

**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
)	
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

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COMMENTS OF COMPETITIVE CARRIERS ASSOCIATION

Competitive Carriers Association (“CCA”)¹ hereby submits these comments in response to the *Second Further Notice of Proposed Rulemaking* (“*Second FNPRM*”) in the above-captioned proceedings, in which the Federal Communications Commission (“FCC” or the

¹ 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 customers. CCA also represents associate members consisting of small businesses, vendors, and suppliers that provide products and services throughout the mobile communications supply chain.

“Commission”) seeks comment on additional performance metric options for millimeter wave (“mmW”) spectrum, refining mobile spectrum holding policies, imposing operability requirements and spectrum sharing policies, and other issues foundational to next generation network deployment.²

CCA applauds the Commission for inviting further discussion on these issues, but cautions against taking any action that could hamper innovation or negatively affect the future of the competitive mmW marketplace. Making this spectrum available brings opportunity for investment, innovation and competition, all of which the Commission must be mindful when finalizing the mmW band service rules. The mmW bands have the potential to provide competitive wireless carriers the opportunity to develop next-generation technologies, such as 5G and the Internet of Things (“IoT”), on an equal playing field with the largest carriers. CCA supports adopting unique performance metrics tailored for non-traditional technologies, such as IoT, once the requisite technology has been developed, to avoid hampering investment and innovation. CCA also urges the Commission to retain the *ex-ante* auction limit on spectrum holdings in the 28, 37, and 39 GHz bands, and/or impose a case-by-case review of mmW spectrum holdings on post-auction applications to prevent the dominance and extreme spectrum aggregation of the largest wireless carriers. CCA further recognizes that an operability requirement in the 24 GHz band would help ensure that equipment deployment across the band is uniform, thus, creating a fair and equal opportunity for all wireless providers to obtain devices to deploy across the band. Finally, CCA urges the Commission to continue to protect terrestrial

² *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) (Hereinafter, the Second Report and Order, Order on Reconsideration and Memorandum Opinion and Order will collectively be referred to as “*Order*” and the Second Further Notice of Proposed Rulemaking will be referred to as “*Second FNPRM*”).

operations in the 24 GHz band to the extent that Fixed Satellite Services (“FSS”) are licensed in this band on a co-primary basis. Without ensuring adequate protections for upper microwave flexible use (“UMFUS”) in the band, the FCC will effectively decrease the anticipated value and utility of mmW spectrum.

I. PERFORMANCE METRICS SHOULD BE UNIQUELY BASED ON THE SERVICES THAT ARE DEVELOPED FOR THE MMW BANDS

In the *Order*, the Commission declines to adopt additional metrics for IoT-type deployments or other innovative services that may not be a good fit for traditional metrics, recognizing that such requirements may be “premature” and may not result in “meaningful” metrics.³ Rather, the *Second FNPRM* seeks further comment on this issue and proposes to allow for an additional performance metric option for carriers providing services with non-traditional network structures, such as IoT-based services.⁴

CCA appreciates the Commission’s recognition of “the difficulty of crafting an IoT-specific metric, especially while the relevant technologies and use cases are still being developed.”⁵ At the same time, CCA acknowledges the need for unique construction requirements that will allow carriers to deploy innovative services in these bands that may not meet the previously-established construction requirements. Accordingly, CCA reiterates that it would be premature for the FCC to adopt supplements to the performance metrics currently adopted (i.e., performance-based or fixed link metrics) at least until both stakeholders and the

³ *Order* ¶ 64.

⁴ *Second FNPRM* ¶ 99.

⁵ *Id.* See also Comments of Competitive Carriers Association at 7-8 (filed Sept. 30, 2016) (“CCA FNPRM Comments”).

Commission better understand how IoT-type services may be implemented, both from equipment availability and engineering standpoints.

IoT will link a variety of devices to the Internet, allowing consumers to connect to wearable devices, homes, vehicles, precision agriculture equipment, long-distance learning application, telehealth services, and others, with development currently underway. In addition, the Narrowband-Internet of Things (“NB-IoT”) is a form of IoT that will not require a separate 3G or 4G network, but will be deployed in-band, and will utilize low-power, wide-area technology to boost signal propagation and improve battery life and power consumption for a large number of connected IoT devices.⁶ Both of these technologies show great promise for innovative new ways to connect Americans. At the same time, how and when carriers will develop these technologies will vary based on the device and technology ultimately used.

CCA thus believes that the FCC should continue to consider adopting different performance requirements for different services used in these bands. However, due to the importance of new next-generation IoT services and the various ways they may be implemented, it is imperative that the FCC carefully craft any new performance metric options to promote, rather than stifle, innovation.⁷ Thus, at this time, while CCA agrees that the Commission is on the right path, and that a geographic-based performance metric is preferable as these relevant technologies develop,⁸ it is premature to adopt further supplemental performance requirements at this time.

⁶ GSMA, Narrowband – Internet of Things (NB-IoT) <https://www.gsma.com/iot/narrow-band-internet-of-things-nb-iot/> (last visited Jan. 22, 2018).

⁷ CCA is concerned that the adoption of a specific metric at this time – such as a 25% geographic metric – could unnecessarily force carriers to fit their new and innovative services into a box that is not sufficient.

⁸ See *Second FNPRM* ¶100 (the Commission proposes an additional performance option for geographic coverage of 25% of the license area).

II. MOBILE SPECTRUM HOLDING POLICIES MUST PROTECT AGAINST ANTI-COMPETITIVE ACTIONS IN THE MMW BANDS

The Commission seeks comment on eliminating the spectrum aggregation limit of 1250 MHz for licensees acquiring spectrum through competitive bidding in the 28, 37 and 39 GHz bands.⁹ The Commission indicates that “the nascent stage of technological development” in the mmW bands renders such a limit “unnecessary.”¹⁰ The Commission also seeks comment on whether there should be a case-by-case review of post-auction secondary market transactions to mitigate any anti-competitive concerns regarding spectrum aggregation.

While it is premature to adopt additional performance metrics at this time, the time is ripe to establish a spectrum screen for these mmW bands. CCA disagrees that the current state of technological development is a reason to refrain from establishing a spectrum screen. To the contrary, carriers are currently developing and deploying mmW technology.¹¹ The Commission must avoid repeating past mistakes of allowing the largest carriers a first-mover advantage. Consistent with previous comments, CCA urges the Commission to retain the pre-auction

⁹ *Id.* ¶ 105.

¹⁰ *Id.*

¹¹ *See*, “AT&T Launches Nationwide LTE-M Network for Internet of Things,” AT&T Newsroom (May 18, 2017), *available at* http://about.att.com/story/att_launches_lte_m_network_a_step_forward_to_5g.html; “C Spire Expanding High-Speed Internet to Over 250,000 Consumers, Businesses,” C Spire Newsroom (Sept. 25, 2017), *available at* https://www.cspire.com/company_info/about/news_detail.jsp?entryId=28800003; “DISH to Build NB-IoT Network,” Fierce Wireless (Mar. 8, 2017), *available at* <https://www.fiercewireless.com/iot/dish-to-build-nb-iot-network-to-meet-fcc-s-deadline>; “Sprint to Support Next Generation IoT Devices Across its Nationwide Network,” Sprint Newsroom (May 18, 2017), *available at* <http://newsroom.sprint.com/sprint-to-support-next-generation-iot-devices-across-its-nationwide-network.htm>; “T-Mobile to Build Nationwide NB-IoT Network and LTE Cat-M Network in 2018,” Fierce Wireless (Sept. 11, 2017), *available at* <https://www.fiercewireless.com/iot/t-mobile-to-build-nationwide-nb-iot-network-and-lte-cat-m-network-2018>; “Verizon’s LTE Cat M1 Network Could Make Enterprise IoT Deployments Cheaper, Faster” TechRepublic (Mar. 31, 2017), *available at* <https://www.techrepublic.com/article/verizons-lte-cat-m1-network-could-make-enterprise-iot-deployments-cheaper-faster/>.

spectrum limit for these bands, which will act as a strong initial step towards curbing anti-competitive spectrum aggregation.¹²

In the event that the pre-auction limit is eliminated, however, CCA strongly urges the FCC to apply of a case-by-case review of mmW spectrum post-auction. This would at least allow for divestitures to address potential competitive harms associated with excessive spectrum aggregation. It also would allow the Commission to take a holistic review of the market and provide a mechanism to promote competition.

As CCA has explained, unique harms would result if the Commission fails to encourage 5G “competition from the outset.”¹³ mmW spectrum is expected to play a crucial role in deploying 5G networks, in large part due to the significant amount of contiguous spectrum available to support delivery of the higher mobile data speeds, reduced latency, and network densification required by next-generation technologies.¹⁴ As recognized in the record, access to large, contiguous blocks of mmW spectrum “will be key to leveraging the millimeter wave bands in support of 5G systems”¹⁵ – and the only way to “meet today’s surging mobile broadband data demands, particularly in major metropolitan areas and event venues where large numbers of

¹² See, e.g., CCA FNPRM Comments at 3-4.

¹³ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 ¶ 29 (2016) (“*Spectrum Frontiers Order*”); see also Competitive Carriers Association Petition to Deny the Verizon/Nextlink Application, ULS File No. 0007765708, at 13-16 (filed June 26, 2017).

¹⁴ See, e.g., *Spectrum Frontiers Order* ¶¶ 1, 7, 9, 15. Indeed, throughout the *Spectrum Frontiers* proceeding, mobile operators and equipment manufacturers emphasized that the “large contiguous channel bandwidths” available in these bands are “essential to 5G’s advancement,” (Comments of AT&T at 10, GN Docket No. 14-177 (filed Jan. 28, 2016)) and the ability to build networks that support “high bandwidth next generation applications” across a large simultaneous user base (Comments of Verizon at 7, GN Docket No. 14-177 (filed Sept. 30, 2016)).

¹⁵ Comments of CTIA at 13, GN Docket No. 14-177 (filed Sept. 30, 2016).

users are often densely concentrated.”¹⁶ Because standards for 5G have not yet been established, wireless carriers with unlimited resources have the ability to emerge as dominant players at the outset,¹⁷ and could take control or otherwise influence the establishment of future standards which may not be in the best interest of the mobile ecosystem or mobile consumers.¹⁸

Competitive carriers’ efforts to develop and deploy 5G networks, many of whom already have begun testing, will be stifled if access to essential mmW spectrum resources is undermined by the dominant carriers. Therefore, as connectivity becomes increasingly essential in a 5G environment, wireless consumers will face even greater risks from the consequences of insufficient competition in any market: higher rates, poor quality, reduced output, and reduced innovation. This is particularly concerning for rural America, and detrimental to the Chairman’s goal of closing the digital divide.

¹⁶ Comments of Qualcomm Incorporated at 1, GN Docket No. 14-177 (filed Jan. 27, 2016); *see also* Comments of Huawei Technologies, Inc. at 5-6, GN Docket No. 14-177 (filed Jan. 28, 2016) (possibility of obtaining “significant bandwidths of contiguous spectrum” was the “principal reason for expanding 5G systems to include the mmW bands”).

¹⁷ Both Verizon and AT&T have already engaged in several market transactions that would allow them to gain the lion’s share of the mmW marketplace – before an auction even occurs. *See, e.g., Application of Verizon Communications Inc. and Straight Path Communications, Inc.*, Memorandum Opinion and Order, ULS File No. 0007783428 (rel. Jan. 18, 2018) (consenting to Verizon acquiring 735 licenses in the 39 GHz band and 133 licenses in the 28 GHz, 29 GHz and 31 GHz bands among other spectrum); *Application of Cellco Partnership d/b/a Verizon Wireless and XO Holdings*, Memorandum Opinion and Order, ULS File No. 0007765708 (rel. Nov. 29, 2017) (consenting to Verizon acquiring 92 licenses in the 28 GHz band and nine licenses in the 39 GHz band among other spectrum); *see also AT&T Mobility Spectrum LLC and FiberTower Corporation Seek FCC Consent to the Transfer of Control of 24 GHz Licenses*, Public Notice, 32 FCC Rcd. 1932, 1932 (2017) (seeking FCC approval for AT&T to acquire all 738 of FiberTower’s 24 GHz and 39 GHz licenses).

¹⁸ Indeed, the industry has witnessed this before. AT&T and Verizon received a significant advantage when they were allowed to obtain the majority of available cellular licenses. In addition, AT&T later was provided a “first-mover advantage” with respect to the 700 MHz band, which effectively led to an interoperability-free, competition-free marketplace. Now, AT&T and Verizon account for approximately two-thirds of connections and control approximately seventy percent of the wireless market by service revenue. *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*, Twentieth Report, WT Docket No. 17-69, FCC 17-126 ¶¶ 23, 32 (rel. Sept. 27, 2017).

mmW spectrum is especially important to many rural carriers' operations and their ability to expand 4G deployments. The two largest carriers should not be allowed to negate the investments and operations of smaller, rural carriers by amassing significant holdings of the spectrum that is needed by rural carriers. To prevent these consequences, the Commission must take action now to safeguard mmW spectrum against anti-competitive actions. Retaining a pre-auction spectrum limit and/or imposing case-by-case review on secondary mmW transactions are two tools that the Commission must maintain to promote a competitive marketplace.

III. AN OPERABILITY REQUIREMENT FOR THE 24 GHZ BAND WILL HELP TO PROMOTE A COMPETITIVE ENVIRONMENT

The *Second FNPRM* proposes to require that any equipment operating within the 24 GHz band must be capable of operating across the entire 24 GHz band, on all frequencies in both the lower and upper band segments.¹⁹ CCA agrees that this operability requirement would allow “smaller providers to benefit from the scale generated by equipment capable of operating across an entire band or adjacent bands.”²⁰ That is, operability helps ensure that equipment development and deployment across the entire band is uniform, providing a fair and equal opportunity for carriers of all sizes to deploy and innovate in the band.

Operability requirements are important for competitive carriers that often face significant challenges in obtaining the latest feature-rich devices. For example, manufacturers often release new handsets to Tier I carriers prior to non-Tier I carriers. As a result, competitive carriers and their customers are prevented from accessing the most advanced devices at comparable rates and on similar timeframes as their larger counterparts. The lack of an operability requirement threatens the competitive nature of the wireless marketplace, because without operability,

¹⁹ *Second FNPRM* ¶ 108.

²⁰ *Id.* ¶ 107.

competitive carriers are more likely to be precluded from deploying 5G and IoT services on the 24 GHz band.²¹ Failing to require operability also may increase the digital divide by preventing rural carriers from offering the most advanced technologies to their customers, including IoT devices configured to operate using certain mmW bands. Hence, CCA supports the Commission’s proposal to require operability across the entirety of the 24 GHz band.²²

IV. UMFUS USE MUST CONTINUE TO BE PROTECTED IN THE 24 GHZ BAND

The *Second FNPRM* proposes to license fixed satellite service (“FSS”) earth stations in the 24 GHz band on a co-primary basis with terrestrial services.²³ While CCA is pleased that the Commission also has proposed to include specific requirements for FSS aimed at protecting terrestrial services, CCA reiterates its concern that any loosening of restrictions on FSS and satellite operations could leave wireless carriers hamstrung in their deployments in the mmW bands.²⁴ For this reason, any additional flexibility provided to FSS earth stations in this band must include adequate protections for UMFUS use in the band.

CCA therefore supports the establishment of clear guidelines, such as “limitations on population covered, number of earth station locations in a PEA, and a prohibition on earth stations in places where they would preclude terrestrial service to people or equipment that are in

²¹ For instance, AT&T introduced 700 MHz services based on non-interoperability which allowed AT&T to move forward with its LTE services, while many competitive carriers were precluded from moving forward with their own LTE upgrades as they were unable to obtain the necessary devices.

²² CCA has been a strong advocate for interoperability in the past for nearly all bands. While CCA cautioned the Commission not to impose an operability requirement across the 37 and 39 GHz bands before adopting a sharing regime for the lower 37 GHz band, it maintained its advocacy for timely access to equipment.

²³ *Second FNPRM* ¶ 94.

²⁴ *See, e.g.*, Competitive Carriers Association Reply to Oppositions to Petitions for Reconsideration, at 4 (filed Feb. 24, 2017) (“CCA Reply to Oppositions”).

transit or are present at mass gatherings.”²⁵ Without ensuring such adequate protections for UMFUS use in the band, the framework established by the FCC would be undermined, and the value and utility of the mmW spectrum would decrease for mobile terrestrial use.²⁶ On the other hand, clear and certain regulations aimed at protecting mobile terrestrial services will better allow wireless carriers, and particularly competitive carriers, to have the certainty needed to work towards deploying services over the 24 GHz band and expanding their wireless footprints in rural and regional areas.

V. THE COMMISSION SHOULD EXPEDITIOUSLY AUCTION MMW SPECTRUM

Finally, CCA reiterates its request that the Commission make more mmW spectrum available to competitive carriers by exploring all possible means to accelerate an expeditious auction of Spectrum Frontiers spectrum.²⁷ In particular, the FCC has already allocated mmW bands for terrestrial operations, such as the 28 GHz, 37 GHz, 39 GHz, 24 GHz and 47 GHz bands, and should make these available for deployment as soon as possible. As noted, AT&T and Verizon are poised to acquire vast amounts of mmW spectrum on the secondary market, and an auction will allow all stakeholders to fairly acquire valuable mmW spectrum before these bands are foreclosed by the duopoly.²⁸ The Commission also must resolve pending mmW transactions in a way that puts more mmW spectrum into the hands of competitive carriers to deploy next generation 5G and wireless services.²⁹ Additionally, auctioning mmW spectrum will

²⁵ *Second FNPRM* ¶ 94.

²⁶ *See, e.g.*, CCA Reply to Oppositions at 4.

²⁷ Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Nov. 9, 2017) (“CCA November Ex Parte”).

²⁸ *See supra*, note 17.

²⁹ *See*, Letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Oct. 20, 2017) (“CCA October 20 Ex Parte”);

enable the immediate deployment of advanced wireless services, ultimately unlocking carrier investment and innovation.³⁰ For this reason, the FCC should require that auctioned mmW spectrum be deployed on accelerated time frames to ensure connectivity is available quickly to providers that need it most. While auction mechanisms and procedures must be established prior to an auction, making more mmW spectrum available to all carriers as soon as possible will help to assuage spectrum aggregation and promote a more competitive market to support deployment of next generation technologies.

VI. CONCLUSION

For the forgoing reasons, the FCC should adopt certain proposals set forth in the *Second FNPRM* to promote competition and innovation in the mmW spectrum bands, as detailed herein.

Respectfully submitted,

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³⁰ *See id.* *See also*, CCA November Ex Parte; *and* letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed Oct. 24, 2017) (“CCA October 24 Ex Parte”).