’s argument is fundamentally flawed. Contrary to ViaSat’s assertion, its application and the associated STA Request are not “fully consistent” with the current Ka-band licensing framework.⁸ The extant Ka-band rules apply on their face only to *FSS* applications, whether on an individually-licensed or blanket-licensed basis.⁹ ViaSat is not proposing to operate FSS earth stations in the Ka-band. It is instead proposing to operate mobile-satellite service (“MSS”) earth terminals in this band, a use for which there is no current licensing framework or – in contrast to the Ku-band – even an active proposal to adopt such rules.¹⁰

In short, ViaSat is not simply seeking to use a non-conforming FSS antenna to provide otherwise permissible service in the band, it is seeking to use a fundamentally non-compliant antenna *for a non-conforming purpose*. There is simply no basis for ViaSat’s implicit assertion that the licensing framework created for FSS implementations in the Ka-band is equally applicable to its *sui generis* MSS network application, and to the related STA Request at issue here. ViaSat is not an applicant seeking to offer an allocated primary service, but one requesting authority to operate a non-allocated service solely on a non-interference-protected, non-harmful-interference basis. There is therefore no basis for it to be granted spectrum access on the very

⁶ ViaSat Opposition at 4-6.

⁷ ViaSat Opposition at 1 & 7.

⁸ ViaSat Opposition at 3.

⁹ *See, e.g.*, 47 C.F.R. § 25.138 (“Blanket Licensing provisions of GSO FSS Earth Stations in the 18.3 to 18.8 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.35-28.6 GHz (Earth-to-space), and 29.25-30.0 GHz (Earth-to-space) bands”).

¹⁰ *Compare In the Matter of Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Station in Frequency Bands Allocated to the Fixed Satellite Service*, IB Dkt. 05-20, 20 FCC Rcd 2906 (2005) (Notice of Proposed Rulemaking to establish rules for Ku-band AMSS).

same terms as a *bona fide* primary service applicant, which is the treatment which ViaSat argues for in its STA Request and in its Opposition. Instead, ViaSat has an affirmative obligation to demonstrate that it will not cause harmful interference to other spectrum users.

This obligation is amplified by the fact that the ViaSat application is the very first seeking to use Ka-band spectrum for an MSS network.¹¹ ViaSat therefore needs to provide complete technical detail in order to allow all parties concerned about AMSS development in the Ka-band to evaluate its proposal fully.¹² Having fallen well short of that threshold showing, ViaSat now complains that Row 44's conclusions concerning the problematic Mantarray antenna are based on mere "inference" leading to "sheer, unfounded speculation."¹³ These complaints miss the point that it is ViaSat that is required to establish a clear foundation for grant of its proposal, including the STA Request, and that it has failed to do so in the documentation it has filed to date. When those critiquing a technical proposal are required to draw inferences from limited and largely unexplained data to determine the scope of potential interference impact, it is evident that the applicant has failed to provide a complete technical showing.¹⁴

For example, ViaSat states in its application that its antenna patterns show four grating lobes which are "present for a limited range of skew angles centered around approximately 25° of skew" and notes that the EIRP "is as much as 22 dB above the 25.138 off-axis EIRP density

¹¹ Moreover, Ka-band FSS itself is not nearly as well-developed as Ku-band satellite service. Despite the existence of Ka-band rules for FSS since 2000, commercial FSS operations are at a relatively early stage of development. Whereas commercial *Ku*-band FSS service has been established for over thirty years, the first commercial *Ka*-band FSS satellites were launched less than a decade ago, and only a handful of such satellites currently operate over North America.

¹² While Row 44 currently provided AMSS service exclusively in the Ku-band, it is actively exploring the possibility of using Ka-band capacity as well.

¹³ ViaSat Opposition at 6-7.

¹⁴ In addition to the grating lobe problem discussed here, there remain other technical discrepancies and omissions that require the full vetting of a public comment period on the underlying application before an STA request is considered.

mask.”¹⁵ ViaSat then provides a plot of its EIRP exceedances applicable only to a skew value of 25 degrees instead of the full range of skew values over which the Section 25.138 limits are exceeded. While ViaSat makes several claims seeking to downplay the potential impact of the grating lobes on other spectrum users, it does not provide any detail regarding the factors considered in its calculations that would enable others to replicate its methodology. ViaSat also provides no information concerning how its antenna is oriented. The rudimentary plot that ViaSat has supplied to indicate the scope of the grating lobe issue shows that the EIRP exceeds the Section 25.138 benchmark for skew values well-beyond a region centered at 25 degrees. However, no scale is provided on this plot to quantify the extent to which the EIRP spectral density exceeds the Section 25.138 mask for all applicable skew values.¹⁶ In the attached Technical Appendix, the limited information provided in the ViaSat application is overlaid on a map of North America to demonstrate the potentially broad geographic impact of these grating lobes across the middle of the continental U.S. *See* Technical Appendix, Figure 3. This graphic represents only the arc for one half of the skew region (the 2nd and 4th quadrants); however, the same effect exists in the 1st and 3rd quadrants as well.

II. There is No Precedent for the STA That ViaSat Seeks.

In its STA Request, ViaSat relies exclusively as precedent upon a 2009 STA in which Row 44 was granted permission to operate a small number of Ku-band AMSS remote antennas to test the efficacy of the antenna under real world operating conditions.¹⁷ ViaSat claims that the

¹⁵ ViaSat Application, Attachment 1, Technical Description at 7-8.

¹⁶ ViaSat Application, Attachment 1, Technical Description at 8, Figure 3.

¹⁷ *See* ViaSat Ka-band AMSS STA Request at 1 & fn.1 *citing* *Row 44, Inc., Application for Special Temporary Authority for Mobility Testing of Aircraft Earth Stations*, Order and Authorization, 24 FCC Rcd 3042 (IB 2009) (“Row 44 Ku-band STA”). The Row 44 STA is the only case ViaSat cites in support of the relief it requests.

Row 44 STA grant was made “under similar circumstances,” and implies that it is thus a substantial precedent for the relief ViaSat now requests for Ka-band operations. In its Petition, Row 44 explained that there were multiple respects in which the Row 44 Ku-band STA for in-flight AMSS testing differed materially from the ViaSat STA Request.¹⁸ In its Opposition, ViaSat has failed to refute Row 44’s demonstration that an STA is not appropriate in this circumstance, and that the Row 44 Ku-band STA is inapposite to ViaSat’s Ka-band Request.¹⁹

There are at least four fundamental and dispositive differences between Row 44’s circumstance and ViaSat’s in the current proceeding. First, unlike the circumstances that governed the Row 44 Ku-band STA, this is a case of first impression for a novel, never-before-authorized use. As noted above, ViaSat’s application to provide Ka-band AMSS is the very first of this type to be filed with the FCC. In contrast, at the time that Row 44 sought its Ku-band authorization in mid-2008, three prior AMSS authorizations had already been granted for service in the Ku-band,²⁰ and the Commission had begun to provide more regularized approach to processing such applications.

Second, the FCC established a full administrative record in the application proceeding before the Row 44 STA request was considered. The Row 44 application was filed on May 8, 2008, and amended with the filing of coordination letters on June 19, 2008.²¹ After being placed on Public Notice on May 28, 2008,²² the initial round of pleadings was completed at the end of

¹⁸ See Row 44 Petition at 7-8.

¹⁹ See ViaSat Opposition at 8-9.

²⁰ See *The Boeing Company*, Order and Authorization, 16 FCC Rcd 22645 (IB/OET 2001); *ARINC Incorporated*, Order and Authorization, 20 FCC Rcd 7553 (IB/OET 2005); *ViaSat Inc.*, Order and Authorization, 22 FCC Rcd 19964 (IB/OET 2007).

²¹ See FCC File No. SES-AMD-20080619-00826.

²² See FCC Public Notice, Rep. No. SES-01036, Satellite Radio Applications Accepted for Filing, released May 28, 2008.

the first week in August 2008. The Row 44 STA Request was filed on July 11, 2008, sixty-four days after the initial application.²³ After being subject to follow-up FCC staff inquiries and a subsequent round of comments during the Fall of 2008, including numerous *ex parte* submissions by ViaSat, Row 44 was able to reach an agreement on in-flight testing with the affected satellite operators in early 2009, ultimately leading to the grant of a limited STA on March 13, 2009, just over 8 months after the Row STA request was initially submitted.²⁴ Indeed, ViaSat itself implicitly acknowledges the importance of establishing such a record when it states that even the current Section 25.138 FSS coordination certification is intended to “provide a mechanism for satellite operators to express any concerns that they (or their customers) may have *by commenting on the application.*”²⁵ In the absence of a Public Notice accepting the underlying application for filing and publicly announcing a comment period, it is not at all clear that all such interested parties are even aware of the application, let alone that they have had a fair opportunity for comment on the application to which the STA Request relates.

Third, operators of satellites adjacent to those chosen as points of communication actively participated in the Row 44 proceeding, including the formulation of the in-flight test plan, and the operators explicitly consented to Row 44’s testing program.²⁶ The Row 44 Ku-band STA was granted only after Row 44 submitted to the Commission an agreement with the

²³ See FCC File No. SES-STA-20080711-00928.

²⁴ *Row 44 Ku-band STA*, 24 FCC Rcd 3042.

²⁵ ViaSat Opposition at 6 (emphasis added).

²⁶ See *Row 44, Inc.*, 24 FCC Rcd 10223, 10228 (¶ 12) (IB/OET 2009) (“Because the operators of the satellites that would be primarily affected by interference from Row 44’s operations had consented to the in-flight STA request and participated in formulation of the test plan, the Bureau’s Satellite Division concluded that granting the request would facilitate resolution of concerns regarding interference that might result from full-scale operation”).

affected operators governing the sharing of information from the Row 44 testing program with those operators and the Commission.²⁷

Finally, the Row 44 Ku-band STA was designed to provide actual data to demonstrate its capability of operating on a non-interference basis.²⁸ Such data would appear to be of even greater relevance here, where no Ka-band AMSS operations of any kind have been previously authorized. In any case, the grant of an STA to Row 44 under such conditions for technical proof of concept manifestly provides no justification for an STA grant to ViaSat premised solely on the timetable that the applicant itself has set for commencement of market trials.

Apart from the asserted applicability of the Row 44 precedent, which as conclusively demonstrated above is wholly unavailing, ViaSat's only other claimed support for an STA grant in this context lies in language indicating that the staff may "consider" an STA after a non-routine application has remained pending for more than 60 days.²⁹ Contrary to ViaSat's assertion, however, threshold eligibility for consideration of an STA based on the length of time a non-routine application has been pending is not equivalent to a demonstration that grant of an "STA is appropriate."³⁰ There is no entitlement to an STA here, particularly where the request itself is not merely "non-routine," but unprecedented.

²⁷ *Row 44 Ku-band STA*, 24 FCC Rcd at 3043 (¶ 4).

²⁸ The Bureau premised the Row 44 Ku-band STA, in part, on the assent of "the operators of the satellites that would be primarily affected by any interference caused by operation of Row 44's aircraft earth stations – that is, the satellites within six longitudinal degrees of Row 44's three target satellites – [that] have indicated that testing would be appropriate, and have participated in formulation of the test plan".

²⁹ ViaSat Opposition at 8, *citing Amendment of Part 15 of the Commission's Rules and Regulations*, 6 FCC Rcd 2806, 2810 n.69 (1991) ("When an application cannot be routinely granted within 60 days, the staff will, in most cases consider a request for an STA").

³⁰ ViaSat Opposition at 8. In this regard, ViaSat's assertion that Row 44 is estopped from raising the limitations of Section 25.120(b)(1) is incorrect. Row 44 did not argue in its Petition that ViaSat was barred from consideration of its STA Request because it offered only marketing

III. ViaSat's Procedural Arguments Are Misplaced.

Perhaps due to the inherent weakness of its substantive arguments, ViaSat asserts that Row 44 has failed to satisfy the procedural prerequisites necessary to participate in this proceeding. ViaSat maintains that "Row 44's allegations are not supported by the required affidavit,"³¹ referring to the requirements of Section 25.154(a) of the Commission's Rules. In this instance, however, no factual affidavit is required to demonstrate the relevance and the merits of Row 44's Petition. Row 44's arguments against the STA are premised not on "allegations of fact," but on the Commission's Rules, precedent and the manifest technical deficiencies of the ViaSat application and STA Request, which demonstrate grant is not in the public interest. The technical arguments are appropriately supported by a technical certificate.³²

Moreover, ViaSat's standing argument is not germane to the application before the Bureau. Fundamentally, standing is a requirement intended to avoid expending scarce resources on a case that a court lacks jurisdiction to resolve, subjecting to dismissal without substantive consideration any case where "party-in-interest" status is not demonstrated.³³ The concept has little relevance in this context where, regardless of any standing determination, the FCC is affirmatively required to render a decision in the public interest, if not on the pending STA request itself,³⁴ at least on the underlying license application. There is no limitation on

considerations in support of its application, but simply that such a justification was inadequate to justify grant under the circumstances present here. *See* Row 44 Petition at 8. As explained above, Row 44's 2009 STA was premised on a much broader rationale.

³¹ ViaSat Opposition at 1.

³² *See* Technical Certificate of James B. Costello, Vice President – Engineering, Row 44, Inc., dated September 5, 2012, attached to the Row 44 Petition.

³³ *See, e.g., Ranger Cellular v. FCC*, 348 F3d 1044 (D.C. Cir. 2003).

³⁴ Particularly in complex, non-routine application proceedings for non-conforming uses, such as this case, it is common for the Bureau to defer action on any STA request pending consideration of the underlying application. *See, e.g., Panasonic Avionics Corp.*, 26 FCC Rcd

jurisdiction to be upheld, and at the same time, there is every reason for the Bureau to consider Row 44's arguments concerning the deficiencies in the ViaSat STA Request (and the underlying application) under its general public interest mandate. The FCC routinely does so even when it affirmatively finds that a party lacks party-in-interest standing.³⁵ Accordingly, ViaSat's procedural claims merit no consideration.

IV. 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 to dismiss the request as unacceptably premature. Alternatively, the Bureau could simply defer action on the request pending the establishment of a complete administrative record concerning the underlying license application.

Respectfully submitted,

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12557, 12570 (¶ 28) (IB/OET 2011) (“Panasonic’s application for Special Temporary Authority, SES-STA-20110104-00005, IS DISMISSED as moot”) (emphasis in original).

³⁵ Under its procedural rules, the Commission has discretion to treat a Petition to Deny as an informal objection in any circumstance, and to consider the arguments raised in its public interest evaluation. *See* 47 C.F.R. § 1.41. The Part 25 Rules specifically provide for the treatment of any non-compliant “Petition to Deny” as an informal objection. *See* 47 C.F.R. § 25.154(b); *DirectTV Enterprises, LLC*, 25 FCC Rcd 440, 442 (¶ 5) (“a pleading not filed in accordance with Section 25.154(a) of the Commission’s rules will be classified as an “informal objection ... There is no standing requirement for informal objections”). *See also Stratuswave Communications et al.*, 27 FCC Rcd 6302, 6307 (¶ 9) (WTB 2012) (“Since standing is not a prerequisite to filing an informal objection, we need not reach Stratuswave’s standing argument”).

Technical Appendix

Figure 1, extracted from ViaSat's Exhibit C, illustrates the offending grating lobes that exceed the FCC's Section 25.138 specification. Since this and other ViaSat plots are only offered for a skew value of 25 degrees, this plot is insufficient to provide a complete showing of ViaSat's potential to interfere with other satellites.

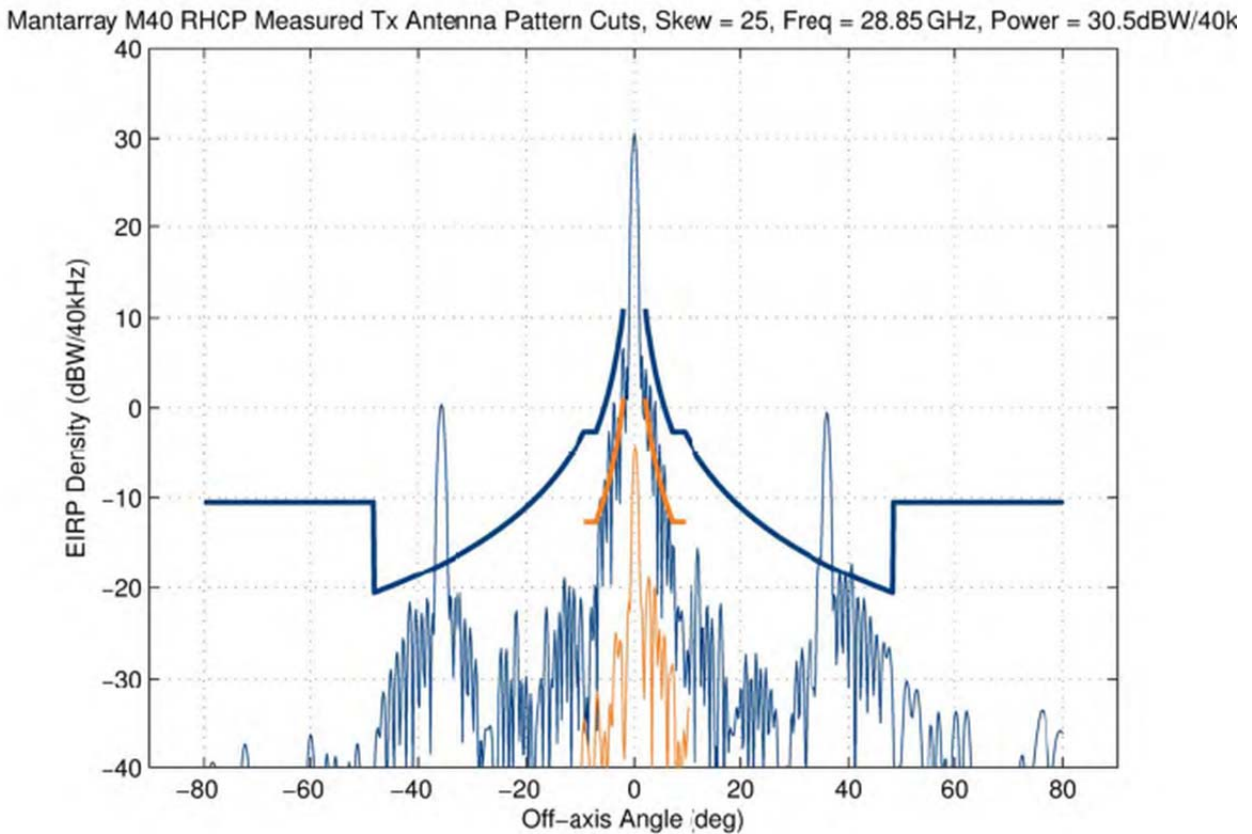


Figure 1: ViaSat's Plot of Grating Lobe EIRP Exceeding 25.138 for 25⁰ skew

Figure 2 below, modified from 'Figure '3 of ViaSat's Technical Description, illustrates the locations of the grating lobes that exceed the Section 25.138 criteria.

ViaSat's plots from their application (e.g., Figure 1 above) provide off-axis EIRP values for only a single skew of 25 degrees. As is evident in Figure 2, the skew range over which ViaSat's EIRP exceeds the Section 25.138 mask is more extensive. At the same time, Figure 2 provides no quantitative indication of the amount of exceedance for the various skew values.

As an estimate of the skew-ranges over which the grating lobes will exceed the Section 25.138 benchmarks, solid lines are drawn tangent to the regions indicating the highest values of EIRP exceedance. In these narrow regions alone, it is evident that the Section 25.138 limits are significantly exceeded between skew values of 22° and 31° for positive skew values, as well as a similar region from -22° to -31° for negative values of skew.

(Note also that the left-half of the plot even suggests that Section 25.138 exceedance occurs across the entire range of skew values between 0° and 31° .)

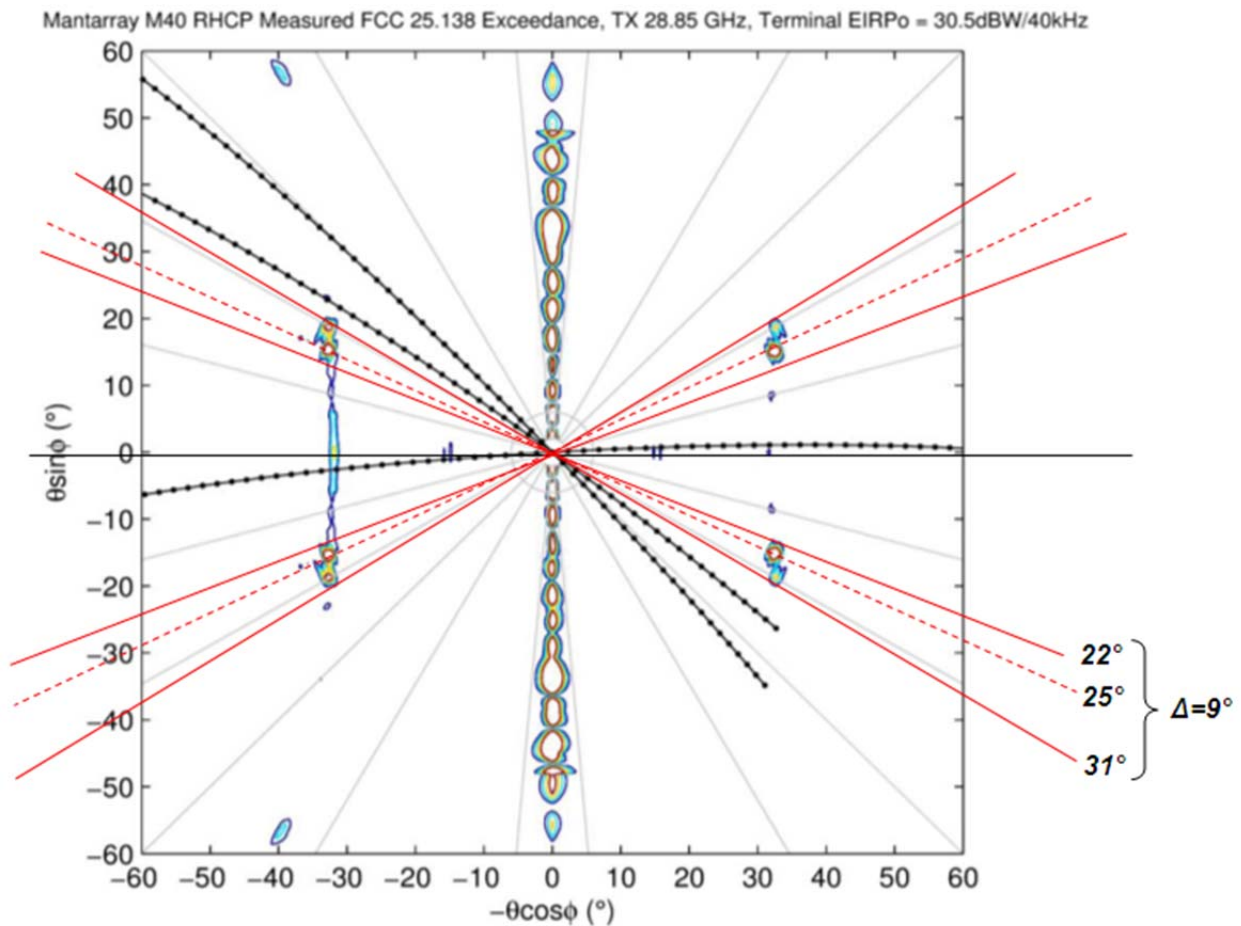
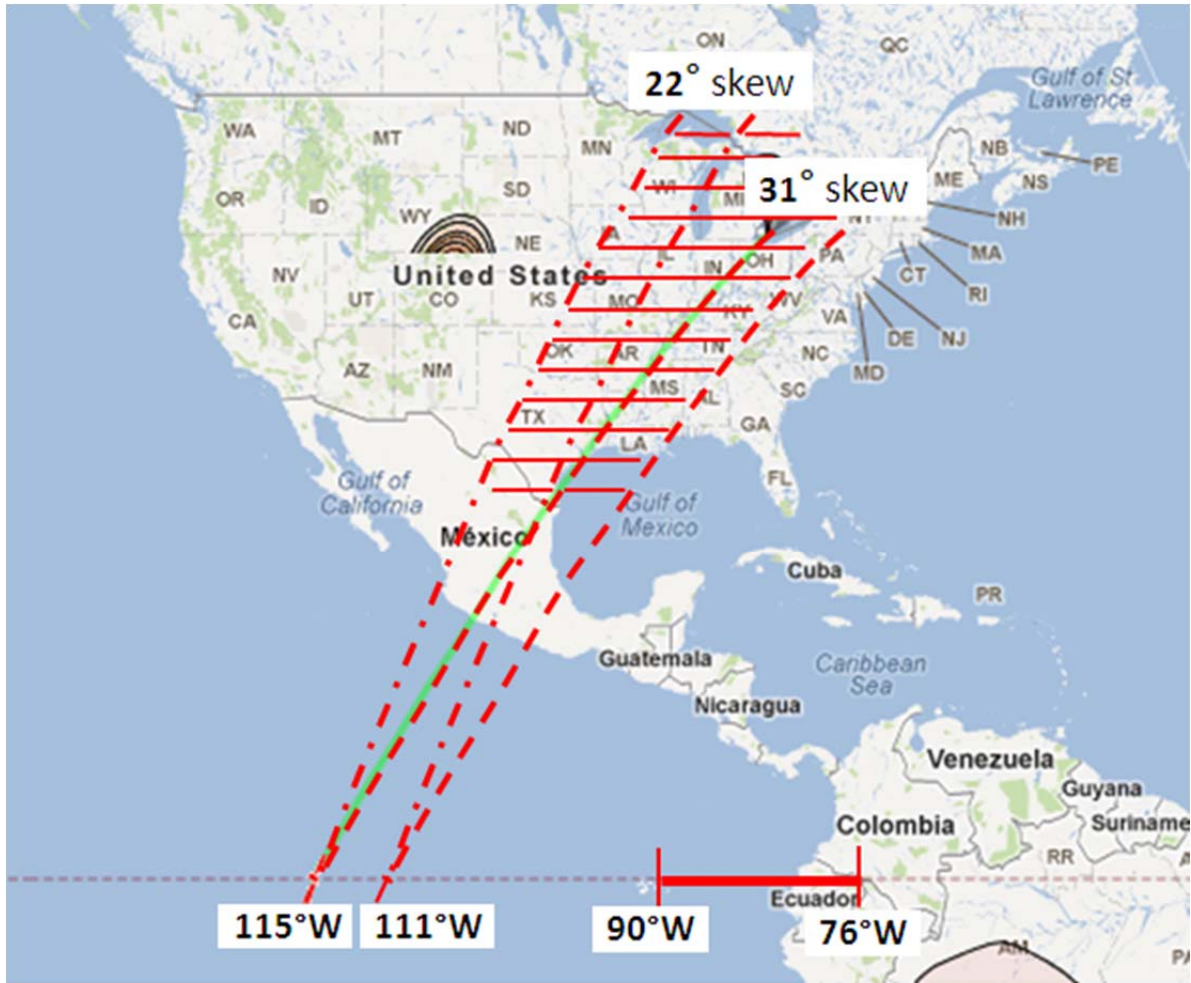


Figure 2: Estimated Skew Ranges where Grating Lobes Cause Interference

Figure 3 (shown on next page) illustrates the geographical impact of the Section 25.138 exceedance boundaries of Figure 2 for a 'flat' aircraft. While pointing to either of ViaSat's satellites, there will be a geographical region within which an antenna pointing to either of ViaSat's satellites will invoke a skew value falling within the range of skew values over which ViaSat violates the Section 25.138 EIRP limits.

As can be seen (again, for a 'flat' aircraft), the geographical span over which pointing to either of ViaSat's satellites involves skew values between 22 to 31 degrees extends over a broad portion of the continental US, thereby demonstrating that the region over which interference created by the Mantarray antenna grating lobes will occur is far broader and of greater concern than ViaSat acknowledges in its application.

As mentioned, Figure 3 indicates the region for a 'flat' aircraft. For a 4-degree pitched aircraft the region is expanded approximately 2.9 degrees east, and 4.1 degrees west in longitude. That is, for an aircraft flying due east at a 4 degree pitch, the 31 degree skew contour (to ViaSat's satellite at 111.1 West) will occur at longitudes approximately 2.9 degrees farther-east than that shown in Figure 3. As well, for an aircraft flying due-west at a 4 degree pitch, the 22 degree contour (to ViaSat's satellite at 115.1 West) will occur at approximately 4.1 degrees farther-west than Figure 3. In view of the fact that all cruising aircraft fly at 'pitch', this indicates the effective geographical regions for interference will actually extend well-beyond those indicated in Figure 3 when real-world operating conditions are considered.



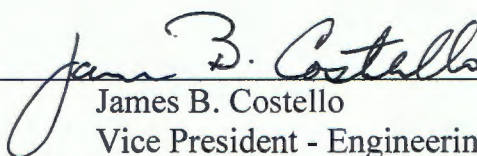
- - - - approx. 22° skew boundary for Viasat-1 and WildBlue-1, respectively
- - - - approx. 31° skew boundary for Viasat-1 and WildBlue-1, respectively

Figure 3: US Regions Invoking Interference from ViaSat's Antenna Grating Lobes

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 and annexed to the foregoing "Reply to Opposition," 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 26, 2012

By: 
James B. Costello
Vice President - Engineering
Row 44, Inc.

CERTIFICATE OF SERVICE

I, Genevieve F. Edmonds, do hereby certify that on this 26th day of September 2012, I sent a copy of the foregoing "Reply to Opposition" via first-class mail to:

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