Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC  20554

In the Matter of

Petition for Rulemaking to Amend the
Commission’s Rules Regarding the Citizens
Broadband Radio Service in the 3550-3700 MHz Band

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GN Docket No. 12-354
RM-_________

PETITION FOR RULEMAKING

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PETITION FOR RULEMAKING

Pursuant to Section 1.401 of the Commission’s Rules, CTIA requests that the Federal Communications Commission (“Commission”) launch a rulemaking to make common sense 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. These changes will encourage investment in and development of this “innovation band,” which holds promise for small cell deployment for mobile broadband. The 3.5 GHz band is a band of growing importance in the 5G portfolio, and a targeted rulemaking to remove PAL investment uncertainty will advance U.S. interests in extending our global leadership in wireless from 4G to 5G.

I. INTRODUCTION AND SUMMARY.

The Commission can act swiftly to make changes to the PAL regime and foster greater certainty and investment in the 3.5 GHz band without causing delay in the roll-out of the spectrum or deployment of the CBRS. The Commission need only make a handful of


2 Text of proposed rules to achieve these targeted objectives is attached hereto as Appendix A.
modifications to the PAL licensing framework to give this innovation band a better chance at success. Specifically, the Commission should:

- Change the PAL term from three years to a standard, ten-year license term with an expectation of renewal to promote investment in the band;
- Modify PAL areas to consist of Partial Economic Areas (“PEAs”) instead of census tracts to simplify the licensing scheme and reduce interference risks; and
- Modify the requirements for Spectrum Access System (“SAS”) Administrators’ treatment of Citizens Broadband Radio Service Device (“CBSD”) registration information in order to reduce security risks to user identify information and to protect sensitive deployment information from disclosure to competitors.

These actions will promote U.S. investment in the 3.5 GHz band and help the United States extend global leadership in wireless from 4G to 5G.

The 3.5 GHz band will rely on a novel three-tiered spectrum access framework that led then-Commissioner Pai to raise concerns as to whether such an approach would be investment- and deployment-friendly. The existing PAL framework introduces needless layers of uncertainty and complexity that undermine investment incentives and undercut the balance between PALs and the General Authorized Access (“GAA”) tier. A flawed PAL tier will likely undermine the overall success of the band. As Commissioner O’Rielly noted when the Commission adopted the 3.5 GHz Order, “[s]ometimes, too much experimentation can harm and ultimately delay successful deployment of new services.” The targeted changes CTIA seeks are designed specifically to improve the incentives for investment in the PAL framework.

Prompt action here will not delay CBRS deployment in the 3.5 GHz band. Indeed, if the Commission acts swiftly, it can conduct a rulemaking proceeding and amend the CBRS rules in

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3 3.5 GHz Order, Statement of Commissioner Ajit Pai, 30 FCC Rcd at 4142 (“Because I am concerned that some of these decisions might hinder the types of investments and deployments necessary for this experiment to succeed, I will be voting to approve in part and concur in part.”).

just a few months. Industry continues to work through the standards process and to develop relevant equipment for the band, and the changes identified above would not alter or delay those ongoing processes. Moreover, SAS Administrators are continuing to develop their systems and do not have final FCC approval yet. The Commission can complete this targeted rulemaking quickly to address these issues, without causing delay.

II. A RULEMAKING TO REMOVE UNCERTAINTY FROM THE PRIORITY ACCESS LICENSE FRAMEWORK WILL FACILITATE U.S. GLOBAL LEADERSHIP FROM 4G TO 5G.

Chairman Pai recently stated, “[t]he United States must continue to lead the world in wireless innovation. We led the way in the deployment of 4G LTE, and we must do the same in 5G.” The 3.5 GHz band is the only mid-band spectrum targeted for 5G use in the U.S., and the targeted changes sought here will create an investment environment for the 3.5 GHz band to flourish here as other nations target the 3 GHz frequencies for 5G.

As CTIA observed previously, providers will need some combination of low-, mid-, and high-band spectrum to provide consumers with the seamless 5G experience they will expect. Mid-band spectrum like the 3.5 GHz band provides coverage and capacity benefits, especially in dense urban/suburban markets, that are vital to meet consumers’ increasing data demands and facilitate the transition to 5G.

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8 Comments of CTIA, WT Docket No. 14-177, at 7-8 (filed Sept. 30, 2016).
Technology companies, equipment manufacturers, and wireless providers are increasingly looking at the 3.5 GHz band for 5G, with an expanding focus in just the past several months. As T-Mobile has highlighted, “3.5 GHz spectrum is a core band for 5G deployment around the world.” Qualcomm has observed, “[t]echnologies such as … 3.5 GHz CBRS are building blocks for future 5G networks that will take connected experiences beyond what is foreseeable today.” For 5G, Ericsson has explained, 3.5 GHz is one of “[t]he most prominent band options,” along with the Spectrum Frontiers frequencies and existing CMRS bands, as the band “provides very good mobile coverage.” Nokia has announced a new 5G solution, based on specifications defined by the Verizon 5G Technology Forum ecosystem, that incorporates the 3.5 GHz band. And AT&T and Verizon have both obtained experimental authorizations to test new 5G radio systems in the 3.5 GHz band.

5G in the 3 GHz band is a global race, and the Commission should act here to remove uncertainty surrounding licensed, or PAL, use of the 3.5 GHz band. China, the European Union

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(“EU”), an EU/Brazil joint partnership, Japan, Russia, and South Korea are all working to develop 5G in the 3 GHz band.

**GLOBAL INTEREST IN USE OF THE 3 GHz BAND FOR 5G**

With the right policies in place, the mobile wireless industry will continue to have a profound impact on U.S. economic growth. One recent study estimates that wireless operators will invest $275 billion dollars in 5G over seven years and projects that 5G will boost the U.S. GDP by $500 billion.\(^\text{14}\) But this can only occur if government sets policies that welcome investment. CTIA agrees that the 3.5 GHz band is an “experimental band,” and the novel three-

tiered CBRS framework can be improved with the greater investment certainty that the proposed changes would provide.

III. THE COMMISSION SHOULD AUTHORIZE PRIORITY ACCESS LICENSES ON STANDARD, TEN-YEAR LICENSE TERMS WITH AN EXPECTATION OF RENEWAL TO PROMOTE INVESTMENT.

The current three-year PAL term with no ongoing right of renewal creates a risk that a PAL licensee will invest in a license at auction, purchase and deploy equipment, incorporate 3.5 GHz into its end-user devices, and then face stranded investment in just three or six years. These prospects diminish the attractiveness of PALs, reduce investment and innovation in the band, and limit the potential of the three-tiered CBRS spectrum access regime to succeed. A far better course is to amend the PAL rules and provide standard, ten-year license terms with an expectation of renewal.

The PAL model seeks to offer wireless providers the assured access and interference protection they deem essential for the quality of service they offer in today’s highly competitive wireless marketplace. Providers are willing to pay for those rights at auction, and the licensed model provides the certainty they need to invest in the band. The Commission’s decision to adopt the Priority Access tier in the CBRS framework is recognition of that dynamic. However, the current PAL licensing scheme, with short, three-year license terms and no renewal expectancy, severely undercuts the usefulness of a licensed tier. A provider’s “option” to downgrade and operate on a GAA basis following the loss of a PAL in a subsequent auction does not provide the necessary certainty to justify investments in the band, primarily because the

15 The Commission adopted three-year license terms, but stated that “solely during the first application window, we will permit an applicant to apply for up to two consecutive three-year terms for any given PAL available during such first application window, for a total of six years.” 3.5 GHz Order, 30 FCC Rcd at 3994-95 ¶ 105; see also 3.5 GHz Order on Reconsideration at 5021 ¶ 43.

16 3.5 GHz Order, 30 FCC Rcd at 3996 ¶ 109.
GAA tier does not provide for interference protection from other CBRS users.\textsuperscript{17} And in areas where demand for spectrum is high, there is no certainty that carriers who invested in the band as PAL operators will have sufficient access to GAA spectrum.

The record in the proceeding provides ample evidence regarding the resources, time, and investment required to achieve a successful network buildout and the challenges posed by the PALs’ short license terms.\textsuperscript{18} For example, Ericsson highlighted that “infrastructure investment certainty and QoS . . . typically require multi-year planning and deployment horizons . . . e.g., to obtain site permissions, ensure coverage, [and] provide contiguous mobility . . . and additional time thereafter to yield reasonable returns to long-term infrastructure investors.”\textsuperscript{19} These factors are magnified in the 3.5 GHz band given the complexity of rolling out the high number of small cell deployments expected in the band. Providers are already facing significant challenges in deploying small cell infrastructure across the United States, including long delays in obtaining siting approvals and high fees imposed by localities for outdoor deployments.\textsuperscript{20} And indoor deployments carry similar obstacles given the need to negotiate with building owners. Further, deploying service in a new band requires standards development, certification, and production of new equipment, and the introduction of a new frequency band into end-user devices. A short-term license is not a strong foundation when accounting for these challenges.

\textsuperscript{17} Id.


\textsuperscript{19} Comments of Ericsson, GN Docket No. 12-354, at 7 (filed Dec. 5, 2013).

\textsuperscript{20} See, e.g., Comment Sought on Streamlining Deployment of Small Cell Infrastructure by Improving Wireless Sitting Policies, Public Notice, 31 FCC Rcd 13360 (WTB 2016); Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, Notice of Proposed Rulemaking and Notice of Inquiry, 32 FCC Rcd 3330 (2017); see also Comments of CTIA, WT Docket No. 16-421 (filed Mar. 8, 2017); Reply Comments of CTIA, WT Docket No. 16-421 (filed Apr. 7, 2017).
The Commission’s original three-year license term approach did not fully account for the economics involved in outdoor, area-wide network buildouts. Its conclusions relied on a single study that analyzed indoor deployments only, distinguishing indoor from outdoor due to the “site acquisition challenges and build costs” associated with outdoor network buildout.\textsuperscript{21} The Commission was correct to acknowledge the “cost hurdle” of outdoor deployments,\textsuperscript{22} yet it adopted a three-year term that, even if appropriate for indoor deployments (which CTIA does not concede), further hobbles outdoor operations. Some providers may well choose to incorporate 3.5 GHz PAL spectrum into their ubiquitous outdoor wide-area networks. In that case, the economics of deploying a vast network of small cells, including administrative costs and delays required to gain siting approval for a multitude of small cell deployments, will likely be much higher than a traditional Wi-Fi deployment over a limited geographic scope. The PAL licensing term and renewal policy should promote, not upset, such use cases.

A ten-year license term, combined with an expectation of renewal, will provide greater incentive to invest in PALs. Renewal expectancy also will eliminate the uncertainty of having to regularly participate in auctions to retain access to PALs. And an auction is not necessary to achieve market-oriented reassignment of spectrum, as the Commission had posited.\textsuperscript{23} The Commission adopted secondary market rules for that purpose, and those rules ensure that PAL spectrum is put to its highest and best use, without invoking a bureaucratic government process that creates uncertainty for investors.


\textsuperscript{22} 3.5 GHz Order, 30 FCC Rcd at 3996 ¶ 110.

\textsuperscript{23} 3.5 GHz Order on Reconsideration, 31 FCC Rcd at 5023 ¶ 44.
The ten-year licensing scheme is consistent with the Commission’s proven approach in many other bands, including the rules for the H Block, AWS-3, and AWS-4 bands,\textsuperscript{24} and for the repurposed 600 MHz band in the Incentive Auction proceeding.\textsuperscript{25} This proven approach has helped make the United States the global leader in wireless. And the Commission recognized the success of this approach in the rules it adopted in the Spectrum Frontiers proceeding for the 28 GHz, 37 GHz, and 39 GHz bands,\textsuperscript{26} additional bands expected to be used for small cell deployments.

As the Commission embarks on the CBRS three-tiered experiment, there is no need to overlay added uncertainty onto the CBRS framework. The Commission should improve incentives for investment in the CBRS framework by adopting a ten-year license term with an expectation of renewal, consistent with long-standing Commission licensing models.

\textbf{IV. THE COMMISSION SHOULD ASSIGN PRIORITY ACCESS LICENSES ON A PARTIAL ECONOMIC AREA BASIS INSTEAD OF CENSUS TRACTS TO SIMPLIFY THE LICENSING SCHEME AND REDUCE INTERFERENCE RISKS.}

There are more than 74,000 census tracts in the United States, and the current rules’ approach to licensing PALs on a census tract basis will result in up to 518,000 PALs. This is a far more complicated licensing scheme than is necessary to put this spectrum to good use and one that creates unnecessary interference risks given the extensive border areas between different licensees operating in adjacent census tracts. Census tract licensing, moreover, will be unnecessarily challenging for SAS administration and for licensees themselves to manage. The

\textsuperscript{24} See 47 C.F.R. § 27.13.


\textsuperscript{26} \textit{Use of Spectrum Bands Above 24 GHz for Mobile Radio Services}, Report and Order, 31 FCC Rcd 8014, 8077-78 ¶¶ 174-177 (2016).
three-tiered spectrum access regime is novel enough without introducing a licensing framework comprised of 74,000 geographic areas. The Commission should instead license PALs on a Partial Economic Area basis, of which there are a more manageable 416 in the United States.

PEAs offer sufficient flexibility to achieve the Commission’s goals in CBRS licensing: “to establish the geographic component of PALs in a way that allows flexible and targeted network deployments, promoting intensive and efficient use of the spectrum, but also allowing easy aggregation to accommodate a larger network footprint.”27 PEAs allow flexible and targeted networks, and their increased size reduces border areas and accompanying risks for interference as well as administrative burdens for the Commission, SAS Administrators, and licensees alike. In contrast, licensing PALs on a census tract basis results in clear harms: increased auction complexity, increased interference concerns, and increased administrative burdens.

Licensing PALs using PEAs will continue to enable opportunities for those providers interested in micro-targeting service in smaller areas. First, the existing secondary market rules allow PAL licensees to lease any portion of their spectrum or license outside of their PAL Protection Area, which allows lessees to provide service to targeted areas.28 To further opportunities in smaller coverage areas, the Commission should consider revising its rules to allow for PAL partitioning and disaggregation in secondary market transactions so that dynamic market forces, not static regulations, can ensure the spectrum is put it to its highest, best, and

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27 3.5 GHz Order, 30 FCC Rcd at 3991 ¶ 96.
28 3.5 GHz Order on Reconsideration, 31 FCC Rcd at 5077 ¶ 228.
most efficient use. More broadly, smaller, micro-targeting providers willing to operate on the GAA tier can gain access to 3.5 GHz spectrum on a GAA basis.

The Commission adopted the use of PEAs in the Incentive Auction proceeding, finding that PEAs “will promote participation by both larger and smaller wireless providers, including rural providers, and encourage new entrants.” PEA licensing “encourage[s] entry by providers that contemplate offering wireless broadband service on a localized basis. . . . [L]icensing by PEAs will best promote entry into the market by the broadest range of potential wireless service providers without unduly complicating the auction.” The Commission should use the same area-wide licensing framework here.

V. **SAS ADMINISTRATORS SHOULD PROTECT CBSD REGISTRATION INFORMATION.**

SAS Administrators should not be required, or permitted, to make CBSD registration information public. Beyond concerns about competition and personal privacy, the Commission should take into account cybersecurity and national security concerns, which were not addressed in the 3.5 GHz Order or 3.5 GHz Order on Reconsideration. There is no countervailing benefit to publicly disclosing CBSD registration information to outweigh the potential harms. SAS Administrators are separately required to work with each other to coordinate frequency assignments and avoid interference between CBSDs. Members of the public can therefore coordinate with a SAS to determine where they can deploy CBSDs on a GAA basis. Disclosing

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29 *Id.* at 5077 ¶ 229 (explaining that “relatively short license terms and small license areas” render partitioning and disaggregation more administratively burdensome and less useful than in spectrum bands with longer license terms and larger geographic license areas).

30 *Incentive Auction Order*, 29 FCC Rcd at 6585 ¶ 44.

31 *Id.* at 6597 ¶ 71.

32 *See* 47 C.F.R. § 96.55(a)(3) (“SAS Administrators must make CBSD registration information available to the general public, but they must obfuscate the identities of the licensees providing the information for any public disclosures”).
CBSD registration information to the public will not fulfill any unaddressed need and such disclosure should not be required or permitted.

As the Commission recognized in the 3.5 GHz Order, “network owners may not desire release of information related to network deployments and configurations to the public in a manner that could compromise personal privacy or affect competitive interests.” The Commission’s requirement that SAS Administrators obfuscate licensees’ identities in making the CBSD registration information public does not adequately address these concerns. Production of such information could provide a bad actor the ability to identify actual users or greater precision to commit a malicious act against a particular network deployment. The CBRS rules do not account for this risk and should be amended to prohibit the public disclosure of CBSD registration information. When combined with the results of PAL auctions, which are expected to be public, this information is likely to raise both competitive and personal privacy concerns. And on the security front, CBSD registration requirements include geolocation data and information on whether the CBSD will be operated indoors or outdoors.

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33 3.5 GHz Order, 30 FCC Rcd at 4057 ¶ 327.
34 Id.; see also 47 C.F.R. §96.55(a)(3).
35 47 C.F.R. §§ 96.39(c), 96.43(b).
VI. CONCLUSION.

For the reasons set forth above, the Commission should initiate a rulemaking proceeding to make limited changes to the 3.5 GHz spectrum sharing regime on an expedited basis to encourage investment without delaying the provision of service in the band.

Respectfully submitted,

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APPENDIX A

Text of Proposed Rules

Part 96 of Part 47 of the Code of Federal Regulations (“CFR”) shall be amended as set forth below:

1. Section 96.3 is amended as follows:

§ 96.3 Definitions.

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Census tract. Statistical subdivisions of a county or equivalent entity that are updated prior to each decennial census as part of the Census Bureau’s Participant Statistical Areas Program. Census tracts are defined by the United States Census Bureau and census tract maps can be found at http://www.census.gov. For purposes of this part, Census Tracts shall be defined as they were in the 2010 United States Census. The Commission may from time to time update this definition to reflect boundaries used in subsequent decennial Census definitions.

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License area. The geographic area of a PAL. Each License Area consists of one Partial Economic Area.

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Partial Economic Area. Partial Economic Areas (PEAs) are defined by the Public Notice: Wireless Telecommunications Bureau Provides Details About Partial Economic Areas,” DA 14-759, dated June 2, 2014. The service areas of PEAs that border the U.S. coastline of the Gulf of Mexico extend 12 nautical miles from the U.S. Gulf coastline. The service area of the Gulf of Mexico PEA that comprises the water area of the Gulf of Mexico extends from 12 nautical miles off the U.S. Gulf coast outward into the Gulf. Maps of the PEAs and the Federal Register notice that established the 416 PEAs are available for public inspection and copying at the Reference Center, Room CY A-257, 445 12th St. SW., Washington, DC 20554.

2. Section 96.25 is amended to read as follows:

§ 96.25 Priority Access Licenses.

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(b)

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(3) Each PAL has a ten-year license term from the date of issuance or renewal. Licensees must file a renewal application in accordance with the provisions of Section 1.949.
3. Section 96.55 is amended as follows:

§ 96.55 Information gathering and retention.

(a)

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(3) SAS Administrators shall not make CBSD registration information available to the general public.