

**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
	)	
	)	
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
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	)	
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

**VERIZON’S SECOND FURTHER NOTICE COMMENTS**

Verizon commends the Commission for its global leadership in advancing the availability of millimeter wave spectrum for innovative fifth-generation (“5G”) wireless, Internet of Things (IoT), and other advanced wireless services.<sup>1</sup> The *Second Further Notice* builds on the

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<sup>1</sup> See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016) (“*Report and Order*”); *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, GN Docket No. 14-177, *et al.*; FCC 17-152 (rel. Nov. 22, 2017), *summarized*, 83 Fed.

Commission's important decisions with additional proposals to promote investment and innovation in millimeter wave bands. As discussed below, Verizon supports the Commission's proposals to:

- Adopt an additional option for Upper Microwave Flexible Use Service (UMFUS) licensees to meet their performance obligations, which could facilitate IoT deployments and allow other new use cases to flourish; and
- Eliminate the spectrum cap on the amount of spectrum in the 28, 37, and 39 GHz bands that a bidder can acquire in an auction. Doing so would maximize opportunities to put spectrum to efficient use, consistent with the Commission's decision not to adopt such a cap for the 24 and 47 GHz bands.

These steps will further encourage investment and innovation, offering companies flexibility to deploy innovative networks and eliminating artificial constraints on acquiring millimeter wave spectrum. The result: a new era of consumer benefits in 5G and beyond. The Commission should thus move forward quickly to act on these proposals and bolster its earlier decisions in these proceedings.

**I. THE COMMISSION SHOULD ADOPT AN ADDITIONAL PERFORMANCE METRIC AS AN OPTION TO SATISFY BUILDOUT REQUIREMENTS.**

The Commission should adopt its proposal to add an alternative performance metric based on geographic area coverage.<sup>2</sup> Verizon has previously explained why alternative options to traditional buildout metrics offer flexibility needed as 5G technologies develop;<sup>3</sup> a geographic area performance metric would add to that flexibility. For example, the current options to satisfy buildout requirements for millimeter wave spectrum (fixed links, population-based area

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Reg. 85 (2018) (hereinafter "*Second Further Notice*," "*Second Report and Order*," or "*Order on Reconsideration*").

<sup>2</sup> See *Second Further Notice* ¶¶ 99-101.

<sup>3</sup> See Verizon Comments, GN Docket No. 14-177, at 8 (Sept. 30, 2016) ("Verizon FNPRM Comments").

coverage, or some combination thereof)<sup>4</sup> may not be a good fit for IoT offerings, low power deployments, or other innovative services. As the *Second Further Notice* acknowledges, “[i]f we do not adopt any other metrics, services with non-traditional network structures may be effectively barred from [millimeter wave] bands by inappropriate and inapplicable buildout requirements.”<sup>5</sup>

To address these concerns, the Commission should offer an additional performance option, allowing licensees to fulfill buildout requirements by covering 25 percent of the license area’s geography. As the Commission notes, such a metric would account for innovative networks deployed along lines other than residential population.<sup>6</sup> It also could reduce uncertainty among carriers deploying IoT services by providing them with an ascertainable and relevant buildout metric, thereby encouraging the continuing introduction of other new services.

A 25 percent geographic coverage threshold matches well with the 40 percent existing population coverage metric.<sup>7</sup> The geographic percentage must be lower because the residential population tends to be unevenly distributed. As the Commission explains, “[i]n those areas, building a network covering 40% of the geographic area would require more intensive deployment than one covering 40% of the population, suggesting that a lower percent coverage requirement for geographic area could be appropriate.”<sup>8</sup>

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<sup>4</sup> 47 C.F.R. § 30.104.

<sup>5</sup> *Second Further Notice* ¶ 104.

<sup>6</sup> *Id.* ¶ 99.

<sup>7</sup> *Id.* ¶ 101.

<sup>8</sup> *Id.* at n.254.

The Commission should make clear that a geographic area metric offers an alternative to, not a replacement for, the existing metrics. That is, the Commission should stay consistent with its previous findings and offer licensees the flexibility to choose among any approved metric – whether it be a new geographic area metric or the existing population coverage or fixed link metrics.<sup>9</sup> That flexibility will help encourage various forms of 5G deployment. And the Commission should also clarify that a licensee need not build a particular type of network or provide a particular type of service to use whatever metrics the Commission ultimately adopts.<sup>10</sup>

## **II. THE COMMISSION SHOULD ELIMINATE THE PRE-AUCTION SPECTRUM CAP FOR THE 28 GHZ, 37 GHZ AND 39 GHZ BANDS.**

The Commission is correct that the pre-auction spectrum cap of 1250 megahertz for the 28 GHz, 37 GHz and 39 GHz bands is unnecessary given the early stage of technological development in these bands and the additional millimeter wave spectrum becoming available.<sup>11</sup> Under current rules, entities acquiring spectrum in the 28 GHz, 37 GHz and 39 GHz bands at auction are subject to a pre-auction limit of 1250 megahertz.<sup>12</sup> But in the *Second Report and Order*, the Commission rejected adoption of a pre-auction limit for the 24 GHz and 47 GHz bands, finding that “bright-line, pre-auction limits may restrict unnecessarily the ability of entities to participate in and acquire spectrum in an auction, and we are not inclined to adopt such limits on auction participation absent a clear indication that they are necessary to address a

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<sup>9</sup> *See id.* ¶ 103.

<sup>10</sup> *See id.*; *see also Order on Reconsideration* ¶ 147 (citing the “goal of providing UMFUS licensees with a flexible rules framework that could allow them to provide a variety of services”).

<sup>11</sup> *Second Further Notice* ¶ 105.

<sup>12</sup> *Report and Order* ¶ 184.

specific competitive concern.”<sup>13</sup> The same considerations apply to the 28 GHz, 37 GHz and 39 GHz bands, and the pre-auction cap should be eliminated.

First, arbitrary spectrum aggregation limits undermine innovation and investment by preventing operators from acquiring the spectrum needed to support their operations. It is too early to know how much bandwidth operators will need to provide customers with innovative 5G services. The Commission should offer flexibility in these nascent millimeter wave bands, not artificially limit bandwidth, performance, and innovation through retention of arbitrary aggregation policies.<sup>14</sup>

Second, a large amount of new millimeter wave spectrum will be available to companies. The *Second Report and Order* added 1700 megahertz to the 3250 megahertz of millimeter wave spectrum previously granted flexible use rights; that offers a total of 4950 megahertz of millimeter wave spectrum available for flexible terrestrial wireless use.<sup>15</sup> This spectrum will be licensed in multiple blocks of different sizes and geographic areas, providing significant spectrum resources for auction bidders of all shapes and sizes.<sup>16</sup> With such large amounts of millimeter wave spectrum becoming available, no firm could reasonably exclude a competitor by acquiring “too much” millimeter wave spectrum in certain bands at auction.<sup>17</sup> And, of course,

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<sup>13</sup> *Second Report and Order* ¶ 73.

<sup>14</sup> See Verizon FNPRM Comments at 5-6; Verizon Reply Comments, GN Docket No. 14-177, at 4-5 (Oct. 31, 2016) (“Verizon FNPRM Reply Comments”).

<sup>15</sup> See *Second Report and Order* ¶ 73.

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

<sup>17</sup> See Verizon FNPRM Reply Comments at 5.

providers are investing in 5G in many other bands as well, from 600 MHz to 3.5 GHz and beyond, rendering over-investment in any one band unlikely to be a prudent strategy.<sup>18</sup>

Third, regulatory parity calls for eliminating the pre-auction limit for the 28 GHz, 37 GHz, and 39 GHz bands. As noted, the Commission correctly decided *not* to adopt a pre-auction limit for the 24 GHz and 47 GHz bands, and it has found that all five bands are technically similar and should be grouped together for purposes of secondary market transactions review.<sup>19</sup> The five bands should thus be treated similarly, with no pre-auction limits.<sup>20</sup>

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<sup>18</sup> See, e.g., The Revolution Continues... (Dec. 28, 2017), <https://newsroom.t-mobile.com/news-and-blogs/legere-2018-predictions.htm> (reiterating that T-Mobile will use part of its 600 MHz spectrum for 5G and is moving toward a mobile nationwide 5G network in 2020); Qualcomm, Softbank and Sprint Announce Collaboration on 2.5 GHz 5G (May 10, 2017), <http://newsroom.sprint.com/qualcomm-softbank-and-sprint-announce-collaboration-on-25-ghz-5g.htm> (announcing agreement to develop technologies for 5G in the 2.5 GHz band with the companies planning to provide commercial services and devices in late 2019); John Stephens talks move from hardware to software, FirstNet, spectrum and 5G (Aug. 9, 2017), <https://www.rcrwireless.com/20170809/5g/att-cfo-software-control-key-to-financial-success-tag17> (describing how AT&T will deploy new low- and medium-band spectrum that will eventually be 5G speeds).

<sup>19</sup> *Second Report and Order* ¶ 74.

<sup>20</sup> See, e.g., *Amendments To Harmonize and Streamline Part 20 of the Commission's Rules Concerning Requirements for Licensees to Overcome a CMRS Presumption*, Report and Order, 32 FCC Rcd 10731, ¶ 15 (2017) (the public interest is served by “eliminat[ing] uneven and disparate regulation of wireless applicants and licensees in different spectrum bands” and “treating similarly situated entities on a more equal, comparable basis”); *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*, Second Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 8874, ¶ 1 (2017) (ensuring licensees operate under the same basic set of rules “promote[s] investment in wireless networks and further[s] our mandate to make spectrum ‘available, so far as possible, to all the people of the United States’ regardless of where they live”); see also *Amendment of Parts 1 and 22 of the Commission's Rules with Regard to the Cellular Service, Including Changes in Licensing of Unserved Area*, Second Report and Order, Report and Order, and Second Further Notice of Proposed Rulemaking, 32 FCC Rcd 2518, ¶ 163 (2017) (inviting comment on steps the Commission should take to ensure different commercial wireless licensees “benefit from the same level of flexibility”).

Finally, the Commission should continue its policy against applying a case-by-case review of millimeter wave spectrum holdings to post-auction applications.<sup>21</sup> As the Commission found in 2014,<sup>22</sup> post-auction case-by-case review creates uncertainty contrary to federal law. Section 309(j)(3)(E) of the Communications Act emphasizes the need for clear upfront bidding rules to “ensure that interested parties have a sufficient time to develop business plans, assess market conditions, and evaluate the availability of equipment for the relevant services.”<sup>23</sup> There are also practical difficulties associated with trying to remedy concerns post-auction.<sup>24</sup> The Commission should not reverse course now by replacing pre-auction limits with a post-auction case-by-case review.<sup>25</sup>

In this proceeding, the Commission has correctly determined that pre-auction limits are not necessary for the 24 GHz and 47 GHz bands given the early stage of development in these bands and the nearly 5,000 megahertz of millimeter wave spectrum being made available for

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<sup>21</sup> See *Second Further Notice* ¶ 106.

<sup>22</sup> See *Policies Regarding Mobile Spectrum Holdings*, Report and Order, 29 FCC Rcd 6133, ¶¶ 139-40 (2014) (“*MSH Order*”).

<sup>23</sup> See 47 U.S.C. § 309(j)(3)(E)(ii).

<sup>24</sup> See *MSH Order* ¶ 140 (“If the Commission were to make a finding post-auction that the acquisition of spectrum by a winning bidder would be likely to cause competitive harm, it could compel abandonment of the license application or divestiture of the license won at auction, which could create incentives for bidder behavior that would undermine the goals of the auction. Alternatively, divestiture of another license from the bidder’s pre-auction spectrum holdings ... might not address the Commission’s competitive concerns with aggregation of the spectrum made available at auction, especially if the spectrum the winning bidder would propose to divest does not have similar characteristics of the spectrum acquired in the auction.”).

<sup>25</sup> See, e.g., *Second Further Notice* at Statement of Commissioner Michael O’Rielly (“I am not supportive of a case-by-case review of millimeter wave spectrum holdings either post-auction or for secondary market transactions. As we have seen before, these screens have a habit of turning into spectrum caps. Therefore, the Commission should not be seeking comment on implementing a case-by-case review of post-auction millimeter wave holdings. Instead, the Commission should be seeking comment on eliminating the secondary market screen.”).

flexible use. These same findings also apply, as discussed above, to the 28 GHz, 37 GHz, and 39 GHz bands. In the absence of a pre-auction spectrum limit, the Commission should continue to monitor the evolution of 5G and the structure of millimeter wave spectrum holdings, and could pursue aggregation issues in the future if needed to address a specific and demonstrable competitive concern.<sup>26</sup>

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Respectfully submitted,

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January 23, 2018

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<sup>26</sup> See Verizon FNPRM Comments at 8; Verizon FNPRM Reply Comments at 4-5.