August 19, 2016

EX PARTE PRESENTATION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte Presentation in *Petition for Rulemaking to Permit MVDDS Use of the 12.2-12.7 GHz Band for Two-Way Mobile Broadband Service*, RM-11768; *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

Dear Ms. Dortch:

The MVDDS 5G Coalition (the "Coalition") submits this letter summarizing a meeting on August 18, 2016 with Jose Albuquerque, Chief, Satellite Division, International Bureau; Chris Helzer, Chief Engineer, Wireless Telecommunications Bureau; Brian Regan, Associate Bureau Chief, Wireless Telecommunications Bureau; Michael Ha, Deputy Chief, Policy and Rules Division, Office of Engineering & Technology; Matthew Pearl, Legal Advisor, Wireless Telecommunications Bureau; Stephen Zak, Electronics Engineer, Broadband Division, Wireless Telecommunications Bureau; and Bahman Badipour, Engineer, Office of Engineering & Technology. Present on behalf of the Coalition were: Jeff Blum, DISH; Mariam Sorond, DISH; John Kim, DISH; Alison Minea, DISH; Hadass Kogan, DISH; Aaron Shainis, counsel for Go Long Wireless; Tom Peters, Hogan Lovells; and Kirk Kirkpatrick, MDS Operations, Inc. (by telephone).

During the meeting, the Coalition discussed its Petition for Rulemaking ("Petition") to permit the use of Multichannel Video Distribution and Data Service ("MVDDS") spectrum in the 12.2-12.7 GHz band for a two-way mobile broadband Fifth Generation ("5G") service.[1] By initiating a rulemaking on the Petition, the public will have the opportunity to participate and enable the Commission to unleash the MVDDS band for next-generation 5G mobile uses for the benefit of consumers, while, at the same time, protecting DBS operations and leaving ample spectrum available for future non-geostationary satellite orbit ("NGSO") fixed-satellite service ("FSS").

- **Advancing the Administration's Mobile Broadband Spectrum Goals**

In particular, the Coalition urged the Commission to issue a notice of proposed rulemaking as soon as possible for the 12.2-12.7 GHz band. Adopting a rulemaking consistent with the Petition will advance the government's goal of identifying and rapidly making available additional 5G mobile spectrum. The 12.2-12.7 GHz band offers 500 MHz of contiguous, underutilized MVDDS spectrum that is ideally suited for 5G deployments. Granting additional

[1] *See* Petition of MVDDS 5G Coalition Petition for Rulemaking, RM- 11768, April 26, 2016. *See also Petition for Rulemakings Filed*, Public Notice, Report No. 3042 (May 9, 2016).

MVDDS flexibility as proposed in the Petition will advance the government's broadband goals and provide substantial benefits for the public.

Since June 2010, the President has called on both the Commission and the National Telecommunications and Information Administration ("NTIA") to make 500 MHz of spectrum available for broadband use by 2020.[2] Although the Commission has taken important steps in the *Spectrum Frontiers* proceeding to advance that goal, additional high frequency spectrum will be required if consumers are to realize the full benefits of 5G. The 12.2-12.7 GHz band can help fill that gap. Adopting rule changes consistent with the Petition will result in enhanced DBS/MVDDS spectrum sharing, freeing up 12.2-12.7 GHz for more efficient and productive mobile broadband use while still providing protection to DBS.

- **The Coalition's Proposal Will Protect DBS Operations**

The Coalition also reviewed key findings from its two technical reports, "MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence" ("Co-Existence Study I") and "MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence II" ("Co-Existence Study II") prepared by Tom Peters, former Chief Engineer of the Commission's Wireless Telecommunications Bureau.[3] Both studies found, among other things, that "coexistence between MVDDS 5G operations and DBS receivers is possible with modest adjustments to MVDDS site locations and radiofrequency design parameters."[4] And they also establish that "coexistence between MVDDS 5G operations and NGSO FSS operations is not possible without severe operational constraints on MVDDS, NGSO FSS or both services."[5]

The Coalition proposes retention of MVDDS effective power flux density ("EPFD") limits as the mechanism for protection of DBS. The framework for protection of DBS thus remains unchanged, and the introduction of two-way services will not change this framework – DBS will continue to be protected by the EPFD metric for both base stations and mobiles. Through the use of current-generation technologies, application of newly available spectrum planning tools, and careful engineering of MVDDS systems, fixed and mobile 5G MVDDS deployments will be possible while meeting EPFD limits.

- **NGSO and MVDDS Services Co-Existence Is Challenged Even Under the Current Rules**

The Coalition also expressed concern that the company now known as OneWeb has applied to seek access to the 12.2-12.7 GHz band in the United States. In the filing it recently submitted to the Commission, OneWeb said it envisions its U.K.-based NGSO FSS system

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[2] See Presidential Memorandum, Unleashing the Wireless Broadband Revolution, 75 Fed. Reg. 38387 (July 1, 2010).

[3] *See* MVDDS 5G Coalition Comments, Attachment I, RM-11768, June 8, 2016 ("Coalition PN Comments"). *See also* MVDDS 5G Coalition Comments, Attachment A, RM-11768, June 23, 2016.

[4] Co-Existence Study I at 35.

[5] *Id.*

would support mobile end-user devices despite the lack of a mobile-satellite service ("MSS") allocation in the 12.2-12.7 GHz band.[6]

The Coalition explained that even under the current rules, co-existence between co-primary terrestrial MVDDS and NGSO systems serving mobile devices will prove very difficult, if not impossible and, in any case, remains inconsistent with the current Part 101 rules. The Part 101 rules establish different priorities based on the timing of deployment. If NGSO systems were deployed prior to MVDDS, Section 101.129(b) would require a 10 kilometer exclusion zone around each qualified NGSO earth station, which would mean that an NGSO system purporting to offer mobile coverage throughout the United States would effectively require a nationwide exclusion zone for MVDDS.

Conversely, NGSO operations will be constrained by the power flux density ("PFD") protections to MVDDS receivers required by Section 25.208(o). Furthermore, as detailed in Coexistence Study I, NGSO user terminals would likely experience interference even at a very substantial distance from MVDDS transmitters. Assuming line-of-sight and free space loss, for example, an NGSO user terminal would experience interference at a distance of 11 kilometers or more from an MVDDS transmitter operating under the current EIRP limit of 14 dBm/24 MHz.

NGSO user terminals are especially susceptible to co-channel interference because they are receiving relatively weak signals from a distant satellite. As noted in Coexistence Study I, geographic separation between the two services could offer a workable solution, but would come at a considerable cost to spectrum efficiency. For example, if MVDDS deployments were limited to urban core areas only and NGSO user terminals were limited to rural operation only, sufficient geographic separation might exist to ensure reliable operation of both systems in the band; however, this arrangement would require the Commission to leave the 12.2-12.7 GHz band fallow of both NGSO and MVDDS uses across a substantial portion of the United States to provide sufficient separation between these two disparate and technically incompatible uses of the spectrum.

More fundamentally, OneWeb has requested access to 5,900 megahertz of U.S. spectrum without the submission of a usage study or any type of demand modeling. OneWeb has added that, of the 5,900 megahertz of spectrum requested, the company intends to use 2,000 megahertz of spectrum solely to support satellite-to-user links. Even if additional NGSO applicants materialize and seek access to the same satellite-to-user frequencies that OneWeb has sought, 2,000 megahertz represents a truly remarkable amount of spectrum for satellite-to-mobile user links, especially in the absence of any business or technical explanation of the need for this amount of NGSO capacity. OneWeb and other purported NGSO operators could provide meaningful service with access to substantially less than 2,000 megahertz of spectrum for satellite-to-user links, which would leave ample opportunity for MVDDS licensees to pursue terrestrial 5G deployments in the 12.2-12.7 GHz band.

[6] Petition for Declaratory Ruling of OneWeb Ltd., IBFS File No. SAT-LOI-20160428-00041, at 5-6 (April 28, 2016).

- **The Coalition's Proposal Will Allow for Future NGSO Operations**

The OneWeb request notwithstanding, Coalition also discussed generally why viable 5G services in the 12.2-12.7 GHz band require eliminating or designating as secondary the unused NGSO FSS allocation at 12.2-12.7 GHz, while maintaining the NGSO allocation in the adjacent 10.7-12.2 GHz band. MVDDS deployment has been deterred by Commission rules that restrict MVDDS operations to partially protect a currently non-existent and unknown operation that may or may not be launched in the future.

Still, as the Coalition explained, the proposed elimination or modification of the co-primary NGSO FSS allocation at 12.2-12.7 GHz will still preserve sufficient spectrum for future NGSO FSS operations, should demand for such operations develop. NGSO FSS operators will continue to have access to ample Ku-band spectrum on a primary basis, as further explained in the Coalition's previous filings.[7]

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Respectfully submitted,

MVDDS 5G Coalition

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[7] *See* Coalition PN Comments at 8.

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