

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

In the Matter of	)	
	)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services	)	GN Docket No. 14-177
	)	
Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands	)	IB Docket No. 15-256
	)	
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band	)	RM-11664
	)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services	)	WT Docket No. 10-112
	)	
Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations	)	IB Docket No. 97-95

**COMMENTS OF COMPETITIVE CARRIERS ASSOCIATION**

Competitive Carriers Association (“CCA”)<sup>1</sup> hereby submits comments in response to the *Further Notice of Proposed Rulemaking* (“*Further Notice*”) in the above-captioned proceedings,

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<sup>1</sup> CCA is the leading association for competitive wireless providers and stakeholders across the United States. CCA’s membership includes nearly 100 competitive wireless providers ranging from small, rural carriers serving fewer than 5,000 subscribers to regional and national providers serving millions of

in which the Federal Communications Commission (“FCC” or the “Commission”) seeks comment on making available additional millimeter wave (“mmW”) spectrum bands for fixed and mobile use, refining mobile spectrum holding policies, implementing spectrum sharing and other issues foundational to next generation network deployment.<sup>2</sup>

CCA applauds the Commission for its progress toward unleashing spectrum for 5G deployment. While some proposals should be acted upon now, it is premature to develop licensing and use regimes for the spectrum bands contemplated in the *Further Notice*. At this time, neither the Commission nor stakeholders have a firm grasp on what technologies or equipment are best suited for a particular band, nor the best way, in some cases, to coexist with incumbents.<sup>3</sup> Both industry and consumers would benefit if the FCC provides both the time and regulatory flexibility for further development of and permission-less innovation within mmW bands. Any new regulations should be as forward-looking as possible and include opportunities to revisit the rules as technology and commercial use of each band evolves.

#### **I. SPECTRUM AGGREGATION POLICIES FOR FUTURE BANDS MUST ACCOUNT FOR DIFFERENCES BETWEEN THEM**

In the *Report and Order*, the Commission adopted a spectrum aggregation limit of 1250 megahertz for spectrum licenses in the 28 GHz, 37 GHz, and/or 39 GHz bands through

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customers. CCA also represents approximately 200 associate members consisting of small businesses, vendors, and suppliers that provide products and services throughout the mobile communications supply chain.

<sup>2</sup> Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, GN Docket No. 14-177, et al., *Report and Order and Further Notice of Proposed Rulemaking*, FCC 16-89 (rel. July 14, 2016) (Hereinafter, the Report and Order section will be referred to as “*Report and Order*” and the Further Notice of Proposed Rulemaking Section will be referred to as “*Further Notice*”).

<sup>3</sup> *Report and Order* ¶ 296 (Indeed, even the Commission acknowledges that “[g]iven that mmW technology is just being developed and the deployment scenarios of these devices are uncertain, many of these assumptions are speculative at this point and any conclusions that can be drawn from analyses or simulations at this point are necessarily tentative”).

competitive bidding.<sup>4</sup> The Commission now seeks comment on “whether a spectrum aggregation limit would be appropriate as additional ‘frontier’ spectrum bands become available.”<sup>5</sup>

While an “approximately one-third” aggregation threshold for all “Spectrum Frontiers” bands suitable and available for mobile purposes is a helpful first step to curbing anti-competitive spectrum aggregation,<sup>6</sup> any adopted aggregation limit also must apply to the future mmW bands on an in-band basis to be sufficiently effective. Adopting spectrum aggregation limits on an in-band basis will allow the Commission to tailor the applied limit depending on the best use case for each band, and prevent anti-competitive aggregation of a single band.

The recent transaction between Verizon and Nextlink (“XO”) demonstrates a “one third” overall aggregation limit is not sufficient to prevent monopolization of 5G-capable spectrum.<sup>7</sup> Although the *Report and Order* was not yet effective at the time the Wireless Telecommunications Bureau (“Bureau”) reviewed the proposed long-term de facto transfer spectrum leasing arrangement, the Bureau used the 1250 megahertz limit as a guideline and applied that overall limit to the mmW bands. Under this analysis, Verizon was allowed to lease almost all of the spectrum in the 28 GHz band in key urban markets without triggering the

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<sup>4</sup> *Report and Order* ¶ 184; *see id.* ¶ 189 (for secondary market transactions resulting in one licensee holding more than 1250 MHz of 28 GHz, 37 GHz, and 39 GHz bands, the Commission will “subject such transactions to our case-by-case review in order to ensure that the public interest is served”).

<sup>5</sup> *Further Notice* ¶ 483; *see also id.* ¶ 491.

<sup>6</sup> *See Further Notice* ¶ 491.

<sup>7</sup> *See Application of Cellco Partnership d/b/a Verizon Wireless and Nextlink Wireless, LLC For Consent to Long-Term De Facto Transfer Spectrum Leasing Arrangement*, ULS File No. 0007162285, Memorandum Opinion and Order, DA 16-838 (WTB 2016).

spectrum screen.<sup>8</sup> Several stakeholders, including CCA, voiced concerns that the transactions would result in the consolidation of key high-band spectrum and critical wireline resources, thus having a detrimental impact on competitive 5G testing and deployment, which is in direct contravention of the goals in this proceeding.<sup>9</sup>

The Commission now has the opportunity to take action to avoid future monopolization of the new mmW bands, and promote competition, innovation and investment, especially with respect to developing and deploying 5G. As CCA has consistently stated on record, one size does not fit all; the Commission must acknowledge that different aggregation thresholds may be appropriate for different mmW bands depending on the best use case for that band, and to prevent anti-competitive practices.<sup>10</sup>

## **II. SHARED LICENSE MODELS WILL DISCOURAGE INVESTMENT AND HARM INNOVATION**

The Commission seeks comment on implementing a “use-or-share” regime for spectrum bands licensed under Upper Microwave Flexible Use Service (“UMFUS”) rules, and

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<sup>8</sup> *Id.*

<sup>9</sup> *See e.g.*, CCA June 7, 2016 *Ex Parte*; Comments of CCA, WC Docket No. 16-70 (filed May 12, 2016).

<sup>10</sup> *See, e.g.*, Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, WC Docket No. 16-70 (filed July 7, 2016) (recommending the FCC implement a two-tiered approach: (1) a one-third screen for all mmW spectrum; and (2) a one-half screen for spectrum in a particular band, like 28 GHz); Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, WC Docket No. 16-70 (filed June 30, 2016); Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, WC Docket No. 16-70 (filed June 29, 2016); Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, WC Docket No. 16-70 at 2 (filed June 15, 2016); Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, *et al.* at 2 (filed June 7, 2016) (“CCA June 7, 2016 *Ex Parte*”) (“the FCC should proceed cautiously by imposing a separate spectrum screen for each of the above 24 GHz bands”).

incorporating various mechanisms, including a Spectrum Access System (“SAS”), to facilitate sharing.<sup>11</sup>

The Commission should refrain from adopting a SAS or a “use-or-share” model for unused portions of the bands held under Upper Microwave Flexible Use Service (“UMFUS”) licenses, or other “frontier” bands, at this time.<sup>12</sup> It appears that such mechanisms would not result in beneficial sharing of the upper mmW bands and will severely devalue these bands. Nevertheless, the Commission’s proposals are premature considering the SAS has not been proved as a reliable sharing mechanism.

SAS. Before adopting a SAS model for bands considered in this proceeding, the Commission must first assess the SAS framework once it has been implemented in the 3.5 GHz band. 3.5 GHz stakeholders are still developing the SAS.<sup>13</sup> Neither the Commission nor stakeholders know how or whether the SAS will actually work.<sup>14</sup> Applying an untested SAS

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<sup>11</sup> *Further Notice* ¶¶ 471-482 (seeking comment on implementing a “use-or-share” regime in bands licensed under UMFUS rules, and on sharing mechanisms for unlicensed use in “unused” portions of UMFUS-licensed bands, and seeking comment on appropriate definitions of “use” so as to enable sharing); *id.* ¶¶ 460-464 (proposing a sharing mechanism for the upper band segment, 37.6-38.6 GHz); *id.* ¶ 407 (contemplating a SAS for the 42-42.5 GHz band); *id.* ¶ 413 (contemplating a SAS for the 47.2-50.2 GHz band); *see also id.* ¶¶ 440-441 (proposing a SAS, with specific operational requirements, for the 71-76 GHz and 81-86 GHz band); *id.* ¶ 450 (contemplating a SAS for the 37-38.6 GHz band, as a coordination mechanism for the lower band segment).

<sup>12</sup> *Cf. Further Notice* ¶¶ 474-75.

<sup>13</sup> *See In the Matter of Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959, ¶301 (2015); *see also In the Matter of Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Order on Reconsideration and Second Report and Order, FCC 16-55 (rel. May 2, 2016).

<sup>14</sup> For instance, Paige Atkins, Associate Administrator in the Office of Spectrum Management at NTIA, recently explained that “[i]t’s really about getting to a point where we’ve established some level of confidence across the stakeholders. . . w[e]’re already taking about employing SAS. . . in other bands when we haven’t even fully proven it out.” Howard Buskirk, *Approach to Cybersecurity Seen as Providing Model for Interference Protection*, COMMC’NS. DAILY., Sept. 19, 2016, at 2.

structure as contemplated in the *Further Notice* raises substantial uncertainty for CCA members, enough to deter investment and hamper innovative testing of mmW bands and sharing systems. Implementing a SAS for the bands discussed in this proceeding, without careful analysis of its initial trial in the 3.5 GHz band, would not be practical or wise and should not be adopted by the Commission.

*Use-or-Share.* CCA’s members also oppose the adoption of a “use-or-share” model, as it will discourage innovation and investment. There are few proven commercial use cases for the mmW bands, and no standard or commonly-accepted corresponding equipment; under these circumstances, resource-sensitive competitive carriers cannot justify purchasing a mmW spectrum license if doubt lingers as to whether the equipment necessary to sufficiently “use” that band can be procured. CCA members do not necessarily object to sharing with government incumbents when practical and technically feasible, but the Commission should not require two commercial parties to share.<sup>15</sup>

Indeed, adopting sharing opportunities between two commercial parties in general may discourage the high degree of innovation that results from undisputed spectrum ownership.<sup>16</sup> Competitive carriers are sensibly reluctant to enter into a high-stakes business arrangement with a faceless “partner,” whether that partner is another licensee or the operator of a SAS. This is

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<sup>15</sup> See Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, WC Docket No. 16-70 (filed July 7, 2016) (asking the Commission to, when drafting sharing rules for the *Report and Order*, take into account past successes with respect to mobile carriers coordinating with federal users in the AWS-1 spectrum and current successful efforts to coordinate use of AWS-3 spectrum, and to refrain from requiring sharing between commercial users in mmW bands).

<sup>16</sup> Further, the Commission has already made ample unlicensed spectrum—14 GHz—available in this proceeding. *Report and Order* ¶ 125 (both the 64-71 GHz and 57-64 GHz frequency bands may be used for unlicensed devices); see, *infra*, Section IV.

particularly true for the upper mmW bands, as new use cases and models may arise throughout license terms.

Indeed, “the launch of 5G is a ‘huge opportunity’ for industry and government to get the policies on enforcement ‘right from the beginning’ . . . in 5G and high-frequency spectrum, work is ‘really just beginning’ and technologies aimed at addressing interference can be ‘built in’ from the start.”<sup>17</sup> Therefore, rather than adopt a premature model that may restrict a licensee’s use of the band, the Commission should pivot toward creating opportunities to develop, research, and collaborate with the industry to discover the best commercial use case for each band.<sup>18</sup>

### **III. IT ALSO IS PREMATURE TO ADOPT IOT-SPECIFIC USE REQUIREMENTS**

Adopting IoT-oriented supplements to the performance metrics adopted in the *Report and Order* or adopting new performance metrics for the additional bands as discussed in the *Further Notice* must be postponed until both stakeholders and the Commission better understand how IoT-type services may be implemented, from both an equipment availability and engineering standpoint.<sup>19</sup> Imposing such requirements at this point could deter participation and investment in these bands. For instance, carriers may be hesitant to risk the sizeable financial investment necessary to acquire licenses for newly-released mmW spectrums if buildout requirements are tethered to equipment for a particular service that is not yet available or developed, or if use requirements depend on a fluctuating, unpredictable user population. Many small and competitive carriers simply do not have the sizable economic resources or broad administrative

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

<sup>18</sup> *See id.* (“An effective collaborative process between regulators, federal agencies and industry to identify and resolve interference in a timely manner is very important.”).

<sup>19</sup> *Further Notice* ¶¶ 465-67.

resources to make this gamble, unlike dominant carriers AT&T and Verizon. Indeed, competitive carriers have encountered such situations before, specifically with respect to the 700 MHz band and its interoperability issues.<sup>20</sup>

#### **IV. THE COMMISSION SHOULD NOT PRIORITIZE INCREASING UNLICENSED SPECTRUM USE IN SPECTRUM FRONTIERS BANDS**

Although unlicensed services play an important role in the digital ecosystem, additional spectrum should not be made available for these services in the future mmW bands.

Incorporating unlicensed use into newly-unleased mmW bands would devalue and discourage interest in use of this spectrum; parties paying for spectrum at auction are not eager to assume new unlicensed “partners.” Further, additional unlicensed spectrum is not necessary considering the Commission has already released a 14-gigahertz segment of contiguous spectrum available for unlicensed devices in the *Report and Order*.<sup>21</sup>

The Commission should first allow the unlicensed market to develop in response to the significant amount of spectrum that it has recently received, and in response to new technologies. For example, the Wi-Fi Alliance has only just released a finalized test plan for LTE-U

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<sup>20</sup> AT&T and Verizon received a tremendous competitive advantage in the wireless industry when they were permitted to obtain the majority of suitable and available cellular licenses. AT&T was later provided a “first mover advantage” with respect to the 700 MHz A Block. Now these two carriers account for approximately two-thirds of connections (over 260 million connections) and control over 70% of the wireless market. *See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 15-125, Eighteenth Mobile Competition Report, 30 FCC Rcd 14515, ¶¶ 15, 21 (WTB 2015) (“*Eighteenth Mobile Competition Report*”); *see also 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*, WT Docket No. 03-66 *et al.*, Report and Order and Further Notice of Proposed Rulemaking, FCC 04-135, ¶ 9 (2004) (when restructuring the 2500-2690 MHz band, the Commission admitted “several decades” passed while the best regulatory regime for the band was developed through various regulatory changes “which...tended to suppress investment, innovation and responsiveness to changes in wireless technology and demand for service”).

<sup>21</sup> *Report and Order* ¶ 125.

technologies, which hold great promise for maximizing use of unlicensed spectrum and addressing network congestion issues.<sup>22</sup> Indeed, as the Commission recognizes, “unlicensed WiGig devices using the 57-64 GHz band are just beginning to be marketed” despite the band being authorized for unlicensed use for over 20 years.<sup>23</sup> Therefore, before the Commission releases more spectrum for unlicensed use, it must evaluate how the current market of unlicensed spectrum is being deployed. If the Commission does allow for unlicensed use of future mmW bands, CCA urges the FCC to propose a framework for the re-auction or repurpose of unlicensed spectrum in the likely case that such spectrum lies fallow.

**V. IT ALSO IS PREMATURE TO ADOPT LICENSE REGIMES OR TECHNICAL RULES FOR ADDITIONAL MMW BANDS AT THIS TIME**

The *Further Notice* proposes authorizing UMFUS licenses permitting fixed and mobile services in the following additional bands: 24.25-24.45 GHz and 24.75-25.25 GHz, 31.8-33.4 GHz, 42-42.5 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz, 71-76 GHz, and 81-86 GHz.<sup>24</sup>

The Commission should refrain from implementing the comprehensive license regimes contemplated by the *Further Notice* to the additional mmW bands until the engineering challenges, including accommodating incumbents, and best commercial use case of each band are more clearly discerned through research and testing. CCA members are most interested in using mmW bands for mobile use, and at this time they cannot confidently assert that a particular

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<sup>22</sup> *Wi-Fi Alliance Delivers LTE-U Coexistence Test Plan*, WI-FI ALLIANCE (Sep. 21, 2016), available at: <http://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-delivers-lte-u-coexistence-test-plan>.

<sup>23</sup> *Report and Order* ¶ 130 (emphasis added); see *Amendment of Parts 2, 15, and 97 of the Commission’s Rules to permit Use of Radio Frequencies Above 40 GHz for New Radio Applications*, ET Docket No. 94-124; RM-8308, First Report and Order and Second Notice of Proposed Rulemaking, 11 FCC Rcd 4481, ¶ 33 (1995).

<sup>24</sup> Each of the named bands was identified as a candidate band for IMT-2020. *Further Notice* ¶ 373.

kind of equipment, technology, or system would best facilitate mobile use in a given band. Accordingly, the Commission should allow stakeholders more time to determine what use cases may apply to the proposed bands, and not rush into adopting inflexible rules.<sup>25</sup>

Alternatively, if the Commission decides to move forward with these proposals, the Commission must be as flexible as possible with respect to potential rules. In the interim, the Commission should refocus its resources into providing an avenue for carriers to test various uses of the bands described in the *Further Notice*.

## VI. CONCLUSION

For the foregoing reasons, CCA recommends that, to the extent rules are adopted, that the commission be as flexible as possible with their implementation due to the need for further research and analysis to maximize use of the proposed bands.

Respectfully submitted,

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<sup>25</sup> For example, the *Further Notice* understates the importance of the 71-76 and 81-86 GHz bands, which are *heavily* used, rather than the “lightly used” interpretation by the Commission. *See Further Notice* ¶ 432. The 70/80 GHz band is actually heavily utilized for point-to-point links in urban markets. Further analysis needs to be conducted to ensure that such incumbent uses are not disturbed by premature Commission action.