

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Expanding Flexible Use of the 12.2-12.7 GHz Band	)	WT Docket No. 20-443
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7-4.2 GHz	)	GN Docket No. 17-183
	)	

**REPLY COMMENTS OF 5G FOR 12 GHz COALITION**

The 5G for 12 GHz Coalition hereby submits these reply comments in response to the Federal Communications Commission’s (“Commission” or “FCC”) Notice of Proposed Rulemaking on how best to maximize efficient use of 500 megahertz of mid-band spectrum between 12.2-12.7 GHz (“12 GHz band”).<sup>1</sup> These reply comments highlight the overwhelming support in the record for the Commission to update its rules for MVDDS licensees and expand terrestrial use of the shared band for two-way communications and mobile services.

**I. INTRODUCTION AND SUMMARY**

The 5G for 12 GHz Coalition is a multilateral coalition of 5G leaders whose mission is to unleash the power of 5G by making the 12 GHz band available for terrestrial wireless services.<sup>2</sup> The various stakeholders in the Coalition, including public interest organizations,

---

<sup>1</sup> *Expanding Flexible Use of the 12.2-12.7 GHz Band, Expanding Flexible Use in Mid-Band Spectrum Between 3.7-24 GHz*, Notice of Proposed Rulemaking, 36 FCC Rcd 606 (rel. Jan. 15, 2021) (“12 GHz Notice”).

<sup>2</sup> The 5G for 12 GHz Coalition includes the following group of 33 diverse members: INCOMPAS, Public Knowledge, DISH, Computer & Communications Industry Association (CCIA), RS Access, Open Technology Institute at New America (OTI), Federated Wireless, Airspan, AltioStar, A-Side Technology, AtLink, Cambridge Broadband Network Groups, Center for Educational Innovation, Center for Rural Strategies, Dell Technologies, Etheric Networks, GeoLinks, GoLong Wireless, Granite Telecommunications, Mavenir, mmWave

trade associations, and private companies, have a shared goal of unlocking licensed mid-band spectrum in order to secure U.S. global leadership, spur competition, and provide next-generation connectivity for all Americans. The 5G for 12 GHz Coalition urges the FCC to maximize the potential of the band by modernizing its rules and opening up the 12 GHz band in order to unleash the power of terrestrial 5G.

The record in this proceeding supports the FCC making modifications that would expand the use of the band for two-way communications and mobile services by showing that shared use of the band is technically feasible and that doing so has enormous public interest benefits, including for the 5G economy, U.S. global leadership, national security, competition, and bridging the digital divide.

## **II. THE RECORD CLEARLY DEMONSTRATES THAT THE 12 GHz BAND CAN BE SHARED WITHOUT HARMFUL INTERFERENCE.**

The Commission seeks to ascertain whether a new or expanded terrestrial mobile allocation can be added in the 12 GHz band without causing harmful interference with incumbent licensees. Following the comment round, the record in this proceeding clearly shows that opening the 12 GHz band for terrestrial use for two-way communications is technically possible and that incumbent license holders can “successfully coexist” in the 12 GHz band.<sup>3</sup> Various commenters indicated that if the record proves that shared use in the band is

---

Tech, MVD Number 53 Partners, NextLink, Resound Networks, Rise Broadband, Rural Wireless Association (RWA), TelNet Worldwide, Tilson, VMWare, WeLink, White Cloud, Xiber and X-Lab. See 5G for 12 GHz Coalition, *Coalition Momentum Grows With 32 Members, Citing Engineering Data Showing Clear Capability for Coexistence of Expanding the 12 GHz Band for 5G*, Press Release (June 29, 2021), available at <https://5gfor12ghz.com/5gfor-12ghz-coalition-momentum-grows-with-32-members/>.

<sup>3</sup> RKF Engineering Solutions, LLC, *Assessment of Feasibility of Coexistence between NGSO FSS Earth Stations and 5G Operations in the 12.2-12.7 GHz Band* (May 2021) (“RS Access

feasible, then the FCC should update its long-standing rules. For example, according to CCA, “[t]he Commission should carefully evaluate the record in this proceeding, and if the record establishes that the 12 GHz band can be used for terrestrial wireless broadband deployment while protecting co-frequency satellite offerings against harmful interference, it should update its rules accordingly.”<sup>4</sup> Similarly, the Dynamic Spectrum Alliance expressed that “[c]onceptually, DSA believes that the possibility and promise of dynamic sharing mechanisms exists for the 12 GHz Band” and it welcomed “submission of technical proposals detailing how dynamic spectrum sharing in the 12 GHz Band can protect the three primary services in the band.”<sup>5</sup>

These commenters, and the Commission, no longer need to be concerned about whether shared use of this band is possible because two technical studies, the first submitted by RS Access and prepared by RKF Engineering Solutions, and the second submitted by DISH under the direction of former FCC Chief Wireless Engineer Tom Peters,<sup>6</sup> thoroughly demonstrates that coexistence is possible without harmful interference. The RS Access Coexistence Study was the only newly commissioned technical analysis that was submitted in the record. The study demonstrates and definitively concludes that coexistence in the 12 GHz band between 5G, NGSO FSS is feasible and readily achievable, showing that the band is suitable for 5G. With its updated technical study, DISH and Mr. Peters reaffirm that a two-way terrestrial mobile service

---

Coexistence Study”), appended to Comments of RS Access, LLC, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) (“RS Access Comments”).

<sup>4</sup> Comments of the Competitive Carriers Association, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 1 (“CCA Comments”).

<sup>5</sup> Comments of the Dynamic Spectrum Alliance, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 3-4.

<sup>6</sup> See Declaration of Tom Peters (“Peters Declaration”) at 1, appended to Comments of DISH Network Corporation, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) (“DISH Comments”).

can be managed and configured to protect DBS receivers. These studies prove that claims of possible interference in the band are outdated and fail to take into account technical advances in satellite architecture and spectrum management. That opponents of two-way terrestrial service in the 12 GHz band failed to submit any kind of technical study to support their claims should further invalidate arguments that the services allocated to the band cannot successfully coexist.<sup>7</sup>

RS Access and others in the record have shown that updating the Commission's rules in the 12 GHz band would result in a win-win scenario because terrestrial services can co-exist with incumbent services as the three systems occupying the space can continue to operate exactly as they do today without interfering with each other. As RS Access explains, technical developments that have transpired since the Commission's last review of the rules in 2002 have opened new sharing opportunities in the 12 GHz band.<sup>8</sup> As a result, "the Commission is not faced with an either-or, zero-sum choice between terrestrial and satellite uses. Encouraging coexistence between terrestrial and NGSO systems would maximize public interest benefits for consumers by allowing for the greatest use (and reuse) of the 12 GHz band."<sup>9</sup> The significant technological advances in spectrum sharing and band co-existence in the 12 GHz band should give the Commission confidence that it can increase opportunities for shared use of the band while protecting incumbents from harmful interference given that the original petitioners have detailed the development of spectrum-related innovations and substantiated how co-existence in

---

<sup>7</sup> See generally Comments of Space Exploration Holdings, LLC, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) ("SpaceX Comments").

<sup>8</sup> See RS Access Comments, at 44-45 (describing robust antenna discrimination and how this technique helps to "isolate terrestrial transmissions from satellite transmission").

<sup>9</sup> *Id.* at 23.

the band between satellite-based and terrestrial services is now practicable.<sup>10</sup> Various commenters have expressed why this conclusion is so important to this proceeding:

- As the Public Interest Organizations (“PIOs”) explain, “the Commission does not need to adopt an either/or approach to the 12 GHz band. Instead it should adopt policies that allow both mobile and satellite providers to access the spectrum they need to compete.”<sup>11</sup>
- According to MVDDS Licensees, “the optimal result in this proceeding would be for the Commission to adopt updated rules that abolish obsolete restrictions on the MVDDS service and allow mobile and two-way MVDDS operations” in order to unleash the potential of the 12 GHz Band’s large, contiguous cache of spectrum to facilitate 5G deployment, and “this critically important goal can be accomplished without disrupting operations of the 12 GHz band’s other two incumbent groups[.]”<sup>12</sup>

### **III. UPDATING THE RULES IN THE 12 GHZ BAND IS IN THE PUBLIC INTEREST.**

Opening the 12 GHz band for terrestrial use for two-way communications is not only technically feasible, but it is also in the public interest. Modifying the band will expand the 5G economy, enhance our global leadership in 5G and national security, promote competition, bridge the nation’s digital divide, and enable opportunistic access to unused capacity. As the PIOs explain, “expanding access to spectrum for terrestrial broadband use in the currently very underutilized 500 megahertz [in the 12 GHz band] can promote the

---

<sup>10</sup> *Id.* at 3, 34, 45. *See also* Comments of MVDDS Licensees, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 12 (“MVDDS Licensees Comments”) (“The MVDDS Licensees endorse the RS Access position that, with proper coordination and cooperation, MVDDS and NGSO licensees can coexist without causing harmful interference to one another.”); DISH Comments at 3; Joint Comments of INCOMPAS and Computer & Communications Industry Association, WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 8-9 (“INCOMPAS-CCIA Comments”).

<sup>11</sup> Comments of New America’s Open Technology Institute, Public Knowledge, et al., WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 8 (“PIO Comments”).

<sup>12</sup> MVDDS Licensees Comments at 2-3.

deployment of 5G services, promote competition, enhance the benefits of next generation Wi-Fi, spur innovation, and help to address the digital divide in underserved communities.”<sup>13</sup> As MVDDS Licensees similarly illustrate, this proceeding presents the FCC with the opportunity to “take a major step toward fulfilling vital public interest goals shared across multiple agency administrations.”<sup>14</sup> And according to RS Access, “[t]he NPRM asks whether releasing more mid-band spectrum for terrestrial 5G serves the public interest. The answer is unequivocal: yes.”<sup>15</sup>

5G Economy: The proponents of expanding the flexible use of the 12 GHz band have demonstrated why updating the Commission’s rules is critical for the 5G economy. The 500 megahertz of spectrum from 12.2-12.7 GHz is ideally suited for 5G.<sup>16</sup> As the need for more 5G spectrum continues to grow, the 12 GHz band represents a unique opportunity for the U.S. to enhance its leadership in the race to 5G,<sup>17</sup> and there is broad consensus that the deployment and

---

<sup>13</sup> PIOs Comments at 1-2.

<sup>14</sup> MVDDS Licensees Comments at 7.

<sup>15</sup> RS Access Comments at 5 (contending that making the 12 GHz band available is “essential to advancing U.S. 5G leadership, which will serve broader economic and national security interests”).

<sup>16</sup> See DISH Comments at 10-16 (asserting that the 12 GHz band is a prime candidate for spectrum reuse, “which in turn is important for densification and securing the high bandwidth capacity necessary for 5G” and citing the following factors for why the band could be an important mid-band resource for 5G: (1) the band has no federal government incumbents that need to be moved; (2) the 500 megahertz of available contiguous spectrum will allow for high-peak data transmission rates; (3) the near-global Mobile Service allocation allows for potentially harmonized global use of the band; (4) the existing manufacturing ecosystem for the 12 GHz band will help reduce the production costs for new 5G equipment in the band; (5) the band is not balkanized by being apportioned among a large number of licensees; and (6) co-frequency sharing among existing licensees is feasible, subject to safeguards that need not threaten the viability of each service).

<sup>17</sup> *Id.* at 7.

use of 5G networks will create a major boon to the U.S. economy.<sup>18</sup> As CCA explains, “[i]n light of the ever-present demand for spectrum for terrestrial 5G broadband services, both government and industry will need to think creatively and pursue all possible options. One such option may be the 12 GHz band.”<sup>19</sup> T-Mobile, which supports adding a mobile allocation to the 12 GHz band, agrees asserting in its comments that the availability of additional spectrum in higher mid-band frequencies “is important for the continued deployment of 5G.”<sup>20</sup> Moreover, updating the Commission’s rules in the 12 GHz band will help create American jobs. In addition to its engineering study, RS Access has submitted an economic study from the Brattle Group that demonstrates the value of terrestrial 5G in the 12 GHz band. As the study shows, the incremental addition of terrestrial 5G spectrum will produce a net present value of social welfare benefit of an amount that could exceed \$1 trillion, and it estimates that the value of the 12 GHz band when employed for terrestrial 5G use ranges from \$27 to \$54 billion.<sup>21</sup> Others in the record have echoed the importance of the 12 GHz band for the 5G economy:

---

<sup>18</sup> RS Access Comments at 6 (citing an Accenture study estimating that 5G will add \$1.5 trillion to U.S. GDP and create up to 16 million jobs).

<sup>19</sup> CCA Comments at 1.

<sup>20</sup> Comments of T-Mobile USA, Inc., WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 5 (“T-Mobile Comments”).

<sup>21</sup> See The Brattle Group, *Valuing the 12 GHz Spectrum Band with Flexible Use Rights*, iii-iv, 35 (May 7, 2021), appended to RS Access Comments (“Given the overwhelming weight of terrestrial subscribers in the U.S. relative to other users, both today and in the future, allowing terrestrial mobile uses of the 12 GHz band is almost surely the welfare-maximizing path for the FCC to take. Consequently, even with limited interference we expect the incremental value of allowing mobile 5G services into the 12 GHz to be all or nearly all of \$27.1 - \$54.1 billion and the incremental total societal benefits to be all or nearly all of \$270 billion - \$1,082 billion.) See also RS Access Comments at 27-28.

- According to the PIOs, the mid-band spectrum currently targeted for 5G deployment is insufficient to meet U.S. needs, and this proceeding “provides an excellent opportunity for the Commission to further fuel the nation’s wireless future.”<sup>22</sup>
- According to CCA, “5G has arrived, and with it comes the opportunity for new services, including self-driving cars, smart cities, and telehealth hubs.” However, “[p]otential use cases have only scratched the surface because of limited spectrum availability,” and “[m]id-band spectrum will play a critical role in enabling network deployments that meet commercial demands in a 5G world.”<sup>23</sup>
- According to Starry, “expanding flexible use rights in the 12 GHz band by supporting two-way communications can help to provide more flexibility for the wireless ecosystem to continuously innovate and ensure that the United States remains a robust influence on the development of next-generation technologies and services.”<sup>24</sup>
- According to MVDDS Licensees, the “500 MHz swath of contiguous spectrum is ideally suited to meet the ever-increasing demand for 5G spectrum, particularly in the mid-band.”<sup>25</sup>
- According to DISH, freeing up additional spectrum is essential for the U.S. to win the 5G race as analysts predict that mobile data traffic is projected to increase by eight times over the next six years. A tremendous amount of spectrum, including the 12 GHz band, will be required to support this growth in mobile traffic, and the country with the largest reserves of mid-band spectrum available is the best positioned to win the 5G race.<sup>26</sup>
- According to INCOMPAS and CCIA, “additional mid-band spectrum is critical for domestic providers hoping to add 5G capacity,” and the 12 GHz band possesses important characteristics that make it well suited to be allocated for new 5G services.<sup>27</sup>

---

<sup>22</sup> PIOs Comments at 31.

<sup>23</sup> CCA Comments at 2.

<sup>24</sup> Comments of Starry, Inc., WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 2.

<sup>25</sup> MVDDS Licensees at 8.

<sup>26</sup> *See* DISH Comments at 9, 13.

<sup>27</sup> INCOMPAS-CCIA Comments, at 10-11.



Global 5G Leadership and National Security: The record in this proceeding shows why updating the Commission’s rules is critical for U.S. global 5G leadership and national security, which will require freeing more mid-band spectrum. As INCOMPAS and CCIA explain, the U.S. needs more spectrum for 5G to innovate and compete with other nations that have already allocated significantly greater amounts of mid-band spectrum for 5G, and “[a]llowing for flexible-use licenses for two-way broadband by swiftly modifying the 500 megahertz of existing licenses in the 12 GHz band allows the U.S. to overtake China (950 MHz) immediately and propels the U.S. from 13th place to second place behind Japan (1000 MHz).”<sup>28</sup> As DISH and RS Access explain, freeing up this spectrum will also lead to economic and military advantages over potential rivals,<sup>29</sup> as well as serving broader economic and national security interests.<sup>30</sup>

Increased Competition: Greater competition in the wireless market, and specifically through the 12 GHz band, is important for consumers for a variety of reasons, and the record reflects why updating the technical and operational rules for the 12 GHz band is critical for competition. As INCOMPAS and CCIA explain, when there are multiple providers of advanced broadband services, consumers benefit through the lower prices, faster service, and greater innovation that competitive providers bring to a market.<sup>31</sup> Others in the record have echoed the importance of the 12 GHz band for increased competition:

---

<sup>28</sup> *Id.* at 13.

<sup>29</sup> See DISH Comments at 16-18 (citing to a Council on Foreign Relations Independent Task Force report that concluded that countries that “harness the current wave of innovation, mitigate its potential disruptions, and capitalize on its transformative power will gain economic and military advantages over potential rivals”).

<sup>30</sup> See RS Access Comments at 5.

<sup>31</sup> See INCOMPAS-CCIA Comments at 16, 18.

- According to the PIOs, “the relative dearth of direct access to spectrum remains a serious obstacle to innovation and competition,”<sup>32</sup> and increasing the spectrum rights of terrestrial licensees in the 12 GHz band will enhance broadband competition, which has “profound public interest benefits” including affordability, quality of service, and increased access.<sup>33</sup> Moreover, if the Commission wants to help DISH reach its potential as a viable fourth competitor, then it must ensure that DISH has access to sufficient spectrum to compete aggressively with incumbent providers.”<sup>34</sup>
- According to MVDDS Licensees, “[t]he introduction of mobile, two-way terrestrial services via the 12 GHz Band will allow MVDDS incumbents to compete with the likes of SpaceX in service of consumers.”<sup>35</sup>
- According to RS Access, the “virtuous cycle of efficiency, competition, and choice is precisely what is at stake in this proceeding.”<sup>36</sup>
- According to DISH, “5G promises competitive benefits to the nation that first achieves widespread deployment.”<sup>37</sup>

*Bridging the Digital Divide*: The record in this proceeding shows why updating the Commission’s rules will help close the digital divide. As explained by the PIOs, opening access to unused capacity in the 12 GHz band and authorizing opportunistic sharing “will substantially improve broadband access and capacity in rural, Tribal, and other hard-to-serve areas,” and “provide rural ISPs and other entities with the spectrum-for-infrastructure they need to expand broadband services and help to bridge the digital divide.”<sup>38</sup> According to Federated Wireless,

---

<sup>32</sup> PIOs Comments at 17.

<sup>33</sup> *Id.* at 4-5.

<sup>34</sup> *Id.* at 7.

<sup>35</sup> MVDDS Comments at 20.

<sup>36</sup> RS Access Comments at 23.

<sup>37</sup> DISH Comments at 18-23.

<sup>38</sup> PIOs Comments at 12, 27.

“[m]aking more efficient use of spectrum and creating new opportunities for spectrum access are both critical objectives as the Commission looks to solve challenges of reaching unserved and under-served communities.”<sup>39</sup> And according to MVDDS Licensees, “[m]any of the markets served by the MVDDS Licensees are in rural areas; updating the rules to permit 5G services in these areas would enable the MVDDS Licensees to help the U.S. lessen the digital divide.”<sup>40</sup>

Opportunistic Use: The proposed development of a spectrum sharing framework that authorizes opportunistic access to available capacity in the 12 GHz band while protecting incumbent users “will generate widespread public interest benefits” including “increasing spectrum access to meet the public demand for expanded services; increasing innovation, competition, and consumer choice; deterring licensees from warehousing spectrum and boost the secondary spectrum market; and improving deployment to rural, tribal, and other underserved areas.”<sup>41</sup> In calling for greater opportunistic use of spectrum resources, the PIOs in this proceeding identify access as the major obstacle to addressing growing spectrum demands.<sup>42</sup> Making underutilized bandwidth available through opportunistic sharing “makes wireless connectivity more available to more people and decreases deployment costs, which directly improves both consumer welfare and the productivity of businesses that are dependent on wireless data.”<sup>43</sup>

---

<sup>39</sup> Comments of Federated Wireless, Inc., WT Docket No. 20-443, GN Docket No. 17-183 (filed May 7, 2021) at 1.

<sup>40</sup> MVDDS Licensees at 6.

<sup>41</sup> PIOs Comments at 14.

<sup>42</sup> See PIOs Comments at 15-16.

<sup>43</sup> PIOs Comments at 16.

#### **IV. THE COMMISSION SHOULD REJECT PROPOSALS TO ASSIGN NEW TERRESTRIAL USE RIGHTS BY AUCTION.**

In response to the Commission’s inquiry as to how it should assign any new terrestrial service rights, the 5G for 12 GHz Coalition urges the Commission to authorize new terrestrial usage rights by modifying the licenses of existing licensees using its authority under section 316 of the Communications Act.<sup>44</sup> As DISH points out, “modifying existing MVDDS licenses to permit two-way mobile services is the best and fastest approach. The MVDDS licensees are also already operating in the band today and have already engaged in efforts to avoid and resolve interference issues in the band.”<sup>45</sup> Additionally, the Commission should categorically reject proposals to relocate MVDDS operations and auction mobile terrestrial rights in the 12 GHz band.<sup>46</sup> As DISH and RS Access assert in their comments, the Commission is not compelled to auction any additional terrestrial rights created through this proceeding primarily because the agency’s auction authority does not apply to the initial licenses for terrestrial service which were already acquired by the MVDDS licensees.<sup>47</sup> Furthermore, the Commission should consider the substantial delays that would occur in bringing this 5G spectrum to market if it elects to auction new terrestrial use rights as opposed to modifying the current licenses.

---

<sup>44</sup> See DISH Comments at 73 (contending that the Commission maintains “ample legal authority to align the allocations of the 12 GHz band to those for Region 2 by adding a primary Mobile Service allocation, and modify MVDDS licenses”); RS Access Comments at 58 (asserting that the Commission has “broad authority to modify the terms and conditions of spectrum licenses to ‘promote the public interest, convenience, and necessity’” and directing the Commission to legal authority that allows the Commission “to enhance the intensity and efficiency of 12 GHz terrestrial operations”); INCOMPAS-CCIA Comments at 11.

<sup>45</sup> DISH Comments at 79.

<sup>46</sup> See T-Mobile Comments at 9-14.

<sup>47</sup> See DISH Comments at 80-82; RS Access Comments at 60-62.

## V. CONCLUSION

The 5G for 12 GHz Coalition urges the Commission to adopt rules that will modernize and expand terrestrial use of the 12 GHz for two-way communications and mobile services. There is overwhelming support in the record that modifying the Commission's rules is feasible without subjecting other services to harmful interference and will lead to enormous public benefits.

Respectfully submitted,

/s/ Chip Pickering

Chip Pickering  
CEO of INCOMPAS  
Co-Chair of The 5G for 12 GHz Coalition  
1100 G Street NW  
Suite 800  
Washington, DC 20005  
(202) 296-6650

/s/ Joe Lockhart

Joe Lockhart  
Partner of Rational 360  
Co-Chair of The 5G for 12 GHz Coalition  
1828 L Street, NW, Suite 640  
Washington, DC 20036

July 7, 2021