



December 5, 2013

FILED ELECTRONICALLY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street N.W.
Washington, D.C. 20544

**Re: Notice of *Ex Parte* Presentation – GN Docket No. 13-114, RM-11640
*Expanding Access to Broadband and Encouraging Innovation through Establishment
of an Air-Ground Mobile Broadband Secondary Services for Passengers Aboard
Aircraft in the 14.0-14.5 GHz Band***

Dear Ms. Dortch:

On November 14, 2013, representatives of the Satellite Industry Association (“SIA”)¹ met with a number of Federal Communications Commission (“FCC” or “Commission”) staff to discuss satellite industry’s views on the Commission’s proposal

¹ SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers. Since its creation more than eighteen years ago, SIA has advocated for the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business. For more information, visit www.sia.org.

SIA Executive Members include: Artel, LLC; The Boeing Company; The DIRECTV Group; EchoStar Satellite Services LLC; Harris CapRock Communications; Hughes Network Systems, LLC; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; LightSquared; Lockheed Martin Corporation.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES Americom, Inc.; and SSL. SIA Associate Members include: AIS Engineering, Inc.; Astrium Services Government, Inc.; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DigitalGlobe; DRS Technologies, Inc.; Encompass Government Solutions; Eutelsat, Inc.; Globecom Systems, Inc.; Inmarsat, Inc.; ITT Exelis; Marshall Communications Corporation.; MTN Government; NewSat America, Inc.; O3b Networks; Orbital Sciences Corporation; Panasonic Avionics Corporation; Row 44, Inc.; Spacecom, Ltd.; Spacenet Inc.; TeleCommunication Systems, Inc.; Telesat Canada; The SI Organization, Inc.; TrustComm, Inc.; Ultisat, Inc.; ViaSat, Inc., and XTAR, LLC.

to implement a proposal by Qualcomm Incorporated (“Qualcomm”) for a new, secondary Aeronautical Mobile Service in the 14.0-14.5 GHz band (the “AMS NPRM”). The written presentation used by the SIA representatives in the meeting is included as an annex to this submission.

SIA representatives met with the following Commission staff: Howard Griboff, B.K. Yi, Kate Collins, Sean O’More, Sankar Persaud, Chip Fleming, and Andrea Kelly of the International Bureau; Brian Butler of the Office of Engineering and Technology; and Melissa Conway, Thomas Derenge, Linda Chang, and Tim Maguire of the Wireless Telecommunications Bureau. The following SIA representatives attended the meeting: Sam Black, SIA; Daniel Mah, SES; Daryl Hunter, ViaSat; Abdolmajid Khalilzadeh, Intelsat; Richard Barnett, Telecomm Strategies (representing SES); and Alan Rinker, Boeing.

During the meeting, the SIA representatives reviewed the sensitivity of Fixed Satellite Service (“FSS”) uplink transmissions in the 14.0-14.5 GHz band to interference from other in-band transmissions. In order to protect the FSS, which is a primary allocation in the 14.0-14.5 GHz band, the International Telecommunications Union (“ITU”) has established that the aggregate interference from all non-primary services should not cause more than a 1% Rise-over-Thermal into the primary FSS.² While this ITU recommendation states that FSS satellite systems should account for maximum allowable aggregate interference of 27% of the clear-sky satellite system noise, the other 26% is reserved for overcoming interference from other co-primary systems, including adjacent FSS satellites. Therefore, it is vital that the Commission limit interference from all non-primary services into the primary FSS to a total of 1% $\Delta T/T$. Qualcomm does not dispute that this is the relevant starting point. Where SIA and Qualcomm differ is on the question of whether Qualcomm should be able to occupy that entire 1%, and on what satellite G/T should be used to derive power limits under a $\Delta T/T$ standard.

In SIA’s view, if the Commission were to decide to proceed with a secondary AMS allocation, it should not allocate the entire 1% $\Delta T/T$ to that single secondary service. Doing so would be inconsistent with ITU Recommendation S. 1432, which makes it clear that the 1% allotment is for all non-primary sources interference and not any single interfering service.³ Since there are already other secondary services in various parts of the 14.0-14.5 GHz band, and there is a realistic possibility of at least one

² See ITU-R Recommendation S.1432, http://www.itu.int/dms_pubrec/itu-r/rec/s/R-REC-S.1432-1-200601-I!!PDF-E.pdf.

³ See *id.*

future secondary service (either within the United States or in neighboring countries), the proposed AMS should be allotted only a third of the 1% budget. This would be consistent with positions taken by the United States at the ITU.⁴

SIA representatives noted that the degradation of FSS link margins would have real constraining effects on the many FSS services provided. FSS operators and their customers actively use techniques such as adaptive coding, modulation and power control in order to maximize throughput over the satellite link, which means that the link margins are already razor thin.⁵ For such FSS customers, the introduction of a secondary AMS that degrades those margins would mean a reduction in throughput (because lower order coding or modulation is required to close the link), a reduction in availability (loss of link in adverse conditions), and/or loss of service (the link can no longer be closed with the available power). Non-primary users should not be able to impose such constraints on primary users of spectrum, and the best way of avoid such a result is to hold the secondary AMS to only a third of the 1% $\Delta T/T$ in the aggregate, as explained above.

Regarding the satellite G/T to be used under the $\Delta T/T$ standard, SIA reiterated its view that Qualcomm's proposed 4 dB/K figure is too low, and that a figure of at least 6 dB/K is needed to protect the most sensitive full CONUS satellites already licensed by the Commission (*e.g.* SES-2).⁶ Moreover, a future satellite with higher average G/T over CONUS is not difficult to imagine using existing satellite technology, as illustrated by the example in the slides of a CONUS beam on a satellite situated over the Atlantic. Satellite technology is continually changing and improving, and there is no reason to assume that future satellite receivers and antennas would not have better performance than those in operation today. For these reasons, Qualcomm's proposed average G/T of 4 dB/K is inappropriate and the Commission should instead select a figure that adequately protects existing satellites and leaves room for satellite innovation.

⁴ See United States of America, Contribution Document 336-E to JTG 4-5-6-7, "In-band and adjacent band compatibility studies between IMT-Advanced systems and fixed satellite service receive earth stations operating in the C-band," at 2-3 (Oct. 11, 2013). In this document, the United States performed compatibility studies based on an apportionment of the interference allowance from Recommendation ITU-R S.1432 among proposed and existing service allocations in the C-band. This is similar to the approach SIA is advocating for the 14 GHz band, but taking into account the different allocations in the different frequencies.

⁵ See, *e.g.*, Viasat, Inc., File No. SES-LIC-20051028-01494, at Exhibit 2, p.29 (showing a terminal-to-hub link margin of 0.03 dB); KVH Industries, Inc., File No. SES-LIC-20070504-00563, at Exhibit A, p.11 (showing a terminal-to-hub link margin of 0.08 dB).

⁶ See also, generally, SIA Comments, Technical Appendix, at Appendix 1 (providing G/T information for a wide range of satellites with U.S. coverage).

For the same reasons as stated above, the 6% $\Delta T/T$ standard for the protection of NGSO FSS is completely inappropriate. Such a level of interference is the trigger for frequency coordination between co-primary FSS systems, not the level of interference that a secondary service should be allowed to cause to a primary FSS system. Moreover, just because a NGSO FSS system is not in service in this band today does not absolve secondary services from having to protect one in the future. For NGSO FSS systems as well, the appropriate standard is one third of 1%, as explained above.

The SIA representatives also reiterated the need to develop technical rules for any potential AMS service using realistic G/T values for existing current and future FSS satellites, and deriving actual and enforceable power limits on any new secondary service that are sufficient to keep the interference caused by this system below 0.33%. Qualcomm in its reply comments appear to accept that such limits are appropriate.

Finally, SIA reiterated its suggestion that the Commission look into the level of interference that Qualcomm is likely to receive from the primary FSS. In particular, SIA has previously shown that Qualcomm is likely to receive more interference than it thinks it would. This increased interference, together with the AMS power reductions necessary to protect the primary FSS, will have an impact on Qualcomm's system performance. This should be weighed when the Commission considers whether it is in the public interest to make a secondary allocation for AMS in the 14.0-14.5 GHz band, or whether it would be better to look for more appropriate spectrum elsewhere.

A copy of this notice and attachment is being emailed to the Federal Communications Commission staff identified below. Please contact Patricia Cooper if you have any questions.

Respectfully submitted,

/s/

SATELLITE INDUSTRY ASSOCIATION

A handwritten signature in black ink, appearing to read "Patricia Cooper". The signature is fluid and cursive, written in a professional style.

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Attachment

cc (via email):

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