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BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

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JUL 23 2008

Federal Communications Commission
Office of the Secretary

In re: Application of	)	
	)	
Row 44, Inc.	)	FCC File Nos. SES-LIC-20080508-00570
	)	SES-AMD-20080619-00826
For Authority to Operate Up to 1,000 Technically-Identical Aeronautical-Mobile Satellite Service Transmit/Receive Earth Stations Aboard Commercial and Private Aircraft	)	Call Sign: E080100

ROW 44, INC's STATEMENT PURSUANT TO SECTION 25.154(e) OF THE COMMISSION'S RULES AND OPPOSITION TO VIASAT, INC.'s PETITION TO DENY

Row 44, Inc. ("Row 44"), by counsel and pursuant to Section 25.154(e) of the Commission's Rules (47 C.F.R. § 25.154(e)), hereby submits its coordination statement and opposition to the Petition to Deny of ViaSat, Inc. ("Petition"), filed on June 28, 2008, with respect to the above-captioned application ("Application"). Row 44's Application seeks authority to provide aeronautical-mobile satellite service ("AMSS") pursuant to a blanket license.[1] The International Bureau should dismiss the Petition as deficient. Not only has ViaSat failed to demonstrate how it might be harmed by grant of the Application, but the specific assertions contained in the Petition also are either inaccurate or misplaced. Moreover, Row 44 and the space segment providers for its AMSS service have completed coordination

[1] Section 25.154(e) of the Commission's Rules provides that when a petition to deny an application filed pursuant to Section 25.220 is filed, the applicant must file a statement with the Commission within thirty days addressing the issues raised by the Petitioner. As explained herein, in this case there are no coordination issues to be resolved, as Row 44 has submitted coordination letters signed by all potentially affected operators, and no satellite operator has objected to grant of the application.

under Section 25.220 of the Commission's Rules with all adjacent satellite operators potentially affected by Row 44's operations. Accordingly, the Application should be processed and granted consistent with the timeframes adopted in 2005 for expedited processing of non-routine Earth station applications.[2]

I. ViaSat's Petition is Deficient, Failing to Identify Any Manner In Which It Might Be Harmed By Grant of Row 44's Application.

At the outset of the Petition, ViaSat asserts its standing to file a Petition to Deny the Application premised on its "substantial business interests in the operations of 'traditional' VSAT networks," as well as its status as a licensee to provide Ku-band AMSS service.[3] Contrary to the requirements of Section 25.154(a)(4), however, ViaSat nowhere provides any specific basis for its objections in terms of potential claimed interference to these cited operations.[4] Instead of showing some way in which it might be harmed by Row 44's proposed service, it relies on assertions regarding the interests of satellite space station operators in the integrity of the FCC's two-degree spacing requirements, compiling a series of unsubstantiated claims concerning the Application that are also unsupported by any other party to this proceeding. On the other hand, two airline customers who are poised to use the AMSS service that Row 44 proposes have filed letters in support of the Application. *See* Letter from Gregg Saretsky, EVP, Alaska Airlines, to Marlene H. Dortch, Secretary, FCC, dated June 27, 2008; Letter from Gary Kelly, Chairman and CEO, Southwest Airlines Co., to Marlene H. Dortch, Secretary, FCC, dated June 27, 2008.

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[2] *2000 Biennial Regulatory Review*, Fifth Report and Order in IB Docket 00-248, 20 FCC Rcd 5666 (2005).

[3] In this respect, ViaSat is a potential AMSS competitor to Row 44.

[4] *See* 47 C.F.R. § 25.154(a)(4).

The alleged basis for ViaSat's objections is significant because the interests that ViaSat's comments claim to defend are otherwise represented in this proceeding in the form of coordination letters filed by Row 44 as a supplement to the Application. *See* FCC File No. SES-AMD-20080619-00826. These coordination letters demonstrate that the actual interest holders that the regulations are intended to protect -- the satellite operators themselves -- have examined and consented to the operations for which Row 44 is seeking Commission approval. As the Commission noted in adopting streamlined processing procedures for non-routine antennas in 2005, its goal was to expedite the grant of non-routine Earth station applications by ensuring that all potentially affected satellites have been taken into consideration in the coordination process. As no affected operator has objected to the Application, there are no outstanding coordination issues that require resolution, and the Application is eligible for grant under the expedited procedures established in that proceeding (the Commission stated a goal of acting on such applications within ten business days after the close of coordination).[5]

II. Row 44's Application Is Complete, And Has Been Accepted For Filing.

ViaSat makes two claims concerning the completeness of the Application. First, it maintains that the link budgets submitted with the Application are inadequate "to permit the Commission and the public to assess whether the proposed system would comply with the Commission's rules and operate as described." Petition at 3. Second, ViaSat asserts that Row 44 failed to supply any transmit elevation patterns as part of its Application. Petition at 4. Neither of these claims is correct. Indeed, the fact that the FCC has accepted the Application

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[5] *2000 Biennial Regulatory Review*, 20 FCC Rcd at 5697 (¶ 79)("we adopt a goal of issuing [coordinated non-routine] earth station licenses within an average of 10 business days after at the end of the of the 60-day coordination period"). Indeed, the Bureau need not wait until the end of the coordination period, as it is clear that there are no coordination issues with potentially affected satellite operators.

for filing as substantially complete itself undermines these claims. *See FCC Public Notice,* Report No. SES-01036, "Satellite Communications Services Re: Satellite Radio Applications Accepted for Filing," at 1 (released May 28, 2008).

With respect to the link budgets submitted as part of the Application, Row 44 notes at the outset that there is no specific requirement for applicants to provide link budgets as part of Earth station applications. Link budgets are included in non-routine Earth station filings simply as a good faith demonstration that the power assumptions underlying the application are correct and that operation is feasible. As the Commission has acknowledged, it does not conduct any independent assessment of the adequacy of these assumptions, but instead relies on satellite operators and the coordination process as a means of establishing the sufficiency of link budgets. As a result, the Commission has explicitly declined to adopt standards in this area:

> Satellite operators are aware of the link budgets and other operating parameters of their satellite systems, and are capable of determining whether a given non-routine earth station operating at a given power level can be accommodated within those link budgets, transponder plans, or business plans. In the coordination process, satellite operators use refined analyses to determine whether earth station operations can be accommodated on specific frequencies, and therefore could be granted. Satellite operators do not need the Commission to adopt standards for non-routine earth station operations to make that determination.[6]

As detailed above, Row 44 has completed the necessary coordination with all potentially affected satellite operators, and coordination letters have been signed and submitted to the FCC as part of the Application.

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[6] *2000 Biennial Regulatory Review*, Fifth Report and Order in IB Docket 00-248, 20 FCC Rcd 5666, 5688 (¶ 51) (2005).

Moreover, ViaSat's specific complaints concerning the link budgets are mistaken.[7] For example, ViaSat initially claims that it is problematic that Row 44 has not included "any forward link budgets (the communications link from the hub to the remote terminals on the airplanes)." Petition at 3. This assertion is misplaced, as Row 44 is not seeking an independent license for the Hub station used to provide AMSS service. The Hub is already licensed, and has been in operation for many years, including operations with the satellites and orbital locations specified in the Application. Accordingly, providing information concerning this link would be superfluous because it is outside the scope of the transmitting authority requested. Row 44's Application included both the inroute and outroute link budgets relevant to the aircraft Earth stations for which authorization is sought.

Finally, ViaSat's assertion that the Application does not include required transmit elevation patterns is simply incorrect. *See* Petition at 4. Row 44 measured and included appropriate transmit elevation plane patterns for both vertical and horizontal polarization over a +/- 90 degree elevation in Figures 4.1.2-109 and 4.1.2-110 for 14.3 GHz of the application as originally filed on May 8, 2008. *See* Application, Exhibit B at B-146 & B-147. ViaSat seems to have overlooked these figures. Therefore, contrary to ViaSat's claims, all information required to assess the potential for interference is included in the original application.[8]

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[7] In addition to the other points below, it is worth noting that ViaSat's own application for an AMSS Earth station license, granted last year, included the same quantum of link budget information as Row 44's application. *See* ViaSat Application, File No. SES-LIC-20051028-01494, as amended, Exhibit 2 at pp. 27-28.

[8] To the extent that ViaSat complains that Row 44 has not yet "conducted extensive transmit/receive flight testing of its proposed antenna" (Petition at 4), Row 44 notes that actual operation of an antenna proposed by an applicant is not a prerequisite to securing an authorization to operate such an antenna. In any case, Row 44 has already conducted tests pursuant to special temporary authority (STA) (*see, e.g.,* SES-STA-20071121-01610, granted 12/11/2007), and recently has requested a further STA to

III. Row 44's Application Is Fully Compliant With the Commission's Two-Degree Spacing Requirements.

As discussed above, the fact that all of the relevant satellite operators within six degrees adjacent to the satellites that Row 44 proposes to use have signed coordination letters regarding Row 44's AMSS operations effectively addresses ViaSat's attempt to find fault with the proposal's compliance with the two-degree spacing requirements. Nonetheless, Row 44 provides here a refutation of ViaSat's various assertions.

Much of ViaSat's critique of Row 44's Application is premised on its mistaken assumption that the effective data rates specified in the Application correspond directly to the bandwidth used by Row 44's transmissions, and that Row 44's specified 1.6 MHz carrier bandwidth is thus incorrect. *See* Petition at 4-5. ViaSat's assessment and its conclusions fail to take into account the appropriate spectral spreading factor for the 256 kbps and 512 kbps signaling rates, which results in a carrier bandwidth of 1.6 MHz for each.[9] *See* Attached Technical Annex at § 1, pp. 1-2. This implementation is an approach used successfully over the past two decades to control transmitted spectral density. There is no need for an additional 2.2 dB margin, as argued by ViaSat, and the burst rate will therefore not exceed the designated throughputs. Accordingly, ViaSat's assertions regarding miscalculation of EIRP spectral density are also incorrect.

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conduct tests using a small number of aircraft-mounted terminals, consistent with Row 44's long-planned program for testing and phased roll-out of its commercial service. *See* FCC File No. SES-STA-20080711-00928. Row 44 has carefully analyzed all significant contributors to pointing error, and will continuously monitor aircraft and antenna orientation to permit the cessation of transmissions before the elevation-plane beam pattern can cause interference. *See* Attached Technical Annex at § 3, p. 3.

[9] *Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands*, 5 FCC Rcd 2778, 2781 n.12 (1990) ("The power density calculation incorporates a spreading factor...").

These same assumptions infect ViaSat's criticism of Row 44's use of Time Division Multiple Access (TDMA) architecture. Because there is no need for Row 44 to increase its throughput above the speeds specified in the Application, ViaSat's theory that transmit power would need to be increased for TDMA operation (*see* Petition at 5) is also erroneous. *See* Attached Technical Annex at § 2, p. 2. Indeed, ViaSat's claim that Row 44's data rates would otherwise be degraded due to its use of the Hughes HX system and use of slotted Aloha contention access is simply a recapitulation of misplaced arguments that it has previously made to the Commission in connection with still pending aspects of the biennial rulemaking proceeding.[10] Even if this claim were accurate, however, it would be irrelevant to the issue of potential interference to satellite operators, as any loss of system performance, in the unlikely event it occurred, would simply be a service quality matter that is within the sole discretion of the operator, and not a source of potential interference to other band users.[11]

More importantly, there is simply no evidence that brief and infrequent contention protocol "collisions" result in any measurable interference to satellite networks. In the more than two decades of operational experience amassed by satellite and network operators using contention protocols, there are no documented instances of interference from VSAT networks resulting from its use. For this reason, the Satellite Industry Association and its individual members have consistently maintained that there is no need to treat VSAT operations using

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[10] *See, e.g.*, *Ex Parte* Letter of ViaSat, Inc., Attachment at 8-12, 2000 Biennial Regulatory Review, IB Docket No. 00-248, filed December 14, 2006.

[11] Similarly, it is pure conjecture for ViaSat to claim that power increases above what is stated in the Application would be required to maintain service because transmissions would fall below 2 dB/K or less "for some flight paths" between Fairbanks, Alaska and CONUS. Petition, Technical Annex at 1. In fact, while it is true that there are some potential flight paths where G/T would be too low to close the inroute link, the solution, if it is actually encountered in practice, is to avoid the affected flight paths, not to increase transmit power.

contention protocol techniques differently from other VSAT systems.[12] There is therefore no basis for ViaSat's claims.[13]

Finally, Row 44 will comply with the antenna pointing and tracking requirements of Section 25.222(a)(6) & (7) of the Commission's rules. ViaSat's contrary assertions are unsupported. *See* Petition at 6-7.

As stated in the Application, the antenna meets the requirement of the rule that pointing error be limited to "less than 0.2° between the orbital location of the target satellite and the axis of the main lobe of the ... antenna." *See* Attached Technical Annex at § 2, pp. 2-3. This performance is equivalent to that reported by ViaSat in its own AMSS license application.[14]

More importantly, the critical element in avoiding potential interference to adjacent satellites is the ability to effect the timely shut-off of transmissions in the event of a pointing error of 0.5° or more. ViaSat apparently assumes, despite the statement in Row 44's application that "multiple modes of fault detection" will be employed (Application at 10), that monitoring of the Earth station will be limited to closed loop tracking. *See* Petition, Technical Annex at 6-7. In fact, RF signal monitoring is a back-up to other primary systems that monitor antenna performance, as described in the Technical Annex. *See* Attached Technical Annex at § 3, p. 3.

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[12] *See, e.g.,* SIA Comments at 4-5 & 29-40, 2000 Biennial Regulatory Review, IB Docket No. 00-248, filed September 5, 2005; SIA *Ex Parte* Letter, Attachment at 7-11 & 13, 2000 Biennial Regulatory Review, IB Docket No. 00-248, filed October 27, 2006.

[13] ViaSat also alleges that the transmit antenna gain of 28.6 dBi must be incorrect because it is a lower value than the receive gain of 31.8 dBi. Petition at 5 n.13. This is explained by the fact that, in contrast to the receive gain, the transmit gain is attenuated as described in the Technical Annex. *See* Attached Technical Annex at § 4, p. 3.

[14] In its own application, ViaSat simply stated, "The total root mean square pointing error for the antenna is calculated to be less than 0.1°, which is sufficient to satisfy the requirements for minimizing off-axis emissions, while maintaining the necessary gain for proper system operation." ViaSat Application, Exhibit 2, ViaSat Arclight AMSS Network Amended Technical Description, at 23 (FCC File Nos. SES-LIC-20051028-01494, SES-AMD-20060314-00440, SES-AMD-20070309-00325).

IV. Conclusion

For all of the foregoing reasons, Row 44 urges the Commission to dismiss as deficient ViaSat's Petition, which raises no material issues concerning the pending Application. Row 44 has appropriately coordinated its proposed AMSS operations with all potentially affected adjacent satellite operators; therefore, there are no outstanding coordination issues requiring resolution. Accordingly, Row 44 urges the FCC to move forward quickly with the processing of the Application.

Respectfully submitted,

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July 23, 2008

Its Attorney

TECHNICAL ANNEX

This technical annex provides support for the arguments contained in the foregoing "Statement Pursuant To Section 25.154(e) of the Commission's Rules and Opposition To ViaSat, Inc.s Petition To Deny." Based on a series of erroneous contentions and assumptions, ViaSat seeks to manufacture technical issues concerning the application where none exist. The discussion below provides additional information refuting ViaSat's claims.

1. ViaSat Fails to Take into Account Spectral Spreading in Its Analysis of Row 44's Bandwidth Use and EIRP Spectral Density Calculations.

ViaSat asserts that Row 44's stated carrier bandwidth is not accurate, and extrapolates from this contention that the EIRP spectral density for Row 44's transmitting antennas will be higher than identified in the application. ViaSat's assessment of occupied bandwidth and its resulting conclusions fail to take into account the appropriate spectral spreading factor for the 256 kbps and 512 kbps signaling rates, which results in carrier bandwidth of 1.6 MHz for each. Specifically, a spreading factor of 4 times will be applied to the 256 kbps baseline signal, which occupies 400 kHz when not spread, and the 512 kbps baseline signal will have a spreading factor of 2 times applied, increasing the occupied bandwidth of 800 kHz by a factor of two. Spreading has an extensive history as a method of reducing the transmitted spectral density. ViaSat's divergent assumption that a 6.25 carrier spacing factor was incorporated into the calculations is simply incorrect. The signaling rates in conjunction with the implemented spreading, QPSK , fractional rate error correcting code rates and spectral waveshaping require the stated 1.6MHz carrier bandwidth.

Accordingly, ViaSat's claims concerning EIRP spectral density, which are premised on the incorrect assumption that Row 44's antennas will operate over less than the full 1.6 MHz bandwidth, are similarly misplaced. Section 25.134(g)(1) requires that the maximum transmitted power spectral density into the antenna for a TDMA system shall not exceed -14 dBW/4kHz. As stated in item E38 of Row 44's AMSS Network

Application, the total input power at the antenna flange is never to exceed 16 watts or equivalently 12 dBW. Based on the required carrier bandwidth of 1.6 MHz, the FCC required value of -14 dBW/4kHz is satisfied and is reflected in the EIRP spectral density plots provided in Exhibit D of Row 44's application. Viasat is therefore incorrect in asserting that a 2.2 dB increase in power density is required to satisfy Section 25.134(g)(1).

2. Row 44's Use of TDMA Will Not Adversely Impact System Performance.

ViaSat also alleges that Row 44 "fail[s] to account for the TDMA architecture of its proposed system." ViaSat Technical Annex at 4. Again, ViaSat's incorrect assumption that the required carrier bandwidth is between 307.2 kHz and 358.4 kHz, and its resulting mistaken calculation that a 2.2 dB increase in power would be required leads to the further incorrect conclusion that higher burst data rates would be necessary. In fact, there would be no need for Row 44 to increase its throughput above the speeds specified in the application. With the implemented 1.6 MHz carrier bandwidth, the 256 kbps and 512 kbps signaling rates (with their respective spreading) are never exceeded and are well within the anticipated user throughput dictated by the TDMA architecture. If collisions occur in the protocol on rare occasions due to high user occupancy, the throughput would decrease but the signaling rates would never exceed the specified 256 and 512 kbps values. Any loss of system performance, in the unlikely event it occurred, would simply be a service quality matter for the provider, and not a source of potential interference to other band users.

3. Row 44's Antennas Will Comply Fully With the Commission's Antenna Pointing Requirements.

ViaSat also alleges that there are issues with the ability of the Row 44 antenna to comply with the FCC's antenna tracking and pointing requirements. In fact, Row 44 will comply with the stated antenna pointing requirements of Section 25.222(a)(6) and (a)(7) of the Commission's rules.

As clearly stated in Row 44's application, it meets the requirement of the rule that pointing error be limited to "less than 0.2° between the orbital location of the target satellite and the axis of the main lobe of the ... antenna." 47 C.F.R. §25.222(a)(6); Application at 9-10. Pointing is controlled by a combination of data generated from an onboard inertial system and Es/No data supplied by the modem. The combined inputs from these systems and internal processing and self-monitoring ensure that the condition set forth in Section 25.222(a)(6) is fully met. Specifically, a mechanical tolerance of ±0.05° is expected under normal flight vibration loads, and will be zeroed out to better than 0.1°.

ViaSat implies that a single subsystem, closed loop tracking, would be used to achieve compliance with the transmission shutdown requirement of 25.222(a)(7) despite the application's statement that "multiple modes of fault detection," as described above, will be employed. Processing of these multiple inputs allows for determination of the actual required antenna position at any moment with accuracies exceeding the requirement, and taking into account dynamics of pitch, roll, and heading. This data will allow the detection within 50 milliseconds of any mispointing event of greater than ±0.1°.

4. There Is No Inconsistency in Row 44's Reported Antenna Gain Performance.

ViaSat also alleges that the transmit antenna gain of 28.6 dBi must be incorrect because it is a lower value than the receive gain of 31.8 dBi. While it is correct that earth station antennas typically have a transmit gain value that is greater than the receive gain; there is no technical necessity or regulation that mandates this.

Viasat's assertion neglects the fact that the transmit and receive paths are separate. The receive path, where the Low Noise Amplifier is adjacent to the Antenna Aperture, has a low loss allowing the full antenna receive gain to be used in calculating the G/T. By contrast, the transmit flexible-waveguide structure linking the Power Amplifier inside the plane with the Aperture atop the fuselage is an integral part of the antenna system, and contributes an unavoidable loss in the transport of high power transmit signals. Accordingly, the values stated in the application are correct.

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 "Technical Annex," 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 contained herein and found it to be complete and accurate to the best of my knowledge and belief.

July 23, 2008

By: James B. Costello

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

CERTIFICATE OF SERVICE

I, Sharon Krantzman, hereby certify that a true and correct copy of Row's 44, Inc.'s Statement Pursuant to Section 25.154(e) of the Commission's Rules and Opposition to ViaSat, Inc.'s Petition to Deny was sent by first-class, postage prepaid mail this 23rd day of July, 2008, to the following:

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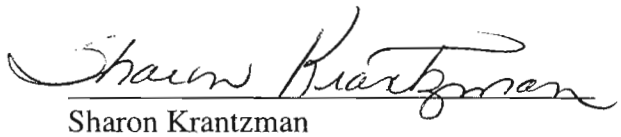

Sharon Krantzman

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