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I. INTRODUCTION AND SUMMARY

Charter Communications, Inc. (“Charter”) files these reply comments in response to the Federal Communications Commission’s (“Commission”) Notice of Proposed Rulemaking seeking comment on several proposed changes to the rules regarding Priority Access Licenses (“PALs”) in the 3550-3700 MHz band (“3.5 GHz Band”).¹ The 3.5 GHz Band remains an important component of Charter’s wireless strategy. Charter is currently conducting trials in this band to confirm that wireless access technologies at frequencies such as 3.5 GHz could be suitable for rural broadband and providing wireline-like broadband connectivity and speeds. The adoption of appropriate rules that encourage deployment and investment by new entrants will also be a critical element of Charter’s evaluation of 3.5 GHz licenses as part of its overall wireless strategy.

Charter continues to view the expansion of the current PAL geographic licensing area from census tracts to counties as the best means to promote network deployment as well as wireless competition and new wireless entrants in communities across the country. The record demonstrates that adopting county-sized geographic licensing areas strikes an appropriate balance between entities seeking opportunities to serve areas of all sizes while allowing new entrants to utilize existing infrastructure. Moreover, despite the claims of some commenters who argue that county-sized licenses are too large for rural deployments, Charter’s ongoing system testing using 3.5 GHz spectrum in rural communities has demonstrated speeds of at least 25/3 Mbps at distances that would support such county-sized licenses.

Charter also continues to encourage the Commission to adopt meaningful performance

¹ See *In re Promoting Investment in the 3550-3700 MHz Band*, Notice of Proposed Rulemaking and Order Terminating Petitions, 32 FCC Rcd 8071 (2017).

requirements in the event it extends the PAL license term and includes a renewal expectancy. Lastly, Charter supports rules that would allow for the partitioning and disaggregation of PALs. Although such increased secondary market flexibility has a number of benefits, the Commission should not rely on such flexibility to justify inappropriately large license areas such as Partial Economic Areas (“PEAs”).

If adopted, these policy changes would effectively balance the Commission’s objectives for broad participation in the band with its obligation to ensure the efficient use of the 3.5 GHz spectrum band.

II. COUNTY-SIZED GEOGRAPHIC LICENSE AREAS REMAIN THE MOST EFFECTIVE WAY TO ENCOURAGE WIRELESS COMPETITION AND NETWORK DEPLOYMENT IN BOTH URBAN AND RURAL COMMUNITIES

Charter continues to believe that the best means for promoting wireless competition and network deployment in communities around the country, including in rural areas, is by expanding the current PAL geographic license size from census tracts to counties. County-based geographic licensing is best suited to facilitate the competitive deployment of service on the 3.5 GHz Band by allowing new entrants to better utilize their existing infrastructure leading to the development of improved wireless options for more consumers in more places.²

Charter is currently working with eight different vendors in Tampa, Florida and Charlotte, North Carolina for its 3.5 GHz Band mobility use cases, and is also testing fixed wireless solutions in the 3.5 GHz Band in six different markets.³ Charter believes this testing likely will conclude that, with the right rules, the 3.5 GHz Band could be used as a cost effective

² See Comments of Charter Communications, Inc., GN Docket No. 17-258, at 3 (filed Dec. 28, 2017) (“Charter Comments”).

³ See, e.g., CCO Fiberlink, File No. 1203-EX-ST-2017, Call Sign WL9XSI (authorization to conduct experimental testing in 3.5 GHz band in Centennial and Englewood, CO); CCO Fiberlink, File No. 1267-EX-ST- 2017, Call Sign WL9XUH (authorization to conduct experimental testing in 3.5 GHz band in Bakersfield, CA, Coldwater, MI, and Charlotte, NC).

solution for providing fixed wireless service in rural areas.

Because of this, as Charter and numerous other commenters have noted, increasing the geographic licensing size of PALs to PEAs likely will have the harmful effect of limiting the 3.5 GHz Band only to the largest incumbent wireless carriers.⁴ In addition, as Ruckus Networks notes, there likely will be extensive small cell deployments in the 3.5 GHz Band, and small cells, by virtue of their design and engineering, are not well-suited for large geographic license areas given they provide less coverage than traditional macrocells.⁵ Adopting a county-sized geographic licensing area strikes an appropriate balance because, as NCTA—the Internet & Television Association (“NCTA”) explains, it allows “for the types of 3.5 GHz deployments that carriers contemplate, while still enabling carriers to aggregate licenses to achieve a geographic footprint that aligns with their existing deployments.”⁶ In addition, Charter agrees with Comcast that the variety in county “size, population, and demographics [will be] ‘advantageous’ for licensing purposes, because these types of variations enable opportunities both for providers who seek to serve smaller areas and those who wish to serve larger areas.”⁷

Despite the rejection of county-sized license areas by some commenters who consider

⁴ See Charter Comments at 3; *see also* Comments of NCTA—The Internet & Television Association, GN Docket No. 17-258, at 7 (filed Dec. 28, 2017) (“NCTA Comments”) (“A larger license size means a more expensive license, introducing significant barriers to entry that will disproportionately disadvantage new entrants and innovative business models.”); Comments of Comcast Corp., GN Docket No. 17-258, at 11 (filed Dec. 28, 2017) (“Comcast Comments”) (“License sizes that are too large could increase barriers to entry, promote market inefficiencies, and skew the 3.5 GHz Band framework too far in the direction of wide-area network business and technical models, contrary to the Commission’s goals.”).

⁵ See Comments of Ruckus Networks, a company of ARRIS U.S. Holdings, Inc., GN Docket No. 17-258, at 10 (filed Dec. 28, 2017) (“[T]he CBRS band will be utilized for small cell deployments, which typically provide coverage areas measured in tens and hundreds of meters. There will be metrocell deployments covering kilometers, but these will be a minority of the radio nodes deployed, and even in these metrocell cases the coverage ranges will be much shorter than traditional macro cellular deployments.”).

⁶ NCTA Comments at 7.

⁷ Comcast Comments at 6.

counties to be “infeasible”⁸ or “too large to promote rural broadband buildout,”⁹ Charter respectfully submits that county-sized licenses will encourage rural deployment of the 3.5 GHz Band. Rural communities, like their urban counterparts, will be able to access fully the innovative wireless technologies offered using this band. In fact, Charter is currently testing in the 3.5 GHz Band in rural communities to determine the most effective means for deploying in this band, and already has determined that it can provide speeds of at least 25/3 Mbps at significant distances. Charter plans to continue testing in rural communities to investigate further how to expand the speeds and services it delivers.

NTCA—the Rural Broadband Association also notes the flexibility afforded by county-sized licenses as they “accommodate a variety of business models” and “‘nest’ into larger geographic service areas,” which allows operators to “have the ability to secure licenses that correspond to their current footprints.”¹⁰ In addition, the Rural Wireless Association, Inc. recognizes that county-based licenses generally provide the needed coverage and value to afford small and rural providers with the opportunity “to participate in PAL auctions and bring cutting edge broadband technologies to rural areas without delay.”¹¹ The record clearly demonstrates therefore that in order to expedite 3.5 GHz Band deployment in communities across the country, PALs should be licensed by counties in order to attract interest and investment from new entrants to small and large providers. Failure to adopt such an approach will potentially discourage broad participation in this band and risk jeopardizing future rural broadband deployment.

⁸ Comments of Cal.net, Inc., GN Docket No. 17-258, at 4 (filed Dec. 28, 2017).

⁹ Comments of Frontier Communications Corp., Windstream Services, L.L.C, and Consolidated Communications, Inc., GN Docket No. 17-258, at 9 (filed Dec. 28, 2017).

¹⁰ Comments of NTCA—the Rural Broadband Association, GN Docket No. 17-258, at 8 (filed Dec. 28, 2017).

¹¹ Comments of the Rural Wireless Association, Inc., GN Docket No. 17-258, at 4-5 (filed Dec. 28, 2017) (explaining that it would not oppose county-based licenses for PALs for the reasons indicated above).

III. EFFICIENT DEPLOYMENT OF THE 3.5 GHZ BAND REQUIRES THE COMMISSION TO INCLUDE MEANINGFUL PERFORMANCE REQUIREMENTS CONCURRENT WITH ANY EXTENSION OF THE PAL LICENSE TERM AND ADOPTION OF A RENEWAL EXPECTANCY

Charter continues to urge the Commission to impose meaningful performance requirements if it extends the PAL license term and adopts a renewal expectancy for these licenses.¹² Despite the reluctance of some in the wireless industry to support the imposition of performance requirements in this band even with an extended license term and a renewal expectancy, such requirements are imperative for the Commission to balance effectively its desire for broad participation in the band with its obligation to ensure efficient use of the spectrum.¹³ As Commissioner O’Rielly remarked in his statement regarding the Spectrum Frontiers Second Report and Order, “[h]aving an adequate supply of spectrum, along with stringent, yet reasonable, construction requirements or renewal standards going forward will ensure that spectrum is used efficiently (and not warehoused) and that [the wireless] sector remains competitive.”¹⁴ Consistent with the innovative nature of the 3.5 GHz Band, the Commission should adopt performance requirements that reflect the potential range of uses for this spectrum while ensuring that licensees actually deploy service.¹⁵

¹² See Charter Comments at 4-5.

¹³ See *In re 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, FCC 17-152 ¶ 60 (rel. Nov. 22, 2017) (stating that the Commission has “an obligation to adopt rules for licenses subject to competitive bidding that prevent the warehousing of spectrum, and promote investment in new technologies and services. . . . One way to both fulfill [the Commission’s] statutory obligation and promote widespread deployment is to impose enforceable buildout or coverage requirements.”) (“*Spectrum Frontiers Second Order*”); *Wireless Telecommunications Bureau Reminds Wireless Licensees of Construction Obligations*, Public Notice, 32 FCC Rcd 4802, 4802 (2017) (“The FCC’s construction obligations serve the important purpose of ensuring that scarce spectrum resources are put to use and deployed in a manner that serves all communities. . . . [and] have functioned as a core part of the Commission’s wireless policy for decades.”).

¹⁴ *Spectrum Frontiers Second Order*, Statement of Commissioner Michael O’Rielly.

¹⁵ The Commission recently adopted flexible performance metrics that balanced the goals of ensuring investment and deployment while also fostering innovation. See *In re Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8088 ¶ 203 (2016) (“*Spectrum Frontiers Report and Order*”) (“[W]e adopt a series of metrics, tailored for each type of service a

Nevertheless, CTIA asserts that performance requirements “are unnecessary given the . . . ‘use-or-share’ model that allows GAA users access to all 150 megahertz in the band.”¹⁶ Because of this, CTIA argues the 3.5 GHz Band spectrum “will not lie fallow or exclude productive use as both PAL licensees and GAA users will have the opportunity to make use of spectrum and provide innovative services.”¹⁷ Similarly, Verizon concludes that “[t]he imposition of performance requirements would likely chill incentives to innovate . . . that could delay the next generation of wireless technologies.”¹⁸ AT&T agrees, noting that the “unique tiered structure of the 3.5 GHz band . . . already [has] protections in place to prevent spectrum warehousing.”¹⁹

Yet these arguments fail to acknowledge that while the GAA portion of the band provides an avenue for access to spectrum, it is intended to “provide a low-cost entry point . . . for a wide array of users.”²⁰ PALs, on the other hand, were created so certain parties could “have more predictable access to spectrum.”²¹ To this end, entities obtaining a PAL license are given higher priority access to the band than GAA users.²² Attempting to use the existence of GAA spectrum as a justification for not implementing performance requirements for PALs belies the purpose of the three-tiered structure the Commission adopted in the 3.5 GHz Band.

When the Commission declined to adopt performance requirements for PALs, it was in

licensee might choose to offer . . . [t]his framework is intended to provide enough certainty to licensees to encourage investment and deployment in these bands as soon as possible, while retaining enough flexibility to accommodate both traditional services and new or innovative services or deployment patterns.”).

¹⁶ Comments of CTIA, GN Docket No. 17-258, at 7 (filed Dec. 28, 2017).

¹⁷ *Id.* at 8.

¹⁸ Comments of Verizon, GN Docket No. 17-258, at 7 (filed Dec. 28, 2017) (“Verizon Comments”).

¹⁹ Comments of AT&T Services, Inc., GN Docket No. 17-258, at 13 (filed Dec. 28, 2017).

²⁰ See *In re Amendment to the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959, 4009 ¶ 155 (2015) (“3.5 GHz Report & Order”).

²¹ *Id.* at 3981 ¶ 64.

²² *Id.* at 3962 ¶ 4.

conjunction with its adoption of a non-renewable three-year license term structure.²³ If the Commission adopts a longer license term and grants a renewal expectancy for PALs, however, it must revisit its analysis regarding the need for performance requirements, and modify its rules to comport with this updated approach. More specifically, such fundamental changes to the terms of the PAL license should be accompanied by certain obligations that protect the public interest in seeing licensed spectrum put to use, especially given the Commission’s statutory obligation to adopt “performance requirements . . . to prevent stockpiling or warehousing of spectrum by licensees.”²⁴

Notably, the largest wireless carriers are not united on this question. For example, in contrast to the claims of AT&T and Verizon, T-Mobile states that “the Commission . . . should . . . impose population-based performance requirements” on PALs, in the event the Commission extends the PAL license term, in order to strike the “appropriate balance between ensuring sufficient use of the spectrum and allowing licensees flexibility to deploy an emerging technology.”²⁵

Like Charter, NCTA and Comcast note that in the absence of performance requirements, a PAL licensee could retain a right to the spectrum in perpetuity regardless of whether the spectrum is being used for the benefit of the public.²⁶ Spectrum speculators and larger carriers would have incentives to engage in potentially anticompetitive conduct by warehousing PAL

²³ *Id.* at 3997 ¶ 113.

²⁴ 47 U.S.C. § 309(j)(4)(B).

²⁵ Comments of T-Mobile USA, Inc., GN Docket No. 17-258, at 6, 7 (filed Dec. 28, 2017) (quoting *Spectrum Frontiers Report and Order* at 8088-89 ¶ 206).

²⁶ See NCTA Comments at 13 (“[a]dopting performance requirements, which should be fulfilled prior to renewal, would ensure that a carrier who has purchased a license for interference protected spectrum has appropriate incentives to use that spectrum efficiently.”); Comcast Comments at 22 (“If priority access is essential for certain types of operations, then priority access rights must be allocated and used as efficiently as possible.”); see also Charter Comments at 4-5.

licenses to increase their value and to prevent new entrants from gaining access to licensed portions of the 3.5 GHz Band. Performance requirements ensure that the innovative nature of the band remains intact and that barriers to entry for new competitors and smaller providers remain low.

IV. CHARTER SUPPORTS RULES THAT ALLOW FOR THE PARTITIONING AND DISAGGREGATION OF PALs, BUT THIS FLEXIBILITY IS NO SUBSTITUTE FOR APPROPRIATELY SIZED GEOGRAPHIC LICENSING AREAS OR MEANINGFUL PERFORMANCE REQUIREMENTS

Charter supports the requests of commenters encouraging the Commission to allow partitioning and disaggregation of PALs as a means to enhance the amount of spectrum available in the 3.5 GHz Band and to spur deployment. Verizon correctly notes, for example, that “partitioning and disaggregation will enable targeted deployments without imposing . . . additional burden[s].”²⁷ Similarly, Nokia “recommends that all parties holding PALs take full advantage of the flexible rules regarding secondary market trading of PAL rights” as “[p]artitioning and disaggregation would allow service to targeted areas.”²⁸ Federated Wireless Inc. also urges the Commission to “authorize as many secondary markets mechanisms for PAL spectrum as possible.”²⁹

For the reasons outlined above, additional flexibility in the secondary market can be an important factor in the success of the 3.5 GHz Band. Nevertheless, this flexibility should not be relied upon to justify the adoption of license areas larger than a county or to avoid the imposition of performance requirements. The goals of competition and innovation are best served by establishing meaningful licensing policies that enable new entrants to compete directly for PALs

²⁷ Verizon Comments at 14.

²⁸ Comments of Nokia, GN Docket No. 17-258, at 4-5 (filed Dec. 28, 2017).

²⁹ Comments of Federated Wireless Inc., GN Docket No. 17-258, at 5 (filed Dec. 28, 2017).

rather than requiring them to rely on the uncertain availability of secondary market transactions with larger carriers for access to 3.5 GHz Band spectrum.³⁰

V. CONCLUSION

For the foregoing reasons, the Commission should adopt a county-sized geographic licensing scheme and mandate performance requirements for PALs in the 3.5 GHz Band. These rule changes will not only allow this spectrum to be put to its highest and best use, but also will maximize investment in the band in communities across the country. Although Charter supports the partitioning and disaggregation of PALs, crafting a robust secondary market is no substitute for adopting licensing policies that incentivize new entrants as well as small and large providers. Ultimately, with the adoption of these approaches, the Commission will ensure that the 3.5 GHz Band remains open to the innovation promised by the band's current framework.

Respectfully submitted,

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January 29, 2018

³⁰ See, e.g., Letter from Stephen J. Berman, Lawler, Metzger, Keeney & Logan, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 17-258, at 2 (filed Jan. 24, 2018) (explaining that from the General Electric Company's perspective "the Commission's secondary market mechanisms would not alleviate the harms associated with PEA-based licensing at 3.5 GHz.").