February 22, 2018

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, NW
Washington, D.C. 20555

Re: ***Spectrum Bands Above 24 GHz et. al.*, GN Docket No. 14-177, IB Docket No. 15-256, WT Docket No. 10-112, and IB Docket No. 97-95**

Dear Ms. Dortch:

The Satellite Industry Association ("SIA"),[1] hereby submits its reply comments in response to the Second Further Notice of Proposed Rulemaking in the above-referenced proceeding ("Second Notice").[2] As SIA explained in its initial comments, the rapidly increasing demand for user capacity across the United States requires access for satellite operators to additional spectrum in order to support these consumers and their need for expanding broadband services. Accordingly, SIA supports more flexible use of the 24.75-25.25 GHz ("24 GHz") band by Fixed Satellite Service ("FSS") systems.

Specifically, SIA supports the Federal Communications Commission's ("Commission") proposal to license FSS earth stations in this band on a co-primary basis with terrestrial fixed and mobile systems in the Upper Microwave Flexible Use Service ("UMFUS") under the provisions of Section 25.136(d) of the Commission's rules. SIA also supports the need to protect Broadcasting-Satellite Service ("BSS") feeder link earth stations in this band, and agrees that BSS uplink operations will be adequately protected by the Commission's two-degree spacing regime, such that rules that prioritize BSS feeder links over all other FSS uses in the 24 GHz band can be eliminated.

In its comments, T-Mobile asks the Commission to limit satellite use of the 24 GHz band to earth stations that are already licensed in the band on the unsupported basis that FSS does not need

[1] SIA Executive Members include The Boeing Company; AT&T Services, Inc.; EchoStar Corporation; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; Ligado Networks; Lockheed Martin Corporation; Northrop Grumman Corporation; OneWeb; SES Americom, Inc.; Space Exploration Technologies Corp.; SSL; and ViaSat Inc. SIA Associate Members include ABS US Corp.; Artel, LLC; Blue Origin; DataPath, Inc; DigitalGlobe Inc.; DRS Technologies, Inc.; Eutelsat America Corp.; Global Eagle Entertainment; Glowlink Communications Technology, Inc.; Hughes; Inmarsat, Inc.; Kymeta Corporation; L-3 Electron Technologies, Inc.; O3b Limited; Panasonic Avionics Corporation; Planet; Semper Fortis Solutions; Spire Global Inc.; TeleCommunication Systems, Inc.; Telesat Canada; TrustComm, Inc.; Ultisat, Inc.; and XTAR, LLC. For more information on SIA, see www.sia.org. These reply comments are supported by all SIA members except for AT&T Services, Inc., and Ligado Networks, which abstain from participation.

[2] *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al*., Second Report and Order, Second Further Notice of Proposed Rulemaking, and Memorandum Opinion and Order, FCC 17-152, 32 FCC Rcd 10988 (2017) ("*Second Notice*").

additional spectrum and that providing greater flexibility to FSS in this band will hamper UMFUS flexibility.[3] Both of these arguments lack foundation. Like terrestrial broadband services, there is an increasing demand for satellite broadband, including to support 5G.[4] This increased demand will require FSS access to additional spectrum to continue to meet the needs of consumers. For example, in the first six months of service of Hughes Network Systems, LLC's ("Hughes") EchoStar XIX/Jupiter 2 satellite, more than 340,000 customers migrated to Hughes' new Gen5 25/3 Mbps service.[5] As a result of this demand, and a corresponding drop in customer churn, Hughes has already begun construction of its next generation, Ultra High Density Satellite, EchoStar XXIV/Jupiter 3.[6]

Moreover, the O3b non-geostationary orbit ("NGSO") constellation of satellites, which operates in Medium Earth Orbit and supports a variety of mobile applications as well as fiber-like broadband service to customers in remote areas is already utilizing nearly all of its available capacity and O3b is expanding its fleet. Additionally, new NGSO FSS networks will be entering commercial service in the coming years to provide additional capacity, including Commission-authorized constellations by OneWeb, Telesat, and Space Norway,[7] as well as several other planned NGSO systems.

SIA is fully supportive of adopting the same rules on sharing between UMFUS and FSS that the Commission adopted in this proceeding for the 47.2-48.2 GHz band, as the proposed use of the 24 GHz band will be limited to individually licensed earth stations.[8] This limitation on FSS operations makes it highly unlikely that shared use will have any significant impact on the ability of UMFUS to deploy in this band. Rather, shared use in the manner proposed ensures the most efficient use of this scarce spectrum resource and should be encouraged by the Commission.

In CTIA's comments a request is made for the addition of a footnote in the FCC Table of Frequency Allocations to make clear that UMFUS is to be the predominant service in the band, as authorized by the Commission. This is a superfluous request in the 24 GHz band, and any

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[3] T-Mobile, like SIA, supports the FCC proposal to grandfather BSS feeder link earth stations in the 24.75-25.25 GHz band licensed or with applications pending as of the date of the *Second Notice*, such that they may continue to operate without taking additional steps to protectUMFUS operations. SIA Comments at 7; T-Mobile Comments at 7.

[4] 3GPP Technical Report: Technical Specification Group Radio Access Network Study on New Radio to support non terrestrial networks (Release 15), 3GPP TR 38.811, *draft* https://portal.3gpp.org/ngppapp/CreateTdoc.aspx?mode=view&contributionUid=RP-172794

[5] EchoStar Q3 Earnings Call, November 13, 2017.

[6] *See* Hughes Application for HNS 95W space station, IBFS File No. SAT-LOA-20170621-00092 (filed June 21, 2017); *See also* Hughes, *Press Release: Hughes Selects Space Systems Loral to Build Next-Generation Ultra High Density Satellite*, https://www.prnewswire.com/news-releases/hughes-selects-space-systems-loral-to-build-next-generation-ultra-high-density-satellite-300502020.html

[7] *WorldVu Satellites Limited, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb System*, IBFS File No. SAT-LOI-20160428-00041 (adopted June 22, 2017); *Telesat Canada Petition for Declaratory Ruling to Grant Access to the U.S. Market for Telesat's NGSO Constellation*, IBFS File No. SAT-PDR-20161115-00108 (adopted Nov. 2, 2017); *Space Norway AS Petition for Declaratory Ruling Granting Access to the U.S. Market for the Arctic Satellite Broadband Mission*, Order and Declaratory Ruling, IBFS File No. SAT-PDR-20161115-00111 (adopted Nov. 2, 2017).

[8] *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, 83 FR 37, Jan. 2, 2018.In addition, SIA supports the proposal by CTIA to utilize the siting rules for FSS earth stations that was adopted for the 27.5-28.35 GHz band.

other band. The rules that are adopted will make any prioritizations abundantly clear, as has been done in all other orders associated with the upper millimeter wave frequencies in this proceeding. With regard to adding such a footnote for the 27.5-28.35 GHz, 37.5-40 GHz and the 47.2-48.2 GHz band, CTIA's request, without getting into the merits, is a late filed petition for reconsideration and should be rejected as such.

Adoption of the Commission's proposed rule revision for the 24 GHz band is consistent with the Commission's goal of promoting efficient use of millimeter-wave spectrum by all radio services. Further, allowing use of the 24 GHz band for individually licensed earth stations will help to unleash the potential of FSS satellite systems to provide advanced broadband services throughout the United States, including in areas underserved and unserved by terrestrial alternatives.

Respectfully submitted,

/s/ Tom Stroup

Tom Stroup
President
Satellite Industry Association
1200 18th Street N.W., Suite 1001
Washington, D.C. 20036
(202) 503-1560

cc: Tom Sullivan
Julie Knapp
Don Stockdale
Jose Albuquerque
Michael Ha
John Schauble