Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, DC 20230

In the Matter of	)	
	)	
Developing a Sustainable Spectrum Strategy for America's Future	)	Docket No. 181130999–8999–01
	)	RIN 0660–XC044
	)	
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	)	

COMMENTS OF THE MVDDS 5G COALITION

The MVDDS 5G Coalition[1] (the "Coalition") submits these comments in the above-captioned proceeding to urge the National Telecommunications and Information Administration ("NTIA") to include the 12.2-12.7 GHz band (the "12 GHz Band") in its national spectrum strategy.[2] The 12 GHz Band represents 500 MHz of spectrum that is ripe for wireless 5G use, but has historically been underutilized due to heavy-handed, outdated regulations. Identifying and optimizing new spectrum, such as the 12 GHz Band, is key to driving United States leadership in 5G and in meeting increasing consumer demand. The Coalition requests that the NTIA recommend that the Federal Communications Commission ("FCC") immediately open a rulemaking proceeding to optimize terrestrial 5G use of the 12 GHz Band.

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[1] The Coalition includes a cross-section of multichannel video distribution and data service ("MVDDS") and direct broadcast satellite ("DBS") licensees holding authorizations in the 12.2-12.7 GHz band, including: Braunston Spectrum LLC, Cass Cable TV, Inc., DISH Network L.L.C., GO LONG WIRELESS, LTD., MDS Operations, Inc., MVD Number 53 Partners, Satellite Receivers, Ltd., SOUTH.COM LLC, Story Communications, LLC, and Vision Broadband, LLC.

[2] *See* Notice, *Developing a Sustainable Spectrum Strategy for America's Future*, National Telecommunications and Information Administration, Docket No. 181130999–8999–01, RIN 0660–XC044, 83 Fed. Reg. 245, Dec. 21, 2018, *available at* https://www.ntia.doc.gov/files/ntia/publications/2018-27690_3.pdf.

I. BACKGROUND

Today, the 12 GHz Band is used for, among other things, the downlink path (satellite-to-earth) for Direct Broadcast Satellite ("DBS") services. The FCC issued an order creating the Multichannel Video Data Distribution Service ("MVDDS") in the 12.2-12.7 GHz band in 2000. Two years later, the agency adopted technical rules for the new MVDDS service.[3] The rules – which remain in place today – allow use of the spectrum for any one-way digital fixed non-broadcast service,[4] and were designed to enable more efficient and intensive spectrum use through increased spectrum sharing.[5] When adopted, the FCC expressed the hope that the MVDDS rules would facilitate the delivery of new communications services, including broadband.[6] To protect existing DBS services from harmful interference, the Commission authorized MVDDS on a co-primary, non-harmful interference basis, and established what the FCC called "very conservative" technical requirements to protect DBS.[7]

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[3] *See* Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, *First Report and Order and Further Notice of Proposed Rule Making*, 16 FCC Rcd 4096 (2000) ("*MVDDS First R&O*"); Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operations of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band with Frequency Range, *Memorandum Opinion and Order and Second Report and Order*, 17 FCC Rcd 9614 (2002) ("*MVDDS Second R&O*").

[4] *See* 47 C.F.R. § 101.1407. Currently, two way services can be provided only using spectrum in other bands for the return link. *See id.*

[5] *MVDDS Second R&O* at ¶ 2 ("We believe that the Commission's allocation for MVDDS in the 12 GHz band is in the public interest and reflects a carefully crafted balance of technical and policy concerns. This balance will result in an efficient reuse of spectrum and the provision of a new service to the public while affording protection to the existing Direct Broadcast Satellite (DBS) and new non geostationary satellite orbit (NGSO) fixed satellite services (FSS).").

[6] *See id*., Joint Statement of Chairman Michael Powell and Commissioner Kathleen Q. Abernathy ("[I]t is … quite possible that MVDDS will be used to provide a one-way data path for broadband services…. MVDDS offers the possibility of another broadband alternative."); *id*., Statement of Commissioner Michael J. Copps ("MVDDS has the potential to speed the deployment of broadband telecommunications services throughout the country, and especially to rural America.").

[7] *MVDDS Second R&O* at ¶ 43; *see also id.* at ¶¶ 3-4, 68, 87-94; 47 C.F.R. § 2.106.

Beginning in 2004, parties invested over $118 million to purchase MVDDS licenses at two auctions.[8] Since that time, MVDDS licensees have worked hard to put that spectrum to use. Licensees have explored a range of options, including point-to-multi-point fixed services using the MVDDS spectrum as downlink, and other spectrum as uplink, and are continuing to explore options like wireless backhaul.[9] But the technical and operational limitations imposed by the MVDDS rules have so constrained these use cases that manufacturers have been deterred from developing equipment for the band. As a consequence, the FCC has twice extended the buildout milestone for MVDDS licensees.[10]

II. THE 12 GHZ BAND CAN HELP MEET GROWING 5G SPECTRUM NEEDS

Since the adoption of the MVDDS rules nearly 15 years ago, the need for mobile broadband spectrum has skyrocketed. According to Cisco, mobile data traffic has grown 4,000-fold over the past 10 years, and almost 400-million-fold since 2000.[11] This growth in mobile data usage has tracked consumer demand for ever-more data intensive services at faster speeds. As the FCC explained in 2015, "[n]etwork connection speed and data consumption have exploded," coinciding with "the deployment of faster network technologies" like 3G and 4G LTE.[12] And

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[8] *See* Requests of Ten Licensees of 191 Licenses in the Multichannel Video and Data Distribution Service for Waiver of the Five-Year Deadline for Providing Substantial Service, *Order*, 25 FCC Rcd 10097, 10103 ¶ 11 (WTB 2010) ("*MVDDS Extension Order*").

[9] *See* South.com and DISH Network, LLC, Request for Extension of Time, ULS File No. 0006310688, at 2-7, 11-14, 16 (granted Jan. 26, 2015) ("*DISH Extension Request*") (discussing efforts to determine the feasibility of a point-to-point wireless backhaul service in the MVDDS spectrum); South.com, LLC, Request for Part 5 Experimental STA, OET File No. 0864-EX-ST-2012 (STA to evaluate whether wireless backhaul is a viable MVDDS service offering).

[10] *See, e.g.*, *MVDDS Extension Order*, 25 FCC Rcd at 10099-100 ¶ 5, 10102-04 ¶¶10-13; *DISH Extension Request* at 1-2, 5-7, 11, 16.

[11] CISCO, CISCO VISUAL NETWORKING INDEX: GLOBAL MOBILE DATA TRAFFIC FORECAST UPDATE, 2015–2020, at 1 (Feb. 3, 2016), *available at* http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf.

[12] Protecting and Promoting the Open Internet, *Report and Order, Declaratory Ruling, and Order*, 30 FCC Rcd 5601, 5636 ¶ 89 (2015).

projections indicate these trends will continue: in the next decade, traffic demand is expected to increase a further 1,000 fold as carriers begin the evolution to 5G.[13]

To meet this demand, policymakers from across government and from both sides of the aisle agree that more spectrum is needed. Among other things, last year Senator John Thune (R-S.D.) introduced the bipartisan Mobile Now Act, which would make hundreds of megahertz of spectrum available for commercial use by 2020, and would direct government agencies to examine high-frequency bands to determine which are most suitable for 5G purposes.[14]

The 12 GHz Band is ideally suited to be made available for increased sharing with existing DBS services to support new 5G services. 5G systems are expected to be used in areas of localized demand, where high system capacity in dense deployments will be needed to support very high data rates.[15] Spectrum bands above 6 GHz meet these needs because they offer spectrum blocks of sufficient size – several hundred MHz or more – to provide high peak data rates.[16] MVDDS spectrum squarely fits the bill: it offers 500 MHz of contiguous, high-band spectrum above 6 GHz. And, MVDDS spectrum also meets each of the four criteria established by the FCC for evaluating the suitability of spectrum bands for 5G: (i) it offers "at least 500 MHz

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[13] Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, *Notice of Proposed Rulemaking*, FCC 15-138, at ¶ 8 (rel. Oct. 23, 2015) ("*Spectrum Frontiers NPRM*"); *see also* Naga Bhushan et al., *Network Densification: The Dominant Theme for Wireless Evolution into 5G*, IEEE Communications Magazine, at 82, 88 (Feb. 2014) (noting the need to support a "1,000-fold increase in traffic demand over the next decade").

[14] *See* John Eggerton, *Mobile Now Act Introduced in Senate*, MULTICHANNEL NEWS (Feb. 11, 2016), *available at* http://www.multichannel.com/news/congress/mobile-now-act-introduced/402543. The Mobile Now Act was recently approved by the Senate Commerce Committee. *See* Diana Goovaerts, *CTIA, Verizon Renew Calls for Swift Gov't Action on 5G Spectrum*, WIRELESS WEEK (Mar. 18, 2016), *available at* http://www.wirelessweek.com/news/2016/03/ctia-verizon-renew-calls-swift-govt-action-5g-spectrum.

[15] *See* 4G AMERICAS, 5G SPECTRUM RECOMMENDATIONS, at 8 (Aug. 2015), *available at* http://www.4gamericas.org/files/6514/3930/9262/4G_Americas_5G_Spectrum_Recommendations_White_Paper.pdf.

[16] *See id.*; *see also Spectrum Frontiers NPRM*, Statement of Commissioner Michael O'Rielly (to reach the 5G potential, the Commission must "target additional bandwidth between 6 and 24 GHz").

of contiguous spectrum," (ii) it allows for a "flexible regulatory framework" that maximizes service options, (iii) it promotes "international harmonization," and (iv) it enables 5G sharing with "existing incumbent license assignments and uses."[17]

III. THE 12 GHZ BAND RULES ARE ONEROUS AND OUTDATED

When the FCC last addressed the technical rules governing terrestrial use of the 12 GHz Band, wireless operators were just beginning to contemplate upgrading their existing 2G infrastructure to 2.5G technologies, such as EDGE, CDMA 1x and GPRS, and the FCC's list of potential service offerings in the band included one-way data and video to fixed locations, but excluded mobile, two-way data services.[18] But, times have changed since 2002 when the rules were written, and the opportunities for more flexible and efficient shared use of spectrum have increased. Consumers now want two-way, mobile data services.[19] With 5G, consumers can expect, among other things, low-latency, high-performance video, gaming, and support for the Internet of Things.[20] And the technology and techniques available to avoid interference to co-primary services in the 12 GHz Band have become far more nimble and advanced.[21] New 5G

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[17] *See Spectrum Frontiers NPRM* at ¶¶ 20-24.

[18] *See MVDDS Second R&O*.

[19] *See, e.g.*, Comments of CTIA, WT Docket No. 17-69, at iv (filed May 8, 2017) (reporting consumers used 13.72 trillion MB in 2016—35 times more mobile data than in 2010—and data usage is projected to increase five-fold from 2016 to 2021 and mobile video traffic accounted for 64 percent of all mobile data traffic in the U.S. in 2016).

[20] *See, e.g.*, DBSD Services Limited, Gamma Acquisition LLC, and Manifest Wireless LLC, Consolidated Interim Construction Notification for AWS-4 and Lower 700 MHz E Block Licenses, File Nos. 0007690885 *et al*., at 3-4 (filed Mar. 7, 2017) ("Given the promise of IoT to revolutionize innovation and productivity in a variety of industries that traditionally fall outside the telecommunications sector, IoT will enable new use cases and services platforms that will drive efficiencies across diverse industries and produce transformative societal benefits for the public.").

[21] *See* Tom Peters, MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence at 1-2 (filed June 8, 2016) ("*Coexistence Study*") (attached as Attachment I to Comments of the MVDDS 5G Coalition, RM-11768 (June 8, 2016)); *See* Petition of MVDDS 5G Coalition for Rulemaking, RM-11768, at 18 (filed April 26, 2016) ("*12 GHz Band Petition*") (explaining advanced antenna techniques like "beamforming" and

technologies can facilitate sharing (*e.g.*, through smaller cells and advanced antenna techniques) that was unavailable when the MVDDS rules were adopted. Given the technological developments over the last 15 years, there is no justification for maintaining the onerous restrictions that continue to govern terrestrial services in the 12 GHz Band.[22] In similar situations, the FCC has recognized the importance of changing outdated rules based on services and technical designs to allow for advancements in technology and shifts in consumer demand.[23]

The FCC's rules, for example, apply strict power limits to MVDDS base stations of just 14 dBm, which equates to just one-tenth of the maximum power of a smart phone transmitter in other bands, and only about half of the out-of-band power allowed for unlicensed devices under the FCC's Part 15 rules.[24] MVDDS licensees must also conduct a survey of their proposed deployment area and calculate whether proposed MVDDS transmissions would exceed the established EPFD for that area, after taking into account terrain, building structure characteristics, and DBS subscriber locations.[25] If the proposed MVDDS operations exceed applicable EPFD limits, then the MVDDS licensee must either obtain written consent from affected DBS customers

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"beamsteering" allow better control of transmitter energy, enabling transmissions to be more narrowly focused to desired locations dynamically).

[22] *See, e.g., MVDDS Second R&O* ¶¶ 68, 88-89; 47 C.F.R. §§ 101.113(a), 101.147(p), 101.105(a)(4)(ii)(B).

[23] *See, e.g.*, Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, *Report and Order and Further Notice of Proposed Rulemaking*, IB Docket No. 16-408, FCC 17-122 at ¶ 2 (Sept. 27, 2017) (updating outdated satellite rules "adopted over a decade ago, and [that] reflect the designs of NGSO FSS systems proposed at that time."); Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Report and Order*, 19 FCC Rcd 14165 ¶¶ 1-4 (2004) (implementing major revisions to "outdated and overly restrictive" regulations in the former Instructional Television Fixed Service and Multichannel Multipoint Distribution Service to provide licensees greater flexibility to rapidly deploy "innovative and efficient communications technologies and services" and meet "steadily increasing demand for mobile telephone and mobile data services.").

[24] *See Coexistence Study* at 4.

[25] *See* 47 C.F.R. § 101.1440(b).

or take steps to meet the EPFD limit.[26] These types of cumbersome limitations have stifled MVDDS deployment, investment, and innovation for years. Ignoring the 12 GHz Band will only shortchange investment and economic growth. Continued uncertainty and delay about the potential future use of the band will only discourage interest in these frequencies.

IV. THE NTIA SHOULD INCLUDE THE 12 GHZ BAND IN FUTURE 5G PLANNING

Given the clear potential for increasing 5G services using the 12 GHz Band – and the need to allocate new spectrum for such services – the Coalition urges the NTIA to consider the 12 GHz Band spectrum as part of the United States' national spectrum strategy going forward. The FCC's current rules are understandably out of date and have undermined the band's broadband potential, despite significant investment in the band.

As a result, MVDDS spectrum today remains underutilized. Modifying the rules to permit sharing between DBS and a viable two-way mobile broadband service will bring vast public interest benefits, including: (i) making an additional 500 MHz of contiguous spectrum available to help meet mobile broadband demand and foster 5G, and (ii) adapting the current regulatory approach to reflect today's technologies and the trend toward more flexible uses.

Fortunately, the Coalition's prior efforts before the FCC have laid the groundwork to unleash the 12 GHz Band for 5G.[27] The FCC need only grant the rulemaking petition the Coalition has already filed, and propose new rules to:

- Add a domestic mobile allocation to the 12.2-12.7 GHz band spectrum, consistent with the International Table of Frequency Allocations;
- Update the MVDDS operational rules to permit MVDDS licensees to provide two-way mobile broadband service;

[26] *See id*. § 101.1440(a).

[27] *See 12 GHz Band Petition*; *see also* Consumer and Governmental Affairs Bureau Reference Information Center Petition for Rulemakings Filed, *Public Notice*, RM-11768, Report No. 3042 (CGB May 9, 2016).

- Update the MVDDS technical rules to enable a viable 5G service while protecting DBS operations from harmful interference;

- Delete or designate as secondary the existing unused non-geostationary satellite orbit ("NGSO") fixed satellite service ("FSS") allocation at 12.2-12.7 GHz (while preserving the adjacent co-primary allocation for NGSO FSS at 11.7-12.2 GHz[28]), and eliminate or modify MVDDS rules designed to protect NGSO FSS – a "service" that, after nearly 15 years, is neither licensed nor deployed in the 12.2-12.7 GHz band; and

- Consider additional rule changes that can facilitate the most efficient and beneficial uses of MVDDS spectrum.

By leveraging the FCC's flexible use policies to modernize the MVDDS rules and make MVDDS spectrum available for 5G mobile services, U.S. consumers win. And by conducting a rulemaking to determine appropriate technical thresholds, the FCC can ensure these changes are accomplished without harm to competitively important DBS and its consumers. The NTIA should incorporate the proposals laid out above as it develops its national spectrum strategy.

V. CONCLUSION

For the forgoing reasons, the MVDDS 5G Coalition thus urges the NTIA to include modernization of the 12 GHz Band as a priority in its national spectrum planning.

Respectfully submitted,

MVDDS 5G Coalition

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[28] NGSO FSS is authorized to use 500 MHz of spectrum in the 11.7-12.2 GHz band, which is subject to sharing with only GSO FSS systems on a co-primary basis. *See* 47 C.F.R. § 2.106.

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