



Federal Communications Commission  
Washington, D.C. 20554

August 25, 2008

David S. Keir  
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Suite 600  
Washington, D.C. 20006

Re: Call Sign E080100  
File Nos. SES-LIC-20080508-00570  
SES-AMD-20080619-00826  
SES-STA-20080711-00928  
SES-STA-20080811-01049  
SES-AMD-20080819-01074

Dear Mr. Keir:

On May 8, 2008, Row 44, Inc. (Row 44) filed the above-captioned application for a blanket license to operate up to 1000 Aeronautical-Mobile Satellite Service (AMSS) transmit/receive earth stations aboard commercial and private aircrafts.<sup>1</sup> This application was placed on public notice on May 28, 2008. One party, ViaSat, Inc. (ViaSat) filed a petition to deny the above-captioned application on June 27, 2008. Row 44 filed an opposition to ViaSat's petition, and ViaSat filed a reply.<sup>2</sup> Row 44 has also filed requests for Special Temporary Authority (STA) for some of these AMSS terminals.<sup>3</sup>

On August 7, 2008, the Commission sent a letter<sup>4</sup> to Row 44 requesting additional information pursuant to Section 25.111(a) of the Commission's rules, 47 C.F.R. § 25.111(a). In response to the Commission's letter, Row 44 amended its application on August 19, 2008.<sup>5</sup> After reviewing this amendment, the Commission seeks clarification on certain matters and, in light of ViaSat's reply, on August 7, 2008, we have additional questions. Accordingly, we request that Row 44 provide, by amendment, further information to allow the Commission to continue to process the application.

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<sup>1</sup> The application was amended on June 19, 2008, to provide supplementary information regarding certifications from satellite operators.

<sup>2</sup> Row 44's opposition was filed on July 23, 2008, and ViaSat's reply was filed on August 7, 2008.

<sup>3</sup> On July 11, 2008, Row 44 requested an STA for a 60-day period to conduct limited mobility testing of up to 12 aircraft earth station antennas to transmit in the 14.05-14.47 GHz and receive in the 11.7-12.2 GHz bands. On August 11, 2008, Row 44 filed a request for special temporary authority to operate a single temporary-fixed earth station.

<sup>4</sup> See Letter from Scott A. Kotler, Chief, Systems Analysis Branch, Satellite Division, International Bureau, FCC to David S. Keir, Leventhal, Senter, & Lerman PLLC (August 7, 2008).

<sup>5</sup> See IBFS File No. SES-AMD-20080819-01074.

1. The Commission's August 7, 2008 letter, among other things, requested information regarding antenna misorientation and graphs that specify the maximum EIRP density (dBW/4 kHz) along the *geostationary orbit* when the antenna is maximally misoriented in azimuth, elevation, and polarization. In response, Row 44, in its August 19, 2008 amendment, indicates that the antenna may be maximally misoriented by 25 degrees from the orbital plane before being inhibited.<sup>6</sup> Row 44 also provides graphs indicating the EIRP density along the azimuth. However, the Commission specifically requested graphs into the geostationary satellite orbital plane when the antenna is maximally misoriented. As such, Row 44 must confirm that the graphs provided in the August 19 amendment for when the antenna is maximally misoriented are the maximum EIRP densities along the geostationary satellite orbital plane or along the azimuth axis of the antenna. If the graphs previously provided are those along the azimuth axis of the antenna, please provide the Commission graphs that specify the maximum EIRP density (dBW/4kHz) into the geostationary satellite orbital plane with zero degrees assumed to be the target satellite when the antenna is maximally misoriented in any combination of azimuth, elevation and/or polarization (the most interfering case) under two potential situations (1) the antenna has zero mispointing with the target satellite and (2) the antenna is maximally mispointed from the target satellite before the antenna receives a cessation of emission command. We request that the graphs be superimposed with the following reference levels (units are dBW/4 kHz): 15-25 LOG (THETA) for  $1.25^\circ \leq \text{THETA} \leq 7^\circ$ ; -6 for  $7^\circ < \text{THETA} \leq 9.2^\circ$ ; 18-25 LOG (THETA) for  $9.2^\circ \leq \text{THETA} \leq 48^\circ$ ; where THETA being angles along the geostationary orbital plane from a line drawn from the focal point of the antenna to the target satellite.

In addition in response to Case 2 regarding graphs of maximum misorientation when the antenna is maximally mispointed from the target satellite before the antenna receives a cessation of emission command, Row 44 provided graphs using a 0.2 degree angle. This value differs from the value provided in its May 8, 2008 license application<sup>7</sup> where Row 44 indicates that the maximum mispointing angle prior to the antenna receiving a cessation of emission command is 0.5 degrees. Please clarify this difference.

2. We note that Row 44 requests to operate with an outroute downlink<sup>8</sup> signal at a density of 13 dBW/4 kHz. In order to substantiate the need for this density level, please provide the Commission a link budget along with the necessary assumptions and the specific service region that the link budget applies.

3. To adequately assess the potential for interference at the edges of the 14.05-14.47 GHz frequency band when the aircraft is making certain maneuvers, please provide the Commission the co-polarized and cross-polarized elevation patterns at the bottom and top of the 14.05-14.47 GHz frequency band in the elevation plane from zero to 45 degrees for the proposed Aerosat Avionics antenna. The plots must include the appropriate superimposed mask described in Section 25.209 of the Commission's rules.

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<sup>6</sup> See Response to Request for Additional Information at 2.

<sup>7</sup> See Row 44 AMSS Network System Description and Technical Information at 10.

<sup>8</sup> Link from the satellite to the aircraft earth station.

4. In response to item E47 of Schedule B of its license application, Row 44 proposes that the Emission Designator in the 14.05-14.47 GHz band to be 1M60G7D. On July 23, 2008,<sup>9</sup> Row 44 indicates its non-spread occupied bandwidth will be 400 kHz for its 256 kbps baseline signal. Based on these values, the FEC Code rate and number of bits per symbol listed in the link budget submitted with the license application, we calculate that the Nyquist filter roll-off factor, commonly called alpha, as 0.5625. Please confirm our understanding and explain the basis for selecting this value. In addition, Row 44 indicates that that it will use a spectral spreading factor of 4. Please provide a spectrum analyzer plot of a typical transmitted signal.

5. In response to item E41/42 of Schedule B of its license application, Row 44 indicates that its on-axis transmit antenna gain is 28.6 dBi at 14.47 GHz. Row 44 further maintains that the 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 transmit signal path.<sup>10</sup> Please specify the value of the loss used in Schedule B for the antenna transmit gain and indicate the possible variation in dB of this value for the intended use of the one thousand proposed terminals. In situations where the loss is less than this value or variations in other antenna parameters, what steps will be taken to ensure that the maximum on-axis EIRP density of 14.6 dBW/4kHz, maximum EIRP per Carrier of 38.6 dBW, and the off-axis EIRP density levels provided are not exceeded?

In light of the above, we request that Row 44 respond to this letter within 30 calendar days of the date of this letter. Failure to do so may result in the dismissal of the application in its entirety pursuant to Section 25.112(c) of the Commission's rules, 47 C.F.R. § 25.112(c).

Sincerely,



Scott A. Kotler  
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Satellite Division  
International Bureau

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<sup>9</sup> See 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 Opposition), Technical Annex at 1.

<sup>10</sup> See Row 44 Opposition, Technical Annex at 3.