

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

In the Matter of)
) GN Docket No. 12-354
Amendment of the Commission’s Rules with)
Regard to Commercial Operations in the)
3550-3650 Band)

COMMENTS OF VERIZON¹

The Commission should launch a rulemaking to make modest and reasonable changes to the Priority Access License (PAL) framework in the Citizens Broadband Radio Service (CBRS) established in the 3550-3700 MHz (“3.5 GHz”) band, consistent with CTIA’s petition.²

In particular, Verizon supports CTIA’s requests that the Commission:

- Extend the PAL license term from three years to the industry standard, ten years;
- Provide an expectation of renewal for PALs, in keeping with Commission precedent;
- Modify PAL geographic areas to consist of Partial Economic Areas (“PEAs”); and
- Prohibit the public disclosure of CBRS device registration information.

The Commission should make these narrowly targeted changes quickly, and doing so will not – and should not – delay or otherwise compromise deployment of CBRS. With these simple actions, the Commission would greatly improve incentives for private investment in the PAL framework and bolster development and innovation in the 3.5 GHz band as a whole.

¹ The Verizon companies participating in this filing are the regulated, wholly owned subsidiaries of Verizon Communications Inc.

² See CTIA Petition for Rulemaking, GN Docket No. 12-354 (Jun. 16, 2017) (“CTIA Petition”).

I. VERIZON IS COMMITTED TO RAPIDLY DEPLOYING CBRS IN THE 3.5 GHZ BAND AND HAS INVESTED HEAVILY IN THE FUTURE OF THE BAND.

CBRS in the 3.5 GHz band represents a unique opportunity to leverage 150 megahertz of flexible-use, mid-band spectrum for the next generation of wireless service. In preparation for deploying in the 3.5 GHz band, Verizon has conducted extensive infrastructure and equipment testing with multiple vendor partners in both the lab and the field.³ Verizon has also worked with a range of stakeholders through the CBRS Alliance, Winn Forum, and other industry efforts to develop the standards, rules, and coexistence mechanisms necessary to enable efficient shared use of the 3.5 GHz band. With access to the 3.5 GHz band Verizon will use its network to provide faster and more reliable broadband service than U.S. customers have ever experienced. There should be no delay in making these benefits available to the American people. Verizon encourages the Commission to ensure that the band is available for commercial use as soon as practically possible and that the deployment of CBRS is unimpeded and expeditious.

II. THE COMMISSION SHOULD MAKE TARGETED ADJUSTMENTS TO THE 3.5 GHZ FRAMEWORK TO BETTER BALANCE EXPERIMENTATION AND STABILITY FOR INVESTMENT.

Since the start of the CBRS proceeding, Verizon has worked with the other major wireless providers, vendors, and the Commission to improve the 3.5 GHz multi-tier framework. Our goal has been to create a structure that balances opportunities for experimentation with the certainty and stability needed to enable robust industry investment.⁴

³ See Verizon Comments on Further Notice of Proposed Rulemaking, GN Docket No. 12-354, at 4-5 (Jul. 14, 2014).

⁴ See Supplemental Comments of Verizon and Verizon Wireless, GN Docket No. 12-354, at 2-5 (Dec. 5, 2013) (proposing an incremental approach to the multi-tier framework that would have created hybrid band plan supporting both GAA experimentation and exclusive-

Verizon has long advocated for PAL rules that promote both investment and innovation in the nascent 3.5 GHz band.⁵ Unfortunately, the current 3.5 GHz rules fail to balance these two priorities. As CTIA describes in its petition, the remarkably short license terms, lack of an expectation of license renewal, and unmanageably undersized geographic license areas risk not realizing the full potential of the licensed portion of the band.⁶

The viability of the 3.5 GHz band for both PAL and General Authorized Access (GAA) users depends on licensees investing to create integrated, densely deployed, heterogeneous networks. The current 3.5 GHz framework provides little incentive for that degree of investment. And unless the Commission acts to adjust the rules accordingly, the level of investment will be inadequate to maximize band utility for PAL and GAA users alike.

Verizon believes that the proposals outlined in the CTIA Petition provide the simplest and most efficient approaches to fostering both experimentation and the stability necessary for intensive industry investment in the 3.5 GHz band.

A. Provide a 10-Year License Term and Expectation of Renewal.

The FCC has noted on numerous occasions that the challenges of wireless deployment are significant and only likely to increase as wireless networks evolve and densify, and each member of the Commission has emphasized the need to accelerate

use licenses with “reasonably-sized geographic areas for relatively long terms”) (“Verizon Supplemental Comments”).

⁵ See Verizon Comments on Further Notice of Proposed Rulemaking, GN Docket No. 12-354, at 1 (Jul. 15, 2015).

⁶ CTIA Petition at 2.

broadband deployment.⁷ Chairman Pai has identified greater wireless deployment as a priority for the Commission, stating:

The wireless networks of the future will look very different. Instead of tall towers you can see from a mile away, there will be small cells — wireless access points you might not even see and/or could hold in your hands. With this “densification” of so-called 5G networks, we’ll need to deploy millions of small cells in order to realize the promise of multi-gigabit connectivity through millimeter-wave technology. That’s why I’m advancing proposals to make it easier for the private sector to build these “5G” networks.⁸

Just as reducing regulatory impediments and costs help speed network deployment, one of the most effective ways for the Commission to promote deployment is to ensure that wireless providers are not discouraged from making the necessary multi-billion dollar investments due to the risk of losing their licenses only a few years after acquiring them. The Commission should increase the length of the PAL license term and provide licensees preparing to invest heavily in the band with an expectation of license renewal.

i. License Term.

Verizon supports CTIA’s request that the Commission adopt its traditional ten-year license term for PALs.⁹ The Commission has typically provided ten-year license terms for

⁷ See, e.g., Statement of Chairman Ajit Pai, *attached to Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, Notice of Proposed Rulemaking and Notice of Inquiry, 32 FCC Rcd 3330 (2017) (“*Broadband Deployment NPRM and NOI*”); *Testimony of FCC Commissioner Ajit Pai Before the Subcommittee on Communications and Technology of the United States House of Representatives Commerce Committee on Energy and Commerce*, FCC (Mar. 22, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-338511A1.pdf; Statement of Commissioner Michael O’Rielly, *attached to Broadband Deployment NPRM and NOI*; Commissioner Mignon Clyburn, *Keynote Remarks at the #Solutions2020 Policy Forum, Georgetown University Law Center* (Oct. 19, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-341824A1.pdf.

⁸ Chairman Ajit Pai, *Infrastructure Month at the FCC*, FCC BLOG (Mar. 30, 2017, 2:20 PM), <https://www.fcc.gov/news-events/blog/2017/03/30/infrastructure-month-fcc>.

⁹ CTIA Petition at 6.

licenses in mobile bands.¹⁰ The Commission has even found, as in the case of AWS-1, AWS-3, and 600 MHz licenses, that for bands with particularly novel or challenging characteristics, a longer initial term was in the public interest.¹¹ In the *Spectrum Frontiers* proceeding, the Commission established a ten-year term for all licenses and awarded a renewal expectancy for subsequent license terms.¹² The Commission noted, “We believe a 10-year license term will give licensees sufficient certainty to invest in their systems, particularly as the new technology is still nascent and will require time to fully develop.”¹³

In the 3.5 GHz proceeding, however, the Commission adopted a new and untried experimental sharing mechanism among federal, PAL, and GAA users that stakeholders of all persuasions and the Commission itself have recognized presents extremely complex challenges.¹⁴ Given these complexities, longer license terms for PALs are appropriate, rather than license terms less than one third the traditional length.

¹⁰ See 47 C.F.R. § 27.13, describing initial license terms for licensees in 2305-2320 MHz and 2345-2360 MHz Bands (not to exceed 10 years); 698-758 MHz and 776-788 MHz Bands (not to exceed 10 years, generally); 1390-1392 MHz Band (not to exceed 10 years); 1392-1395 MHz and 1432-1435 MHz Bands (not to exceed 10 years); and 1670-1675 MHz Band (not to exceed 10 years).

¹¹ See, e.g., *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, ¶ 70 (2003) (relocation of government operations warrant 15-year initial license term for licenses issued before 2010, with 10-year terms thereafter); *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, Report and Order, 29 FCC Rcd 4610, ¶ 131 (2014) (transition of government operations warrant 12-year initial license term); *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567, ¶ 761 (2014) (transition of broadcasters warrants 12-year initial license term for wireless licensees) (“*Incentive Auction R&O*”).

¹² 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, ¶ 176 (2016) (“*Spectrum Frontiers R&O and FNPRM*”).

¹³ *Id.*

¹⁴ See *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Order on Reconsideration and Second Report and Order, 31 FCC Rcd

As CTIA describes in its petition, the three-year license term fails to recognize the resources, time, and investments required for a successful network buildout or the equally large challenges related to standards development, certification, equipment production, and deployment.¹⁵ Verizon and others have already invested a substantial “down payment” in these endeavors, but significant efforts remain. Stakeholders are not likely to continue to shoulder these costs if their investments may become stranded upon the premature expiration of a valuable license.

ii. Expectation of Renewal.

In the *3.5 GHz* proceeding, the Commission also declined to provide PAL licenses with an expectation that their licenses will be renewed should they meet their service obligations.¹⁶ This decision further compounds the problems created by the inordinately short three-year PAL license term.

A reasonable expectancy of renewal has been at the cornerstone of telecommunications policy since the early days of the Commission as a means of encouraging licensee investment, and it has been a standard element for mobile licenses for

5011, ¶ 4 (2016) (“*3.5 GHz Second R&O*”); Neville Ray, *Maintaining US Leadership in 5G with Smart Spectrum Policy*, T-MOBILE (Jun. 30, 2017), <https://newsroom.t-mobile.com/news-and-blogs/5g-mid-band-spectrum.htm> (“The FCC’s rules for the 3.5 GHz band today are overly complex and provide extremely limited opportunity for wireless carriers to take advantage of the spectrum. Modifying the band to be more in line with global 5G interests makes a ton of sense”); Report, *Complexities of Spectrum Sharing*, MOBILE FUTURE, at 3 (Apr. 2014), <http://www.rysavvy.com/Articles/2014-04-Spectrum-Sharing-Complexities.pdf> (“[S]pectrum sharing is one of the most complex radio developments ever undertaken. While simple sharing scenarios exist and are in use today, sharing spectrum in real time among disparate systems is a multi-dimensional challenge, not only for technical reasons, but also for regulatory and political ones.”)

¹⁵ See CTIA Petition at 7.

¹⁶ See *3.5 GHz Second R&O*, ¶ 43.

decades.¹⁷ In the absence of a reasonable expectancy of renewal, Verizon and others will be less likely to invest in an untried band. The Commission should follow decades of precedent and provide PAL licensees with a reasonable expectation of renewal.

B. Provide a Manageable PAL Geographic License Area.

As CTIA has described in its petition, licensing PALs on a census tract basis will result in as many as 74,000 license areas and as many as 518,000 PALs.¹⁸ The complexity of a licensing scheme that must accommodate 518,000 potential licenses is unprecedented in the history of spectrum licensing, particularly when considered in the context of the CBRs's tiered, dynamic sharing model.

CTIA notes the potential difficulty of interference mitigation given the multitude of license area borders between thousands of census tracts,¹⁹ and Verizon has expressed concern over interference at census tract borders for several years.²⁰ For Verizon, this challenge is further exacerbated by our plans for a heterogeneous network deployment consisting of both low and higher power small cells for indoor and outdoor applications.²¹

The Commission originally explained that census tracts had the advantages of “including geographic sizes varying by population density, nesting into other political subdivisions including city lines, and aligning with other natural features that track

¹⁷ See *Implementation of Sections 3(n) and 332 of the Communications Act; Regulatory Treatment of Mobile Services*, Third Report and Order, 9 FCC Rcd 7988, ¶ 387 (1994) (establishing an expectation of renewal for all CMRS licenses).

¹⁸ CTIA Petition at 9.

¹⁹ *Id.*

²⁰ See Verizon Supplemental Comments at 7.

²¹ Verizon intends to use low-power small cells for indoor applications such as enterprises, hotels, airports, convention centers and stadiums, while higher power small cells are suitable for outdoor applications such as large campuses, metro areas, downtown areas and suburban areas.

population density.”²² It also noted that census tracts would allow flexible and targeted network deployments, enabling applicants to target specific geographic areas in which they need additional coverage and avoid applying for areas that they do not intend to serve.²³ The Commission viewed this “targeting” feature as particularly attractive, asserting that census tract-level licensing aligns well with small cell deployment, which can provide broadband coverage and capacity in targeted geographic areas.²⁴

However, since adopting the *3.5 GHz Order* in 2015, the Commission has included the 3.5 GHz band as part of a larger, multi-band 5G approach that incorporates the 600 MHz band and millimeter-wave bands, and Verizon and other wireless providers have followed suit.²⁵ Notably, in both the 600 MHz band, at the low end of the 5G bundle,²⁶ and the 39 GHz band, at the high end,²⁷ the Commission chose to adopt Partial Economic Areas (PEAs).

Indeed, the Commission opted to license the 39 GHz band by PEA despite its propagation characteristics. If PEAs are appropriate for targeted deployments in 39 GHz, it stands to reason that they are also appropriate for the 3.5 GHz band. Verizon agrees with CTIA that the use of PEAs would enable PAL licensees to achieve the Commission’s goals of flexible and targeted network deployments, while mitigating the interference risks and administrative difficulties presented by census tracts.²⁸ Furthermore, Verizon supports CTIA’s suggestion that, to further facilitate micro-targeting, the Commission should consider

²² *Amendment of 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, ¶ 94 (2015) (“*3.5 GHz Order*”).

²³ *See id.*, ¶ 96.

²⁴ *See id.*

²⁵ *See* CTIA Petition at 3-5.

²⁶ *Incentive Auction R&O*, ¶ 18.

²⁷ *Spectrum Frontiers R&O and FNPRM*, ¶ 82.

²⁸ *See* CTIA Comments at 10.

revising its rules to allow for PAL partitioning and disaggregation in secondary market transactions.²⁹ That would allow market participants to decide when and if smaller license areas are desirable, without requiring the Commission to administer an auction of as many as 518,000 licenses.

Therefore, Verizon strongly encourages the Commission to accept CTIA’s proposal and adopt PEA geographic license areas in the 3.5 GHz band, as it has in other 5G bands.

C. Reduction of Security Risks Related to CBSD Registration Information

Verizon also supports CTIA’s request that the Commission modify the requirements for Spectrum Access System Administrators’ treatment of Citizens Broadband Radio Service Device (“CBSD”) registration information. By prohibiting the public disclosure of CBSD registration information, the Commission will avoid a potentially harmful cybersecurity risk and protect sensitive deployment information from disclosure to competitors.

III. CONCLUSION

Verizon has long supported the Commission’s efforts in the 3.5 GHz band and has invested heavily to ensure the band's success. We continue to encourage the Commission to make the band available for GAA use as quickly as practicable and to move expeditiously to auction PALs.

If the Commission moves quickly, the modest and targeted adjustments that CTIA proposes can be made without delaying or unnecessarily complicating the deployment of CBRS. In fact, these changes may speed CBRS deployment by increasing the incentives for major industry stakeholders to invest heavily in the band. This investment will accrue to the benefit of PAL and GAA users alike and will advance the Commission’s stated goal of

²⁹ *Id.*

creating an “innovation band” that drives robust investment and promotes technological development.

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CERTIFICATE OF SERVICE

I, Cathy Smithmeyer, do hereby certify that on this 24th day of July, 2017, I caused a copy of the foregoing Comments to be served via electronic courtesy copy and U.S. Mail on the following:

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