

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Petition for Rulemaking to Amend the)	RM-11788
Commission’s Rules Regarding the Citizens)	
Broadband Radio Service in the 3550-3700 MHz)	
Band)	
)	
Petition for Rulemaking to Maximize)	RM-11789
Deployment of 5G Technologies in the Citizens)	
Broadband Radio Service)	
)	
Amendment of the Commission’s Rules with)	GN Docket No. 12-354
Regard to Commercial Operations in the 3550-)	
3650 MHz Band)	

COMMENTS OF AT&T SERVICES, INC.

Jessica B. Lyons
Michael P. Goggin
Gary L. Phillips
David L. Lawson
AT&T SERVICES, INC.
1120 20th Street, NW
Washington, DC 20036
(202) 457-2100

July 24, 2017

Its Attorneys

TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	1
II.	THE PROPOSED RULES WILL PRESERVE AND ENHANCE GENERAL AUTHORIZED ACCESS USE IN THE 3.5 GHZ BAND.....	2
III.	THE COMMISSION CAN FACILITATE 5G ROLLOUT BY MAKING ADJUSTMENTS TO PRIORITY ACCESS LICENSING	3
	A. Providing Certainty to PAL Licensees Will Encourage Investment and Innovation	3
	B. Larger License Areas Will Promote More Effective and Efficient Spectrum Use	6
	C. The Commission Should Not Unnecessarily Restrict PAL Uses	9
	D. By Reforming PAL Rules, the Commission Will Facilitate Ecosystem Development and Ensure a Successful PAL Auction.....	11
IV.	CBSD REGISTRATION INFORMATION IS CRITICAL INFRASTRUCTURE DATA AND SHOULD BE PROTECTED ACCORDINGLY	11
V.	CONCLUSION.....	12

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Petition for Rulemaking to Amend the)	RM-11788
Commission’s Rules Regarding the Citizens)	
Broadband Radio Service in the 3550-3700 MHz)	
Band)	
)	
Petition for Rulemaking to Maximize)	RM-11789
Deployment of 5G Technologies in the Citizens)	
Broadband Radio Service)	
)	
Amendment of the Commission’s Rules with)	GN Docket No. 12-354
Regard to Commercial Operations in the 3550-)	
3650 MHz Band)	

COMMENTS OF AT&T SERVICES, INC.

I. INTRODUCTION AND SUMMARY

AT&T Services Inc., on behalf of the subsidiaries and affiliates of AT&T Inc. (collectively “AT&T”) hereby submits the following comments in response to the Petitions for Rulemaking of CTIA—The Wireless Association (“CTIA”)¹ and T-Mobile (with CTIA, the “Petitioners”)² in the above-captioned proceeding.³ The Petitioners request changes to the rules governing the 3550-3700 MHz band (“3.5 GHz band”) Citizens Broadband Radio Service (“CBRS”)—and the related Priority Access License (“PAL”) framework in that band—to better

¹ CTIA Petition for Rulemaking, RM-11788, (filed Jun. 16, 2017) (“CTIA Petition”).

² T-Mobile Petition for Rulemaking, RM-11789, (filed Jun. 19, 2017) (“T-Mobile Petition”).

³ *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 (2015) (“*Report and Order and Second FNPRM*”).

promote the development and deployment of 5G.⁴ By making certain modest proposed changes to its rules, the Commission will transform the 3.5 GHz band from an experimental band to one that is capable of serving as a launch-pad for 5G technologies and services. As CTIA observes in its Petition for Rulemaking, wireless stakeholders are increasingly looking at the 3.5 GHz band for 5G, and there is global interest in developing 5G in the 3 GHz band.⁵ Thus, it is key that the Commission take steps to transform the 3.5 GHz band into one that can advance the United States' 5G position. Most importantly, the Commission can greatly improve its PAL licensing scheme without impacting the General Authorized Access (“GAA”) tier of use, which has been touted as a key driver of innovation in the 3.5 GHz band. In fact, the Commission can promote and enhance GAA use by strengthening PAL licensing, as standards and equipment development efforts that support PAL users will also inure to the benefit of GAA users. Thus, while the Commission’s original vision for this band will be largely unchanged, the reforms to priority access licensing will greatly enhance investment and innovation in the 3.5 GHz band.

II. THE PROPOSED RULES WILL PRESERVE AND ENHANCE GENERAL AUTHORIZED ACCESS USE IN THE 3.5 GHZ BAND

Petitioners have proposed minor rule modifications that will greatly enhance PAL licensing while having no impact on deployment of GAA operations or the development of a Spectrum Access System (“SAS”). In fact, Petitioners’ proposals regarding PAL license terms, renewal procedures, and market sizes would not change the rules regarding GAA use of the 3.5 GHz band in any way.⁶ GAA users will still be able to access the full 150 MHz of the 3.5 GHz

⁴ CTIA Petition at 1-3; T-Mobile Petition at 1-4.

⁵ CTIA Petition at 4-5.

⁶ CTIA Petition at 6-11; T-Mobile Petition at 11-15.

band under the same rules and procedures adopted by the Commission in its *Report and Order*.⁷ Further, the PAL licensing reforms advanced by CTIA and T-Mobile need not delay the rollout of GAA products and services. Regardless of whether the Commission initiates a rulemaking vis-à-vis PAL licensing, its GAA rules would remain unchanged and in force. Under these rules, GAA use of the band is not contingent on PAL use in any way.

Indeed, by reforming the PAL licensing process, the Commission has the ability to significantly improve the 3.5 GHz ecosystem for everyone, *including* GAA users. GAA and PAL licensing in the 3.5 GHz are not competing uses, but rather complementary to one another. Strengthening aspects of PAL licensing will create benefits that will accrue to all tiers of use in the 3.5 GHz band. As explained below, by reforming PAL licensing the Commission can promote greater investment in the 3.5 GHz band by PAL licensees. This investment, in turn, will lead to the development of an improved equipment ecosystem benefiting *all* stakeholders in the 3.5 GHz band.

III. THE COMMISSION CAN FACILITATE 5G ROLLOUT BY MAKING ADJUSTMENTS TO PRIORITY ACCESS LICENSING

A. Providing Certainty to PAL Licensees Will Encourage Investment and Innovation

AT&T supports proposals by the Petitioners that provide greater certainty to PAL licensees regarding their long-term investment prospects in the 3.5 GHz band. Specifically, AT&T supports ten-year license terms with an expectation of renewal.⁸ These rule changes will enhance the value of PAL licenses at auction and will encourage investment in 3.5 GHz equipment and services. As CTIA notes, “[t]he current three-year PAL term with no ongoing

⁷ *Report and Order and Second FNPRM* at ¶ 4.

⁸ CTIA Petition at 6; T-Mobile Petition at 13.

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.”⁹ If the 3.5 GHz band is to serve as a near-term home to 5G services, it is essential that PAL licensees are able to invest in spectrum and the necessary ecosystem components to utilize that spectrum to develop products and services for consumers with confidence that neither their nor their customers’ investments will be stranded.

Under the existing regulatory framework, the short license terms pose a risk that there will be insufficient time for licensees to recover their return on investment—this risk will discourage investment in the band or reduce the scope of investment in the band. Should stakeholders be reluctant to invest in 3.5 GHz licenses, the potential public benefits of CBRS-based 5G services will be reduced.¹⁰ As the Commission and commenters in this proceeding have observed, the 3.5 GHz ecosystem will rely on indoor and outdoor small cell deployments, as well as novel and complex network architectures.¹¹ Indeed, efforts through the industry-sponsored Wireless Innovation Forum (“WinnForum”) have made clear that there are several network architecture models that may be possible in the CBRS spectrum including neutral host systems, broadband fixed wireless systems, or anchor systems for 5G applications.¹² It therefore is likely that the equipment development challenges seen in other bands will be magnified in the 3.5 GHz environment (because deployments will be more complex). These challenges

⁹ CTIA Petition at 6.

¹⁰ T-Mobile Petition at 12.

¹¹ *Report and Order and Second FNPRM* at ¶ 205-214; *see e.g.*, Comments of Ericsson, GN Docket No. 12-354, at 7 (filed Dec. 5, 2013).

¹² *See e.g.*, <http://www.wirelessinnovation.org/specifications>.

necessitate a longer license term. In addition, consumers have come to expect a high level of performance and reliability from their wireless services. For a provider to meet these high consumer expectations, the certainty associated with longer PAL license terms (along with a renewal expectancy) is vital for infrastructure investments. As a final matter, for the 3.5 GHz band to flourish, the industry must develop standards, certify new devices, produce equipment, design networks, and develop and market consumer devices capable of accessing the 3.5 GHz band. As CTIA appropriately observes, “[a] short-term license is not a strong foundation when accounting for these challenges.”¹³

Conversely, a ten-year term with renewal expectancy is consistent with the Commission’s service rules in other bands.¹⁴ Indeed, Commissioner O’Rielly recognized the benefits of enacting a licensing structure that would allow for innovation and investment. The Commissioner noted that adoption limited license terms “undoes decades of successful spectrum policy by the Commission.”¹⁵ He also noted that “such a policy misses an important concept relevant today: there will be a lack of interest in spectrum licenses upfront if there is no predictability and certainty regarding investments made by those seeking the licenses.”¹⁶ Similarly, then-Commissioner Pai noted that the Commission “should be creating greater

¹³ CTIA Petition at 7.

¹⁴ *See e.g.*, 47 C.F.R. § 27.13 (WCS licenses have ten year terms, AWS-1 licenses have ten year terms, BRS/EBS licenses have ten year terms, AWS-4 licenses have ten year terms, H Block licenses have ten year terms). *See also*, 47 C.F.R. § 27.14 (demonstrating a number of licensed services have renewal expectancy).

¹⁵ *See* Statement of Commissioner Michael O’Rielly Approving in Part, Dissenting in Part, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, *Order on Reconsideration and Second Report and Order*, FCC 16-55 at 123 (rel. May 2, 2016).

¹⁶ *Id.*

incentives for providers to invest in this band.”¹⁷ The traditional ten-year license term with renewal expectancy has enabled licensed providers the needed certainty to invest, deploy, and innovate. Indeed, the United States is the global leader in 4G, and it should adopt rules for the 3.5 GHz band that will continue that success instead of injecting risk or uncertainty.

AT&T agrees with T-Mobile and CTIA that there is no need for the Commission to re-auction PALs at the end of each license term, rather than permitting licensees to renew their licenses. As CTIA observes, “an auction is not necessary to achieve market-oriented reassignment of spectrum, as the Commission had posited.”¹⁸ To the extent that the value of PAL spectrum to a licensee no longer justifies the licensee’s investment, the Commission’s existing secondary market policies will help ensure that PAL spectrum rights flow to their best use. Additionally, as noted below, by modifying the existing rules as suggested by the Petitioners to allow for partitioning and disaggregation of PAL licenses, the Commission will further enable the market for 3.5 GHz spectrum to function in an effective fashion. However, for those PAL licensees that do have a long-term investment interest in the band, that investment should be rewarded and encouraged with license terms that will permit the greatest possible innovation for the benefit of 3.5 GHz spectrum users.

B. Larger License Areas Will Promote More Effective and Efficient Spectrum Use

¹⁷ See Statement of Commissioner Ajit Pai Approving in Part and Concurring in Part, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, *Order on Reconsideration and Second Report and Order*, FCC 16-55 at 120 (rel. May 2, 2016).

¹⁸ CTIA Petition at 8.

AT&T supports the proposal of the Petitioners to license PALs on a Partial Economic Area (“PEA”) basis.¹⁹ A PEA-based licensing scheme will not only simplify licensing in the 3.5 GHz band, but it also will promote effective and efficient spectrum use by reducing the number of market borders at which licensees must manage interference. Under the current rules for the 3.5 GHz band, PALs will be issued on the basis of census tracts.²⁰ There are more than 74,000 census tracts in the United States, which means that under the current rules there will be as many as 518,000 PALs.²¹ This high number of licenses makes for an incredibly complex auction process with few attendant benefits.

By adopting PEA licensing, the Commission will vastly reduce the number of licenses it needs to auction and manage, without impairing any potential use models. Contrary to the Commission’s findings in the *Report and Order*,²² small license areas are not necessary to achieve intensive spectrum use in the 3.5 GHz band. As an initial matter, if a PAL licensee is not using spectrum in a portion of its service area, GAA users will be able to access it.²³ Moreover, current spectrum license holders have been deploying small cell technology (the alleged basis for the Commission limiting license areas to census tracts) in their existing

¹⁹ CTIA Petition at 10; T-Mobile Petition at 16-17.

²⁰ 47 C.F.R. § 96.3 (“*License area*. The geographic component of a PAL. Each License Area consists of one Census Tract”).

²¹ CTIA Petition at 9.

²² *Report and Order and Second FNPRM* at ¶¶ 96-101 (arguing that larger, traditional license areas are inconsistent with the Commission’s desire to promote innovative, low power uses of the band that align well with small, targeted geographic areas such as census tracts).

²³ 47 C.F.R. § 96.13(a)(3) (“Any frequencies designated for Priority Access that are not in use by a Priority Access Licensee may be utilized by General Authorized Access Users.”).

spectrum blocks that were authorized in areas even larger than PEAs.²⁴ In addition, to the extent the Commission is concerned that PEA licensing will result in coverage gaps, the Commission should permit licensees to partition and disaggregate their PAL spectrum rights on the secondary market.²⁵ To support secondary markets for PAL, WinnForum has already adopted a workable framework that will allow any Citizens Broadband Radio Service Device (“CBSD”) or any device owner to behave as either a GAA or PAL user and create credentials to facilitate secondary market transactions.²⁶ In sum, there should be no concern that spectrum license holders will not deploy throughout their market area (or reach commercial agreements to lease or sell geographic areas or spectrum) if the license area sizes are increased to PEAs.

Conversely, retaining the existing census tract licensing regime would be unworkable and impractical. WinnForum has utilized the existing Commission rules governing PAL protection

²⁴ See e.g., *AT&T Details 5G Evolution*, AT&T NEWSROOM, at http://about.att.com/story/att_details_5g_evolution.html (rel. Jan 4, 2017) (noting AT&T’s plans to continue to densify its network through the deployment of small cells); *Verizon Claims ‘Largest Small Cell Deployment’ in the U.S.*; FIERCEWIRELESS, at <http://www.fiercewireless.com/wireless/verizon-claims-largest-small-cell-deployment-any-u-s-carrier> (rel. March 17, 2017) (asserting that Verizon is looking to small cells to increase capacity and improve network performance); *T-Mobile Has a Brilliant Plan to Stay Ahead of Verizon’s LTE Network*, ANDROIDCENTRAL, at <https://www.androidcentral.com/t-mobile-has-plan-maintain-its-lead-lte-speeds> (rel. Feb. 14, 2017) (noting T-Mobile’s proliferation of small cells).

²⁵ The Petitioners have argued that the prohibition contained in 47 C.F.R. § 96.32(b) should be removed to allow for partitioning and disaggregation if the underlying license area size is increased. See e.g., CTIA Petition at 10-11; T-Mobile Petition at 19 (noting that the Commission should eliminate the prohibition on partitioning and disaggregation of PALs and adopt rules similar to those contained in Part 30 of the Commission’s rules).

²⁶ See e.g., “Signaling Protocols and Procedures for Citizens Broadband Radio Service (CBRS): Spectrum Access System (SAS) – Citizens Broadband Radio Service Device (CBSD) Interface Technical Specification,” Document WINNF-16-S-0016, Version V2.0.0 (rel. June 14, 2017).

from GAA users to develop its technical specifications.²⁷ This framework will enable the SAS to determine protection of PALs by geographically backing off GAA channel assignments from the PAL Protection Areas. However, neither WinnForum nor other multi-stakeholder groups have developed a methodology to protect PALs from other PALs, in particular those operating on the same channel in an adjacent geographic area. Presumably, PAL-to-PAL interference can be prevented by creating a buffer zone between licensed geographic area boundaries. With the existing census tract licensing scheme, there would be no effective way to manage the incredible numbers of buffer zones necessary to ensure interference-free operations between PALs. Should larger PEAs be permitted instead, buffer zones can be accommodated easily by the PAL licensees and operator-to-operator coordination of this type is a well-known practice that has been used to manage license boundaries between licensed spectrum holders for many years.²⁸

C. The Commission Should Not Unnecessarily Restrict PAL Uses

AT&T supports T-Mobile's proposal that the total number of PALs available at auction always cover 70 MHz, regardless of the number of applications filed.²⁹ Currently, the Commission's rules state that the number of PAL licenses made available will be contingent on

²⁷ See 47 C.F.R. §§ 96.25, 96.41. Section 96.25 defines a default PAL protection contour at -96 dBm/10 MHz around each CBSD within the boundaries of the PAL's service area. Section 96.41 mandates that CBSD transmissions must be managed such that the aggregate received signal strength, for all locations with the PAL Protection Area of any co-channel PAL not exceed an average (RMS) power level of -80 dBm in any direction when integrated over a 10 megahertz reference (for both PAL and GAA users).

²⁸ See e.g., 47 C.F.R. § 22.907 (requiring cellular licensees to coordinate channel usage and to cooperate with other licensees); 47 C.F.R. § 24.236 (noting that PCS licensees are limited to a particular field strength at the service border unless a higher limit is coordinated with adjacent licensees); 47 C.F.R. § 27.55 (limiting field strength for WCS licensees unless the adjacent affected service area licensee agrees to a different field strength).

²⁹ T-Mobile Petition at 4.

the number of applications filed, and that the number of PALs auctioned will be equal to the number of licenses applied for, minus one.³⁰ These rules apply to all subsequent auctions, with the practical effect that “the current rules risk systematically phasing out PALs with each subsequent auction.”³¹ As T-Mobile observes, this framework amounts to what is essentially a game of musical chairs for PAL licensees.³² If, for example, two licensees hold seven PALs in a Census Tract and reapply for all of their licenses in the next auction, only six will be available and one party will be forced to migrate from PAL status to GAA if they wish to maintain service. These PAL licensees will only be able to reapply for all seven licenses if a third bidder enters the fray – an outcome which is by no means a guarantee. Licensees’ ability to retain their licenses should never be contingent on the actions of third parties whose behavior is entirely outside licensees’ control.

Under these circumstances, AT&T opposes unduly limiting PAL use, and supports the proposal to eliminate Section 96.29(d) and amend Section 96.29(e) to read “[w]hen there is only one application for initial Priority Access Licenses in a License Area, that applicant will be granted a PAL if otherwise qualified under the Commission’s rules.”³³ Furthermore, AT&T believes that for purposes of the PAL auction, the Commission should evaluate mutual exclusivity on a nationwide basis: as long as there is more than one auction applicant, all licenses should be available for sale. AT&T submits that there is no reason for the Commission not to

³⁰ 47 C.F.R. §96.29(d).

³¹ T-Mobile Petition at 13.

³² T-Mobile Petition, at 13-14 (citing Petition for Reconsideration of CTIA – The Wireless Association, GN Docket No. 12-354, at 4 (filed Jul. 23, 2015)).

³³ T-Mobile Petition at 14.

offer all PAL licenses for auction. To the extent that there is not demand for all licenses in all markets, the unsold spectrum rights will remain with the FCC and GAA users will still be able to access the unsold PAL frequencies – this spectrum will not lie fallow if there is demand for it.

D. By Reforming PAL Rules, the Commission Will Facilitate Ecosystem Development and Ensure a Successful PAL Auction

Until now, the 3.5 GHz standards process has been riddled with uncertainty, which has delayed efforts to put the spectrum to use. By promptly adopting rules that will encourage investment and innovation in the 3.5 GHz band, the Commission will permit standards bodies to complete their work with certainty regarding future use cases for the band. The incentives created will also allow vendors to develop products that will be used by both GAA and PAL licensees. This is an important precursor to any successful 3.5 GHz PAL auction.

IV. CBSD REGISTRATION INFORMATION IS CRITICAL INFRASTRUCTURE DATA AND SHOULD BE PROTECTED ACCORDINGLY

To successfully regulate spectrum use in the 3.5 GHz band, the SAS will be required to collect extensive data regarding users’ network configuration, uses, and technical parameters. This data amounts to critical infrastructure data, and requires protection above and beyond that specified in existing rules. Under the current rules, the Commission has sought to protect CBSD registration data by permitting a SAS to share this data only with another SAS, and to only make this data public if it obfuscates the identity of individual licensees.³⁴ The current approach is insufficient to protect this critical network data.

With respect to the Commission’s rules that allow licensee data to be shared with the public, there is simply no reason why the general public needs to access CBSD registration data, and licensee identities could easily be uncovered even if obfuscated. As T-Mobile observes, “the

³⁴ See *Report and Order and Second FNPRM* at ¶ 328 (2015).

results of PAL auctions are expected to be public, and determining which deployments belong to certain auction winners will be feasible.”³⁵ For example, if winning bidders A and B obtain PALs in one market area, winning bidders B, C, and D obtain PALs in a second, and winning bidders A and D obtain PALs in a third, observers could use process of elimination to identify all four licensees and their associated network information.

The potential competitive and cybersecurity-related harms associated with making CBSD registration data public are massive, and the Commission has offered no persuasive case for making this information public. AT&T submits that the Commission should eliminate Section 96.55(a)(3), which requires SAS administrators to make CBSD registration information available to the general public.³⁶ Instead, the Commission should impose the same standards of protection that are applied to other critical infrastructure data.³⁷

The Commission should also consider a requirement that a SAS administrator must maintain registration data confidentially, and this data may only be used for SAS functions (such as spectrum assignment and interference management), and for no other purpose. AT&T recognizes that there may be occasions where the SAS requires access to certain licensee data, but use of this data should be strictly limited and the Commission should adopt protections against its misuse or accidental disclosure.

V. CONCLUSION

³⁵ T-Mobile Petition at 20.

³⁶ 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”).

³⁷ See CTIA Petition at 11-12; *see also* T-Mobile Petition at 19-20.

In addressing CTIA and T-Mobile's petitions for a rulemaking, the Commission should focus on how it can facilitate investment in the 3.5 GHz band and ensure the United States maintains and extends its global leadership in wireless with the deployment of 5G. With a few modest rule changes, the Commission can improve the 3.5 GHz ecosystem for all, including GAA users. Creating ten-year license terms for PAL licensees will create a measure of certainty that will enhance the value of licenses at auction. Increasing the license areas from census tracts to Partial Economic Areas will simplify licensing and promote more efficient use of the spectrum. Removing unnecessary restrictions on PAL uses, such as conditioning the number of licenses made available on the number of applications filed, will afford licensee a measure of stability not present under the current framework, which depends on third party behavior. Reforming the rules will promote a thriving ecosystem that fosters investment and innovation that will yield products that can be used by both GAA and PAL licensees and ensure a successful 3.5 GHz PAL auction in the future.

Respectfully Submitted,

/s/ Jessica B. Lyons

Jessica B. Lyons
Michael P. Goggin
Gary L. Phillips
David L. Lawson
AT&T SERVICES, INC.
1120 20th Street, NW
Washington, DC 20036
(202) 457-2100

Its Attorneys

July 24, 2017

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:

Brian M. Josef
Assistant Vice President,
Regulatory Affairs
CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036

Steve B. Sharkey
Vice President,
Governmental Affairs
T-Mobile USA, Inc.
601 Pennsylvania Avenue, N.W.
Suite 800
Washington, DC 20004

/s/ Cathy Smithmeyer
Cathy Smithmeyer
July 24, 2017