

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
Amendment of the Commission's Rules to)	
Establish a Next-Generation Air-Ground)	RM-11640
Communications Service on a Secondary)	
Licensed Basis in the 14.0 to 14.5 GHz Band)	

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

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September 29, 2011

SUMMARY

The Satellite Industry Association (“SIA”), the leading U.S.-based trade association advising on policy, regulatory and legislative issues affecting the global satellite industry, hereby submits its comments on the petition for rulemaking of Qualcomm, Incorporated (“Qualcomm”) to establish a new air-to-ground (“ATG”) communications service on a secondary basis in the 14.0-14.5 GHz band to support in-flight passenger communications onboard commercial aircraft (“Petition”).

SIA believes that grant of the Petition is not warranted at this time. Importantly, the 14.0-14.5 GHz band is used intensively for a wide variety of commercial, government and military applications in the United States and internationally. Introduction of the proposed ATG service with non-compatible technical and operational characteristics, even on a secondary basis, could materially alter an operating environment that has otherwise fostered competition and technological innovation for the benefit of a broad range of commercial and government users.

In addition, there is no demonstrated public interest need to commence a complex and extended rulemaking proceeding for a new ATG service when existing and planned terrestrial and satellite-based systems already meet current and expected demand for ATG communications capacity to support in-flight passenger connectivity.

The Petition also does not adequately address serious interference concerns between co-frequency operations or establish how the secondary ATG service could practicably co-exist with primary operations in the 14.0-14.5 GHz band. In this connection, the proposed service rules do not provide sufficient guidance to meaningfully evaluate the potential impact of the proposed service on primary operations. Moreover, the supporting materials provided with the Petition are

so technology/design-specific for the service to avoid causing harmful interference as to require the Commission to “lock in” a technical solution in contravention of FCC policy.

Finally, to the extent the Commission concludes it should further explore the proposal set forth in the Petition, SIA requests that the Commission first establish service and licensing rules for Ku-band aeronautical mobile-satellite service (“AMSS”) operations in the 14.0-14.5 GHz band before considering this or other proposed secondary operations. The regulatory status and operational characteristics of AMSS operations, along with existing primary mobile VSAT operations (*e.g.*, earth stations onboard vessels and vehicle-mounted earth stations), may have a material impact on the operating environment in the band.

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To: The Commission

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association (“SIA”) respectfully submits these comments on the petition for rulemaking of Qualcomm, Incorporated (“Qualcomm”) to establish a new air-to-ground (“ATG”) service on a secondary basis in the 14.0-14.5 GHz band to support in-flight passenger communications onboard commercial aircraft.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.² Since its creation

¹ See Public Notice, Report No. 2933 (Aug. 30, 2011) (seeking comments on the Petition for Rulemaking of Qualcomm, Incorporated regarding Amendment of the Commission’s Rules to Establish a Next-Generation Air Ground Communications Service on a Secondary Licensed Basis in the 14.0-14.5 GHz Band, RM-11640 (filed July 7, 2011) (“Petition”).

² SIA Executive Members include: Artel, Inc.; The Boeing Company; The DIRECTV Group;; DBSD North America, Inc.; EchoStar Satellite Services L.L.C.; Harris CapRock Communications; Hughes Network Systems, LLC; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Communications Inc.; LightSquared; Lockheed Martin Corporation.; Loral Space & Communications, Inc.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES; and TerreStar Networks, Inc. SIA Associate Members include: Arqiva Satellite and Media; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data

fifteen years ago, SIA has become the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.

SIA members and their customers have a direct and substantial interest in the proposed introduction of a new service in the 14.0-14.5 GHz band, the uplink (Earth-to-space) portion of conventional Ku-band spectrum. Satellite industry members have invested billions of dollars in complex in-orbit communications satellites and associated ground systems and customers have invested large amounts in end-user equipment that use this spectrum. The services provided using Ku-band spectrum support billions of dollars in revenue generated by numerous sectors of the economy. Given the importance and magnitude of domestic and international communications services provided in the 14.0-14.5 GHz band, proposals to initiate a rulemaking that could materially alter the existing operating environment must be considered with great circumspection.

The proposed rulemaking to introduce a new ATG service in the Ku-band uplink frequencies is not warranted. First, the 14.0-14.5 GHz band is used intensively by the satellite industry for a broad range of commercial, government, and military applications. Commencing a proceeding to implement a new service in the band, even on a secondary basis, cannot be considered lightly. In addition, the Petition establishes no public interest need for a new, secondary ATG service in the Ku-band and, even if established, it is unclear how the proposed secondary ATG service could co-exist with primary Ku-band satellite services from a technical standpoint. The Petition simply does not provide sufficient information to adequately frame the

Corp.; DRS Technologies, Inc.; Eutelsat, Inc.; GE Satellite; Globecom Systems, Inc.; Glowlink Communications Technology, Inc.; iDirect Government Technologies; Inmarsat, Inc.; Marshall Communications Corporation.; Orbital Sciences Corporation; Panasonic Avionics Corporation; Segovia, Inc.; Spacecom, Ltd.; Spacenet Inc.; Stratos Global Corporation; TeleCommunication Systems, Inc.; Telesat Canada; Trace Systems, Inc.; Ultisat, Inc.; and ViaSat, Inc. Additional information about SIA can be found at www.sia.org.

important technical and policy questions implicated by the proposal. However, if the Commission concludes that it should consider more fully the proposal to establish a secondary ATG service in the 14.0-14.5 GHz band, it should do so only after concluding the long-pending rulemaking to establish comprehensive service and licensing rules for aeronautical mobile-satellite service (“AMSS”) operations in the band.

I. THE 14.0-14.5 GHZ BAND IS USED INTENSIVELY AND INNOVATIVELY BY THE SATELLITE INDUSTRY FOR A BROAD RANGE OF APPLICATIONS

As the Commission is aware, the spectrum in which Qualcomm proposes to introduce a new service to support in-flight passenger communications is allocated to the fixed-satellite service on a primary basis, as well as other important U.S. government operations, and is used to provide a broad range of important communications services. As a result of the stable operating environment established by the Commission, the satellite industry has deployed dozens of Ku-band satellites with coverage over the United States. There are over 1500 individually licensed earth stations authorized to operate in the band, including very small aperture terminal (“VSAT”) hubs and other earth stations used for long-haul, point-to-point communications. SIA estimates that there are over 600,000 blanket-licensed VSAT remote terminals operating in the United States, with thousands more added each year. Ku-band VSAT networks enable government and corporate networks to provide voice, data, video and other applications throughout the country and around the world. The 14.0-14.5 GHz band also supports domestic and international communications links for video distribution and content aggregation, backhaul for terrestrial and wireless telecommunications and information service providers and other core communications connectivity.³

³ See *SIA Opposition to Utilities Telecom Council and Winchester Cator, LLC Petition for Rulemaking to Establish Rules Governing Critical Infrastructure Industry Fixed Service*

Ku-band spectrum is also being used innovatively to support critical communications services and enable new communications applications. From disaster recovery (*e.g.*, broadband connectivity to first-responders and establishing replacement or supplemental communications networks after a disaster event) to U.S. government and military communications networks to rural medicine to distance learning, the 14.0-14.5 GHz band supports critical information infrastructure throughout the United States.⁴ Advanced Ku-band mobile VSAT networks, including vehicle-mounted earth stations (“VMESs”), earth stations onboard vessels (“ESVs”) and AMSS systems,⁵ are also providing broadband connectivity to support government, military and commercial land-mobile, maritime and aeronautical communications services throughout the United States and abroad.

The satellite industry’s ability to introduce further technological innovation and use the 14.0-14.5 GHz band even more intensively is dependent on a well-defined, stable operating environment. The Commission should facilitate continued innovation and support the industry’s ability to meet existing and future demand for services by preserving this environment. This

Operations in the 14.0-14.5 GHz Band, RM-11429, at 3-5 (filed June 26, 2008)(“*SIA Opposition to UTC Petition*”).

⁴ See SIA Comments, *In the Matter of Rapidly Deployable Aerial Telecommunications Architecture Capable of Providing Immediate Communications to Disaster Areas*, PS Docket No. 11-15 (filed Feb. 28, 2011) (describing use of satellites in disaster recovery); see also *SIA Opposition to UTC Petition*, Annex 3, First Responder’s Guide to Satellite Communications, at 4-7 (in areas affected by disasters, satellites provided the ONLY source of communications in the hours, days and weeks following these events); see also Bennett, *Military Use of Commercial Satellites* (undated), available at http://www.sia.org/PDF/FCC_COTM_Bennett.pdf (describing use and growing demand for commercial satellite use by the U.S. military).

⁵ Although the AMSS rulemaking proceeding remains pending, the FCC has authorized The Boeing Company, ARINC, ViaSat, Row 44 and Panasonic Avionics to deploy Ku-band aircraft earth stations.

issue is particularly important when considering the introduction of an entirely new service with potentially non-compatible technical and operational characteristics that could materially alter the operating environment in the band.

II. THERE IS NO CLEAR PUBLIC INTEREST NEED FOR AN ATG SERVICE IN THE 14.0-14.5 GHZ BAND

The Commission has justifiably exercised great care in addressing spectrum allocation changes and introducing new services in bands heavily used by existing primary licensees. The approach to proposed operations in the 14.0-14.5 GHz band has been – and should be – no exception. Because the Petition leaves many technical and policy issues unresolved, it is difficult to adequately examine the operational impact of the proposal or to conclude that a new ATG service can be implemented consistent with the public interest.

A. The Petition Does Not Provide Sufficient Basis to Initiate a Rulemaking Proceeding

There is nothing in the Petition to indicate that the demand for in-flight passenger connectivity cannot be met by ATG services in other frequency bands or by satellite-based solutions in the conventional Ku-band or other bands. Although the Petition cites a litany of market statistics regarding sales and usage of smartphones and other mobile broadband devices, it provides little information on the actual need for a secondary ATG service in the 14.0-14.5 GHz band. The implicit suggestion that increasing mobile broadband use requires the establishment of a new, secondary ATG communications service does not establish a public-interest rationale to commence a rulemaking proceeding for such a service in spectrum heavily used by incumbent services. The cited statistics establish no link between mobile broadband demand and the need for more spectrum to provide in-flight passenger connectivity. Importantly, the Petition does not address the significant public interest questions of current and future

demand for in-flight passenger connectivity services and whether existing and planned terrestrial and satellite-based networks can meet such demand.

A petitioner must support its claims establishing the need for a rulemaking with factual data and evidence, not hypothetical scenarios.⁶ Proposals before the Commission, moreover, should provide sufficient information to permit meaningful examination of their impact on incumbent operations and consistency with Commission regulatory policies.⁷ Because the Petition does not provide sufficient information to permit such an examination, initiating a rulemaking at this time would not be appropriate.

B. The Proposal Is Not Sufficiently Defined in Several Important Respects

The Petition includes very brief proposed rules (Appendix B to the Petition) that do not appear to address important technical and operational requirements. For example, with respect to protection of incumbent services, the rules are focused on establishing what amounts to a “permissible interference level” into primary GSO FSS operations (satellite receivers located along the GSO arc). Qualcomm suggests a value of 1% $\Delta T/T$ for interference into GSO FSS satellites, but addresses neither co-frequency NGSO FSS operations nor government services in the proposed rules. In Appendix A to the Petition, Qualcomm suggests an alternative value of 6% $\Delta T/T$ for interference into NGSO FSS satellites “because NGSO systems do not exist in Ku

⁶ *In the Matter of Industrial Telecommunications Association, Inc., Amendment of Part 95 of the Commission’s Rules to Establish a Very Short Distance Two-Way Radio Service*, RM-10564, Order, 19 FCC Rcd 6988, 6991 (2004) (petition for rulemaking denied where hypothetical scenarios and not factual data and evidence used to support claims of need for rulemaking).

⁷ *See, e.g., In the Matter of Petition for Rulemaking Filed by Checkpoint Systems, Inc. to Amend Part 15 of the Commission’s Rules to Permit Increased Emissions for Electronic Article Surveillance Systems*, RM-9092, Order, 13 FCC Rcd 21600, 21602 (1998) (petition for rulemaking denied where insufficient information provided to justify need for rulemaking and to show no risk of harmful interference).

band today, and they can be designed in the future to cope with 6% RoT that existing systems are required to meet.”⁸

Although Qualcomm does not provide sufficient information to evaluate these assertions, SIA notes that primary GSO and NGSO FSS operations, as well as government services, must be fully protected from potential interference caused by secondary users of the 14.0-14.5 GHz band. Indeed, SIA has concerns regarding the use of the 1% and 6% values as suggested by Qualcomm.

With respect to the 1% RoT for primary GSO FSS systems, Qualcomm appears to rely on an ITU recommendation that actually defines a 1% interference tolerance for primary operations from all other sources of interference that may affect operations in the band, so claiming a substantial part of the allotment for a single secondary service (even accepting Qualcomm’s interference assumptions) is cause for concern.⁹ Reference to a 6% RoT for primary NGSO FSS systems raises even greater concern since this would bootstrap the secondary ATG service into a “quasi” primary status. This could have significant adverse implications in the context of a proposed auction for a secondary use of spectrum that must accept all interference from primary services and that certainly could experience interference from ubiquitous Ku-band earth station uplink transmissions. Indeed, Qualcomm itself has previously opposed introduction of new services in the Ku-band over concern for potential interference into primary FSS operations of 6% RoT.¹⁰

⁸ Petition at Appendix A-42.

⁹ ITU Recommendation S.1432, *recommends 4*, provides that interference from *all* non- primary sources (*i.e.*, including from secondary sources) should account for no more than 1% of FSS link budgets. As a result, the fact that Qualcomm’s proposed operations alone could occupy all or even half of the 1% allocated for non-primary sources raises significant concerns about aggregate interference from all such sources.

¹⁰ *Qualcomm Opposition to UTC Petition*, RM-11429, (filed June 26, 2008), at 11-12.

The Petition also proposes to permit two ATG licensees,¹¹ but the proposal would permit a single licensee to hold all available spectrum and there is little to suggest that independent licensees could offer competing services given the extremely technology/design-specific sharing solution embodied in the Petition. Without more, the cursory rules set forth in the Petition provide an insufficient basis for consideration of the proposal and may otherwise contravene Commission policies.¹²

In addition, the Petition includes insufficient information on how the proposed secondary ATG system components could practically operate in the face of interference from Ku-band earth station transmissions, especially when new VSATs and gateways can now be deployed practically anywhere at any time. As a secondary service, Qualcomm's ATG service would have to accept all such interference. Similarly, the Petition fails to fully consider the impact of mobile VSAT operations in the band. The increasing deployment of Ku-band ESVs and VMESs could materially impact ground-based components in the proposed ATG system. These mobile VSATs, as well as Ku-band AMSS operations onboard an increasing number of commercial, government and private aircraft, could also adversely affect ATG-equipped aircraft. Consistent with well-settled policy, the Commission should not move to establish a new service if it cannot effectively operate.¹³

¹¹ Petition at Appendix A-9.

¹² See 47 C.F.R. § 1.403(c) (petitions for rulemaking shall set forth the text or substance of the proposed rules); see also Letter from Cathy Seidel, Deputy Chief, Wireless Telecommunications Bureau to James J. Flysak, Federal Law Enforcement Wireless Users Group, FCC, RM-10432, 19 FCC Rcd 11500 (2004) (denying petition for rulemaking lacking concrete rule proposals).

¹³ See, e.g., *In the Matter of Amendment of the Commission's Rules to Provide Ancillary Services in the 849-851 and 894-896 MHz Bands*, RM -7871, Order, 8 FCC Rcd 3920 (2004) (petition for rulemaking is premature where limited experience with recently established services created

C. Action on the Petition May Not Be Consistent with Other Important Commission Policies

The Commission has a long-standing policy against rules that would favor specific technical implementations and thus have the effect of picking “winners” and “losers.” The Commission seeks to avoid imposing specific technical solutions and instead strives for a more open approach to use of spectrum that encourages technological innovation in response to market needs and facilitates competition among providers.

As suggested by Qualcomm’s complex interference analyses, the potential acceptance of secondary ATG operations in the 14.0-14.5 GHz band may ultimately depend, at least in part, on adoption of Qualcomm’s technology and system design. It is not clear how one would balance the competing objectives of flexible implementation to facilitate multiple ATG networks and the need for sufficient regulatory guidance to protect incumbent operations, promote competition and otherwise advance the public interest. It is possible that a rulemaking could end up “locking in” the technical solution proposed by Qualcomm because no other approach may have the ability to share spectrum in the manner described.¹⁴

III. THE COMMISSION SHOULD FIRST COMPLETE THE PENDING AMSS RULEMAKING BEFORE CONSIDERING NEW SERVICES IN THE 14.0-14.5 GHZ BAND

SIA also notes that a rulemaking proceeding to adopt AMSS service and licensing rules in the 14.0-14.5 GHz band – the very same band proposed for the new ATG service – remains

uncertainty whether new secondary service could operate effectively on shared frequencies and not adversely impact growth and development of the primary service.)

¹⁴See *In the Matter of the Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ku-Band*, Report and Order and Further Notice of Proposed Rulemaking, 17 FCC Rcd 7841, at ¶¶ 27-38 (2002) (FCC declined to adopt sharing solution that favored particular patented design and applicant).

pending.¹⁵ The Ku-band AMSS rulemaking has been pending since 2005 and addresses a number of critical technical and operational requirements for AMSS systems. As part of this proceeding, the Commission has been requested to elevate Ku-band AMSS operations to co-primary status.¹⁶ SIA requests that the Commission first resolve pending AMSS issues before considering another rulemaking for new services in the band to ensure regulatory certainty with respect to the potential operating environment.¹⁷

IV. CONCLUSION

In view of the foregoing, a rulemaking on Qualcomm's Petition to establish a new ATG communications service on a secondary basis in the 14.0-14.5 GHz band is unwarranted at this time. The band is already intensively used by primary FSS operations for a wide range of commercial, government and military applications, as well as for other important U.S. government operations. The Petition does not demonstrate a public interest need to proceed with a rulemaking proceeding, nor does it establish how the proposed secondary ATG service could practically co-exist with primary operations in the 14.0-14.5 GHz band. In SIA's view, the Commission's scarce administrative resources would be better spent completing the long-

¹⁵ See *Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service(AMSS)*, IB Docket 05-20, Notice of Proposed Rulemaking, 20 FCC Rcd 2906 (2005).

¹⁶ See Letter from Bruce A. Olcott and Joshua Guyan, Counsel to The Boeing Company, to Mindel De La Torre, Chief, International Bureau, FCC, IB Docket No. 5-20 (filed Apr. 20, 2010); see also The Boeing Company, Petition for Reconsideration, IB Docket No. 07-101 (filed Dec. 4, 2009).

¹⁷ SIA notes there is another petition for rulemaking to use the 14.0-14.5 GHz band for terrestrial-based services pending before the Commission. *Utilities Telecom Council, Petition for Rulemaking to Establish Rules Governing Critical Infrastructure Industry Fixed Service Operations in the 14.0-14.5 GHz Band*, RM-11429 (filed May 6, 2008).

pending AMSS and considering additional services only after the sharing environment and alternative proposals for use of the band are more fully defined.

Respectfully submitted,

The Satellite Industry Association

A handwritten signature in black ink, appearing to read "Patricia Cooper". The signature is written in a cursive style with a large, sweeping initial "P".

By: _____
Patricia Cooper
President

CERTIFICATE OF SERVICE

I, Mark D. Johnson, do hereby certify that on this 29th day of September, 2011, I caused to be sent via First Class, postage prepaid US mail, a copy of the foregoing, "Comments of Satellite Industry Association," to the following persons:

Dean R. Brenner
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/s/ Mark D. Johnson
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