

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

In the Matter of )  
 )  
Expanding Flexible Use in Mid-Band Spectrum ) GN Docket No. 17-183  
Between 3.7 and 24 GHz )

**COMMENTS OF MVDDS 5G COALITION**

The MVDDS 5G Coalition<sup>1</sup> supports making additional mid-band spectrum available for the delivery of next-generation wireless broadband services.<sup>2</sup> Next-generation wireless broadband networks need high-, mid- and low-band spectrum to function.<sup>3</sup> But mid-band spectrum – defined broadly as spectrum between 3.7 GHz and 24 GHz – promises to serve as a critical foundation for fifth-generation mobile broadband services (“5G”) because the spectrum combines the favorable coverage characteristics of lower-frequency bands with the high-capacity capability of high-frequency spectrum.

In a petition for rulemaking filed more than sixteen months ago, the MVDDS 5G Coalition documented the skyrocketing demand for wireless broadband and urged the FCC to

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<sup>1</sup> 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, Vision Broadband, LLC, and WCS Communications, Inc.

<sup>2</sup> See generally *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, Notice of Inquiry, FCC 17-104 (Aug. 3, 2017) (“*Mid-Band Spectrum NOI*”).

<sup>3</sup> See, e.g., Michael O’Rielly, *A Mid-Band Spectrum Win in the Making*, FCC Blog (July 10, 2017), <http://bit.ly/2va8RDb>.

remove unnecessary regulatory constraints on the 12.2-12.7 GHz band (“12 GHz Band”) that prevent use of this spectrum for 5G wireless broadband services.<sup>4</sup> The time to act on the pending petition to make this 12 GHz Band spectrum available for 5G is now.

## **I. THE RULES FOR THE 12 GHZ BAND ARE ONEROUS AND OUTDATED**

The FCC last addressed the technical rules governing terrestrial use of the 12 GHz Band some fifteen years ago in 2002. During that time, 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.<sup>5</sup>

Times have changed. Consumers now demand two-way, mobile broadband data services.<sup>6</sup> With 5G, consumers can expect, among other things, low-latency, high-performance video, gaming, and support for the Internet of Things.<sup>7</sup> And the technology and techniques

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<sup>4</sup> See Petition of MVDDS 5G Coalition for Rulemaking, RM-11768 (filed April 26, 2016) (“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).

<sup>5</sup> 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 with Frequency Range*, Memorandum Opinion and Order and Second Report and Order, 17 FCC Rcd 9614 (2002) (“MVDDS Second R&O”).

<sup>6</sup> See, e.g., Comments of CTIA, WT Docket No. 17-69, at iv (filed May 8, 2017) (“CTIA Mobile Competition Comments”) (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).

<sup>7</sup> 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.”).

available to avoid interference to co-primary services in the 12 GHz Band have become far more nimble and advanced.<sup>8</sup> Given the technological developments over the last fifteen years, there is no justification to maintain the onerous and byzantine set of restrictions on antenna locations and transmitter power levels that continue to govern terrestrial services in the 12 GHz Band.<sup>9</sup> In similar situations, the Commission has recognized the importance of changing outdated rules based on services and technical designs proposed years ago to allow for advancements in technology and shifts in consumer demand.<sup>10</sup>

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

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<sup>8</sup> 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), <http://bit.ly/2cWqz9I>); 12 GHz Band Petition at 18 (explaining advanced antenna techniques like “beamforming” and “beamsteering” allow better control of transmitter energy, enabling transmissions to be more narrowly focused to desired locations dynamically).

<sup>9</sup> 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).

<sup>10</sup> See, e.g., *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, IB Docket No. 16-408, Report and Order and Further Notice of Proposed Rulemaking, 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.”).

the FCC's Part 15 rules.<sup>11</sup> 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.<sup>12</sup> If the proposed MVDDS operations exceed applicable EPFD limits, then the MVDDS licensee must either obtain written consent from affected DBS customers or take steps to meet the EPFD limit.<sup>13</sup> 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.

## **II. THE 12 GHZ BAND PETITION IS RIPE FOR COMMISSION ACTION**

The MVDDS 5G Coalition filed the 12 GHz Band Petition more than sixteen months ago.<sup>14</sup> As the record in that proceeding demonstrates, the 12 GHz Band possesses favorable technical and other characteristics that make the band ideally suited for the rapid deployment of 5G services. The 500 MHz of available contiguous spectrum, for example, will allow for high peak data transmission rates.<sup>15</sup> The international mobile service allocation allows for potentially harmonized global use of the band.<sup>16</sup> The existing manufacturing ecosystem for the 12 GHz

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<sup>11</sup> *See* Coexistence Study at 4.

<sup>12</sup> *See* 47 C.F.R. § 101.1440(b).

<sup>13</sup> *See id.* § 101.1440(a).

<sup>14</sup> *Consumer and Governmental Affairs Bureau Reference RM-11768 Information Center Petition for Rulemakings Filed*, Public Notice, Report No. 3042 (CGB May 9, 2016).

<sup>15</sup> *See, e.g.*, 12 GHz Band Petition at i, 4.

<sup>16</sup> *See id.* at 8.

Band will help reduce the production costs for new 5G equipment in the band. Furthermore, co-primary DBS services can coexist as a technical matter with next-generation MVDDS services.<sup>17</sup>

Many commenters support the proposal of the MVDDS 5G Coalition for flexible use of the band. The Computer & Communications Industry Association, for example, states that allowing mobile use in the 12 GHz Band would “maximize the utility of this band [and] help carriers meet ever-increasing demands placed on their networks.”<sup>18</sup> T-Mobile agrees that “[r]e-examining whether currently allocated spectrum is being employed in the way that best serves the public interest is potentially one of the most productive ways to create additional spectrum capacity.”<sup>19</sup> The Competitive Carriers Association adds that the 12 GHz Band “presents an excellent opportunity to make spectrum available to support 5G mobile broadband technologies.”<sup>20</sup>

In response to the MVDDS 5G Coalition’s Petition, a handful of parties expressed concerns. AT&T Services, Inc., the parent company of DBS provider DirecTV, raised questions regarding potential interference to DBS receivers.<sup>21</sup> The MVDDS 5G Coalition, however, demonstrated that MVDDS 5G operations and DBS services can coexist with modest

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<sup>17</sup> *See generally* Coexistence Study.

<sup>18</sup> Letter from John A. Howes, Jr., Computer & Communications Industry Association (CCIA) to Marlene H. Dortch, FCC, RM-11768, GN Docket No. 14-177, at 2-3 (filed June 8, 2016), <http://bit.ly/2oEdaoq>.

<sup>19</sup> Comments of T-Mobile USA, Inc., RM-11768, at 3 (filed June 8, 2016), <http://bit.ly/2pmtuMW>.

<sup>20</sup> Comments of Competitive Carriers Association, RM-11768, at 9 (filed June 8, 2016).

<sup>21</sup> *See* Statement of AT&T Opposing Petition for Rulemaking, RM-11768 (filed June 8, 2016); Reply Statement of AT&T Opposing Petition for Rulemaking, RM-11768 (June 23, 2016).

adjustments to MVDDS site locations and radiofrequency design parameters.<sup>22</sup> Indeed, DISH Network L.L.C., a member of the MVDDS 5G Coalition, serves millions of customers using the same 12 GHz spectrum as DirecTV and yet fully supports the proposal for expanded flexibility and use of the 12 GHz Band in light of the low likelihood of interference to DISH's core business of providing DBS services to the public.<sup>23</sup>

Similarly, a few satellite operators opposed the proposal to eliminate the co-primary non-geostationary satellite orbit ("NGSO") fixed-satellite service ("FSS") allocation in the 12 GHz Band or, alternatively, to reclassify the allocation as secondary.<sup>24</sup> As the MVDDS 5G Coalition has explained, however, no NGSO FSS operator has used the 12 GHz Band since it was allocated for NGSO use more than fifteen years, and no operational NGSO FSS system would be impacted by elimination of this allocation.<sup>25</sup> Moreover, future NGSO FSS systems will continue to have access to multiple *gigahertz* of spectrum on a primary basis in other frequency bands.<sup>26</sup>

Even if these concerns were valid, which they are not, the proper procedure to address them is not through continued inaction but through engaging these issues both at a technical and policy level in a transparent and timely manner through a notice of proposed rulemaking.

Businesses have a right to expect that the FCC will provide for an up or down vote on the merits

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<sup>22</sup> Coexistence Study at 35.

<sup>23</sup> See Press Release, Major Pay-TV Providers Lost About 655,000 Subscribers in 2Q 2017, Leichtman Research (Aug. 17, 2017), <http://bit.ly/2gKT6kn>; Monica Allevan, *DISH, Partners in MVDDS Coalition Petition to Get 12.2-12.7 GHz Band into 5G Realm*, FierceWireless (May 11, 2016), <http://bit.ly/2gLctK2>.

<sup>24</sup> See 12 GHz Band Petition at 17 n.65, 22-24.

<sup>25</sup> See *id.* at 17-18 & n.68, 22-23.

<sup>26</sup> See *id.* at 23; Comments of MVDDS 5G Coalition, RM-11768, at 8 (filed June 8, 2016) (noting the following bands are available for NGSO FSS: 11.7-12.2 GHz downlink; 14-14.5 GHz uplink; 18.8-19.3 GHz downlink; and 28.6-29.1 GHz uplink).

of legitimate proposals. The FCC should initiate a rulemaking and allow interested parties to debate and consider the merits of eliminating fifteen-year-old technical rules that are at odds with consumer desires and far behind state-of-the-art interference-mitigation technologies. In the alternative, the Commission should include the MVDDS 5G Coalition proposal for expanded and flexible use of the 12 GHz Band as part of the Commission's efforts in this proceeding.

The ample technical data submitted in the record supports initiating a rulemaking proceeding. Last year, the MVDDS 5G Coalition submitted a technical coexistence study demonstrating that "coexistence between MVDDS 5G operations and DBS receivers is possible with modest adjustments to MVDDS site locations and radiofrequency design parameters."<sup>27</sup> The study used ultra-high-resolution modeling of likely 5G deployment scenarios and employed conservative assumptions to minimize the risk of potential interference to DBS receivers.<sup>28</sup> The study also demonstrated that more detailed information about coexistence among services and newer wireless broadband deployment models has emerged since the FCC last considered the issue of coexistence in the 12 GHz Band and justifies additional flexibility in the Commission's current rules for terrestrial use of the 12 GHz Band.<sup>29</sup>

The MVDDS 5G Coalition supplemented this initial study with a second technical analysis showing how the 12 GHz Band could support 5G wireless broadband, applying more conservative assumptions and a less forgiving physical environment than the first study, an urban

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<sup>27</sup> Coexistence Study at 35.

<sup>28</sup> *See id.* at 1-2, 35.

<sup>29</sup> *See id.* at 35.

canyon environment.<sup>30</sup> Even with a more challenging physical environment and more conservative assumptions, the analysis yielded results very similar or superior to those of the initial study, reinforcing the conclusion that “MVDDS licensees can deploy two-way 5G services in the 12.2-12.7 GHz band while satisfying the current level of protection that DBS enjoys today from MVDDS licensees.”<sup>31</sup> The MVDDS 5G Coalition also proposed specific section-by-section rule revisions to Parts 2, 25, 30 and 101 of the Commission’s rules that would add a mobile, two-way allocation in the 12 GHz Band and ensure coexistence with DBS licensees in the band.<sup>32</sup>

By contrast, the Commission would not be able to transition or develop any of the specific frequency bands identified in the *Mid-Band Spectrum NOI* for 5G services as readily as the 12 GHz Band.<sup>33</sup> None of the identified bands, unlike the 12 GHz Band, has a developed record regarding flexible, mobile use.<sup>34</sup> Moreover, each of the bands identified in the *Mid-Band*

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<sup>30</sup> Tom Peters, MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence II (June 23, 2016) (attached as Appendix A to Reply Comments of the MVDDS 5G Coalition, RM-11768 (filed June 23, 2016), <http://bit.ly/2pughPG>).

<sup>31</sup> *Id.* at 1.

<sup>32</sup> See Reply Comments of MVDDS 5G Coalition, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95, Appendix A (filed Oct. 31, 2016), <http://bit.ly/2oG2Ei0>.

<sup>33</sup> The MVDDS 5G Coalition takes no position on whether any of these frequency bands should be transitioned to next-generation wireless broadband use.

<sup>34</sup> There is a pending petition for a rulemaking proceeding in the 3.7-4.2 GHz band that proposes rule changes to authorize and facilitate the deployment of point-to-multipoint fixed services, but that petition does not propose mobile services in the 3.7-4.2 GHz band and, in any event, was placed on public notice only recently. See Petition for Rulemaking of Mimosa Networks, Inc. et al., RM-11791 (filed June 21, 2017) (proposing amendments to Parts 25 and 101 to allow licensed fixed point-to-multipoint wireless broadband in the 3.7-4.2 GHz band); *Consumer and Governmental Affairs Bureau Reference Information Center Petition for Rulemaking Filed*, Public Notice, RM-11791, Report No. 3080 (CGB July 7, 2017); see also *Mid-Band Spectrum*



*Spectrum NOI* contains many thousands of incumbent operators, who have used the licensed frequencies for years and are not likely to reach sharing arrangements readily or agree to relocate existing operations. Approximately 48 satellites, 4700 registered earth stations, potentially thousands of unregistered earth stations, and 119 fixed service stations operate in the 3.7-4.2 GHz band.<sup>35</sup> Approximately 1,535 earth stations, including a number of earth stations on vessels which do not operate in fixed locations,<sup>36</sup> and 27,000 fixed point-to-point stations, many of which support infrastructure communications, such as railroads, natural gas and oil pipelines, electric grids, and communications backhaul, operate in the 5.925-6.425 GHz band.<sup>37</sup> Hundreds of mobile licensees in the broadcast auxiliary service and cable auxiliary relay service and tens of thousands of fixed point-to-point stations, many of which also provide critical infrastructure communications, operate in various segments of the 6.425-7.125 GHz band.<sup>38</sup> Compared to the highly encumbered bands that are the primary subject of the *Mid-Band Spectrum NOI*, the 12

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*NOI* ¶¶ 13-23 (seeking comment on the potential for using the 3.7-4.2 GHz band for wireless broadband). In the 3.7-4.2 GHz and 5.925-6.425 GHz bands, the FCC granted an application, pursuant to waivers, allowing one company to operate mobile devices transmitting to geostationary satellites. That application was not subject to a rulemaking proceeding. *See Higher Ground LLC Application for Blanket Earth Station License*, IBFS File No. SES-LIC-20150616-00357, Call Sign E150095, Order and Authorization, 32 FCC Rcd 728 (IB/WCB/OET 2017) (Applications for Review pending); *see also Mid-Band Spectrum NOI* ¶¶ 24-31 (noting Higher Ground’s license and seeking comment on potential for flexible wireless broadband use in the 5.925-6.425 GHz band).

<sup>35</sup> *See Mid-Band Spectrum NOI* ¶¶ 14-15.

<sup>36</sup> *See id.*

<sup>37</sup> *See id.* ¶ 24.

<sup>38</sup> *See id.* ¶ 35. The band is allocated in the United States for non-Federal use on a primary basis for FS (6.525-7.125 GHz), mobile service (6.425-6.525 and 6.875-7.125 GHz), and FSS (6.425-6.7 and 7.025-7.075 GHz). *See id.* ¶¶ 32-35.

GHz Band promises a much less complex opportunity to secure public access to much-needed spectrum for 5G operations.

### **III. CONCLUSION**

Broadband creates “economic growth, job creation, public safety, and global competitiveness.”<sup>39</sup> Broadband also means economic opportunity.<sup>40</sup> The MVDDS 5G Coalition urges the Commission to modernize its 12 GHz rules by acting on the long-pending petition for rulemaking for this band. Alternatively, the Commission should include the MVDDS 5G Coalition proposal for expanded and flexible use of the 12 GHz Band as part of the Commission’s efforts in this proceeding.

Respectfully submitted,

**MVDDS 5G Coalition**

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<sup>39</sup> See *Mid-Band Spectrum NOI* ¶ 5.

<sup>40</sup> See FCC Chairman Ajit Pai, Remarks at the Mobile World Congress, Barcelona, Spain, at 1 (Feb. 28, 2017), <http://bit.ly/2okaWJW>.

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