

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

In the Matter of)	
)	
Promoting Investment in)	GN Docket No 17-258
the 3550-3700 MHz Band)	

**REPLY COMMENTS of RUCKUS NETWORKS,
a company of ARRIS U.S. HOLDINGS, INC.**

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Ruckus Networks, a company of ARRIS U.S. Holdings, Inc., respectfully submits these reply comments in response to the Commission’s Notice of Proposed Rulemaking (“NPRM”) and comments filed in the above-captioned proceeding.¹

I. INTRODUCTION AND SUMMARY

Ruckus Networks is encouraged by both the quantity and quality of comments that were filed in response to this NPRM. We believe it was especially important that a number of companies and organizations who had not previously offered comments or reply comments on the Docket 12-354 Petitions for Rulemaking elected to express their views on the changes proposed in this NPRM.

¹ See *Promoting Investment in the 3550-3700 MHz Band; Petitions for Rulemaking Regarding the Citizens Broadband Radio Service*, Notice of Proposed Rulemaking and Order Terminating Petitions, 32 FCC Rcd. 8071 (2017) (“*NPRM*”).

Ruckus Networks is pleased to offer the following reply comments with the goal of contributing to the development of rules that benefit all of the expected participants in the CBRS band, and ultimately provide the greatest benefits to American consumers and businesses. In our reply comments we will make the following points:

- The Commission should move quickly to conclude this rulemaking process and remove the lingering uncertainty about the final rules for the band.
- The Commission should not entertain changes which will delay the authorization of the band for General Authorized Access (“GAA”).
- Further, the Commission should do everything in its power to ensure that the final certifications of the initial wave of Spectrum Access System (“SAS”) administrators and Environmental Sensing Capability (“ESC”) operators are completed by June 30, 2018.
- The Commission should reject the proposed change to ten-year PAL terms and instead adopt terms of between five and seven years for PALs targeted for operator deployments.
- If the Commission decides to provide a renewal possibility to the PAL licenses, the Commission should utilize appropriate and effective performance requirements to ensure that PAL rights are put to the most intensive use possible on an ongoing basis.
- The Commission should reject the calls from a small minority of commenters to increase the PAL coverage area to Partial Economic Areas (PEAs).
- The Commission should make targeted enhancements to the “light-touch leasing” framework to ensure that the secondary leasing market is robust, vibrant, highly liquid, and effective in making PAL rights available to those who do not obtain rights at auction.
- Any relaxation of the current Emission Limits must not result in delays to the authorization of the band for GAA services, and should only be undertaken after the Commission has carefully studied and considered the potential impacts on adjacent channel operations.

II. THE COMMISSION SHOULD MOVE QUICKLY TO CONCLUDE THIS RULEMAKING AND AUTHORIZE GAA SERVICE

While there was some variance of opinion on the specific questions posed in the NPRM, there was unanimous agreement that the Commission should not undertake changes that would

significantly delay the availability of the band or require industry organizations such as the Wireless Innovation Forum (“WinnForum”) and the CBRS Alliance to revisit and revise the large number of technical specifications they have carefully produced over the last two-plus years.² Ruckus supports the call from Federated Wireless that, “the Commission can—and, indeed, should—do all it can to support final certification of SAS administrators and ESC operators by June 30, 2018, whether or not the items under consideration in the NPRM are resolved.”³ It is imperative that the Commission conclude this review and communicate any resulting rule changes to industry as expeditiously as possible. As numerous commenters noted, there is a tremendous amount of existing investment, momentum, and anticipation in the band.⁴

The uncertainty this review has created has already negatively impacted investment and planning for the band. As WISPA noted in their comments, “Sixty percent of the survey respondents indicated that they had reduced investment and/or curtailed deployment in the 3650-3700 MHz band in response to the threat of changes to the PAL licensing rules.”⁵ The Commission must act quickly to restore certainty to the band.

² Unless otherwise noted, all references to Comments are to those filed in GN Docket No. 17-258 on or around December 28, 2017. Comments of AT&T Services at 2-3; Comments of Federated Wireless at 1-2; Comments of General Electric at 4; Comments of NCTA at 9; Comments of Nokia at 2.

³ Comments of Federated Wireless at 2.

⁴ Comments of Comcast at 1; Comments of Federated Wireless at 1; Comments of NTCA-The Rural Broadband Association at 8; Comments of General Electric at 3; Comments of Google at 2; Comments of NCTA at 2; Comments of NRTC & NRECA at 3; Comments of Telecommunications Industry Association at 1; Comments of Verizon at 7-8; Comments of WISPA at 6.

⁵ Comments of WISPA at 22.

III. PAL LICENSING RULES

A. License Term and Renewability

Ruckus Networks continues to oppose the proposed change to the rules to increase the PAL license term from three years to ten years. Most commenters agree. We believe a five-year to seven-year term would be reasonable for PALs that are intended for operator deployments. A variety of operators and operator industry organizations, including Charter, Comcast, NCTA, RWA, WISPA, and NTCA support this approach.⁶

Ruckus Networks believes that any consideration of PAL license renewability must be conditioned upon performance requirements that will drive the most intense use of the band and directly promote secondary market access when and where a license holder elects not to exercise their rights within a PAL coverage area.

Ruckus Networks does not believe that GAA use of the band, including unused PAL channels, is sufficient to discourage warehousing. We agree strongly with the point made by Comcast that, “Even if warehousing *spectrum* is not possible under the three-tier 3.5 GHz framework due to opportunistic GAA use, warehousing of *interference protection rights* remains possible absent performance requirements obliging operators to build.”⁷ As we noted in our comments, GAA access and PAL access are in no way fungible, and GAA use does not offset, or substitute for, PAL use.⁸ T-Mobile similarly pointed out the distinctions between the CBRS tiers of operation, noting that, “GAA users, under their license-by-rule, cannot exclude others from

⁶ Comments of Charter Communications at 1; Comments of Comcast at 16-17; Comments of Rural Wireless Association at 9; Comments of WISPA at 40; Comments of NCTA at 11; Comments of NTCA-The Rural Broadband Association at 9.

⁷ Comments of Comcast at 21 (emphasis in original).

⁸ Comments of Ruckus Networks, an ARRIS Company at 9.

the spectrum they use, so no use can be considered mutually exclusive. Only PAL holders, by virtue of their ability to block other PAL and GAA use of spectrum, can create the type of mutual exclusivity contemplated in the Act.”⁹ It is clear from the record that permissive GAA use is not an appropriate substitute for exclusive PAL use, and that the open access to GAA spectrum is not an appropriate remedy for those who require, but cannot secure at auction, the protections afforded at the PAL tier.

B. Geographic License Area

Ruckus Networks maintains our opposition to the Petitioners’ specific request to increase the license size of PALs to Partial Economic Areas (“PEAs”). The vast majority of comments agree with this approach, with only a handful of the 192 public comment filings supporting PEA license areas. Further, the few supporters of increasing the PAL license size to PEAs have failed to provide specific service and deployment plans and explain how PEA-sized licenses are necessary to the success of those plans. Nor have they explained how they will make efficient utilization of all the areas covered by PEA-sized licenses (i.e., urban, suburban, and rural).¹⁰

⁹ Comments of T-Mobile at 15.

¹⁰ A change to PEA license sizes would also run counter to President Trump’s recent efforts to eliminate barriers to rural broadband deployment. *See* Executive Order 13821, Streamlining and Expediting Requests to Locate Broadband Facilities in Rural America, Executive Office of the President (Jan. 8, 2018). There was unanimous agreement amongst the rural wireless internet service providers, from WISPA as well as the more than 130 individual WISPs who filed comments, that a change to PEA-sized license areas would constitute an almost insurmountable barrier to their investment – and that the mere threat of such a change has already curtailed investment. Comments of WISPA at 2. Therefore, PEA-sized licenses represent a formidable obstacle to the widespread deployment of rural broadband services by those very entities best positioned and eager to deliver those services using the CBRS band.

C. Secondary Markets

While Ruckus agrees with the many commenters who have pointed out that secondary market mechanisms are not a substitute or replacement for appropriate rules on PAL coverage area and term length,¹¹ the demand for the exclusive access rights of the PAL tier is likely to exceed the supply of seven PAL channels, especially in the metropolitan areas where the number and variety of potential PAL users is highest. The impressively large number of comments that have been received in response to the rulemaking petitions and to this resulting NPRM in this proceeding attest to the widespread interest in the PAL tier. In addition to the possibility of demand at auction exceeding the available supply of PALs in a license area, some entities may require PAL rights in either highly localized areas or for very short durations, where none of the license sizes or terms being discussed in this proceeding align neatly with their requirements. In fact, the Commission noted these types of use cases in its discussion of “light-touch leasing” in the April 2016 *Order on Reconsideration and Second Report and Order*.¹² For those who are unable to secure PALs at auction or whose protected access use cases are not well served by the structure of the licenses (size and/or term), the secondary markets become the means by which they may obtain protected access rights. Therefore, it is critical that the Commission create rules that will encourage and support a robust, vibrant, and highly flexible secondary market for PAL rights.

¹¹ Comments of Union Pacific at 10; Comments of NTCA-The Rural Broadband Association at 6; Comments of Cantor Telecom at 10; Comments of Comcast at 13; Comments of General Electric at 23; Comments of Google at 18; Comments of William Lehr at 12; Comments of NCTA at 10; Comments of NRTC & NRECA at 8; Comments of WISPA at 44.

¹² *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. 5011 ¶ 12 (2016) (“*CBRS Second Report and Order*”).

While Ruckus supports the proposal to permit partitioning and disaggregation of PAL licenses, especially in the event that the license area and term are expanded for some PALs, we reiterate our view that these particular secondary market mechanisms will only address the needs of operators who do not secure PALs at auction. Accordingly, Ruckus strongly agrees with the Commission’s existing emphasis on the light-touch leasing framework as its principal secondary market mechanism, as discussed in the CBRS Second Report and Order:

“The focus of our secondary markets policy for the 3.5 GHz Band will be to permit Priority Access Licensees to enter into a spectrum manager lease under the “light-touch leasing” regime we establish herein for any portion of their licensed geographic area for any bandwidth or period of time within the scope of the PAL but outside of its PAL Protection Area.”¹³

Ruckus commends the Commission for the innovative approach it took in crafting the light-touch leasing framework and agrees with the Commission’s belief “that a robust, flexible, and lightly regulated secondary market through these band-specific spectrum manager leasing rules will incentivize efficient spectrum use, promote innovation, and encourage the rapid deployment of broadband networks in the 3.5 GHz Band.”¹⁴ At the same time, given the rule changes proposed and issues raised in the current NPRM, Ruckus believes targeted enhancements are needed to the existing light-touch leasing framework in order to ensure the most intensive use of the band.

In Ruckus’ view the single biggest concern with the current leasing framework is the lack of incentives for PAL holders to make unneeded rights available to the secondary market for lease. As numerous commenters noted, there are a number of inherent disincentives that

¹³ *CBRS Second Report and Order* ¶ 210.

¹⁴ *Id.* ¶ 209.

discourage license holders from making spectrum or spectrum rights available to others.¹⁵ These disincentives range from the associated administrative burdens to loss of future optionality to competitive concerns. The Commission should strive to provide sufficient incentives to license holders for making right available to the secondary market, in order that these disincentives are more than offset. Federated Wireless similarly suggested that “[t]he Commission should incent PAL licensees to engage in secondary markets transactions.”¹⁶ Cantor Telecom Services L.P. also commented that “to the extent the Commission opts to change the existing rules, Cantor urges the Commission to exercise extreme discretion to ensure that future rules facilitate efficient deployment of spectrum through use of a vibrant secondary market.”¹⁷ Absent a compelling and effective incentive structure for license holders, there is little reason to believe that a robust, vibrant, or highly liquid secondary leasing market will be formed.

With this background in mind, Ruckus proposes the following targeted enhancements to the light-touch leasing rules.

- As an incentive to secondary leasing, any use of PAL spectrum rights by lessees should count towards the performance requirements of the lessor, the licensee. Federated Wireless made this same proposal in its comments.¹⁸
- The Commission should revise its rules to actively encourage and promote the formation of one or more spectrum exchanges, and not simply rely upon market forces to create what will be an essential component of a robust, vibrant, and highly liquid secondary leasing market. The exchanges would help reduce administrative

¹⁵ Comments of Comcast at 13-14; Comments of Charter Communications at 5; Comments of Union Pacific at 10; Comments of NTCA-The Rural Broadband Association at 6; Comments of General Electric at 23; Comments of Google at 20; Comments of William Lehr at 12; Comments of Microsoft at 7; Comments of NCTA at 13-14; Comments of NRTC & NRECA at 7; Comments of Rural Wireless Association at 6; Comments of Verizon at 15-16; Comments of WISPA at 43.

¹⁶ Comments of Federated Wireless at 10.

¹⁷ Comments of Cantor Telecom at 1.

¹⁸ Comments of Federated Wireless at 10.

burdens and provide a market-making function between license holders and potential lessees. Ruckus agrees with the Commission's earlier decision not to take a position on whether exchanges should function as components of SASs or as standalone functions. However, as we recommended in our comments, the Commission should set some minimum criteria for exchange services (e.g., the information that an exchange would require from license holders and potential lessees, electronic means by which this information can be registered to the exchange, and any reporting requirements from the exchange to the Commission).¹⁹ As we outline below, reports from exchanges to the Commission on the PAL spectrum rights that are being made available for lease could be utilized to further incentivize license holders to make those rights available.

- In the event that a renewal opportunity is extended to PAL holders, the Commission should create a renewal credit that would be awarded to a license holder for making PAL usage rights available to the secondary market. As one possibility, a license renewal discount could be calculated based upon the license holder making certain threshold percentages of the license available to the secondary markets (e.g., a 10% renewal discount for making 20% of the license available to the secondary market and a 20% discount for making 40% of the license available to the secondary market). The measurement and reporting of the availability would be a responsibility of the exchange(s). Consistent with our views on performance requirements, we believe that these metrics should be measured over the life of the license to ensure license holders make unneeded PAL rights available for lease as early as possible, in order that the most intensive use can be made of the rights throughout the license area. Such an incentive would also support the Commission's goal for license holders to not overstate their protection needs.²⁰

Ruckus also supports the following additional enhancements to the light-touch leasing rules that were put forward by Federated Wireless in their comments:²¹

- PAL licensees should be permitted to enter into leasing arrangements throughout their Service Areas, regardless of whether the proposed lease would cover the licensee's PAL Protection Area.
- The Commission should permit PAL licensees to enter into lease agreements that specify different PAL protection requirements than those provided in the Part 96 rules.

¹⁹ Comments of Ruckus Networks, an ARRIS Company at 17-18.

²⁰ *CBRS 2nd Report and Order* ¶ 183.

²¹ Comments of Federated Wireless at 9.

As Federated explained, the existing rules already extend these levels of flexibility to incumbent Fixed Satellite Service licensees in relation to negotiating with CBRS users within their protection contours. Ruckus agrees with Federated's conclusion that providing such flexibility within the light-touch leasing framework would promote more intensive use of PAL rights throughout the license area. In particular, we believe these changes would allow PAL holders with predominantly outdoor deployments to lease rights for in-building, low-power use across a much greater portion of their license area.

Cantor Telecom also proposed that, "[a]ny PAL spectrum that is unclaimed during an initial auction window should not automatically revert to GAA use and could still be acquired in the secondary market as a PAL to ensure continued access to exclusive usage rights."²² Obviously, unused PAL spectrum is available for GAA use per the three-tier structure, so the first phrase seems both superfluous and inaccurate. However, the second recommendation – to make PAL rights that do not sell at auction directly available to the secondary market, has merit and should be considered by the Commission. In the rare cases where PAL rights do not sell at auction, this proposal would ensure that there is still an opportunity for protected access use of those PAL rights prior to the next auction. Ruckus believes that the most intensive use of the PAL rights would result from those unauctioned rights being made available for light-touch leasing, while acknowledging that both the financial arrangements and operational responsibility aspects of the lessor role would need to be further defined. T-Mobile also made a related proposal that, "[i]n the unlikely event that there are applicants for fewer PALS than there are PALS available, the Commission should award licenses without an auction".²³ While T-Mobile's

²² Comments of Cantor Telecom at 11.

²³ Comments of T-Mobile at 14.

proposal was not to make the rights available to the secondary market, it does show support for allowing access to unauctioned PAL rights via other mechanisms.

IV. RELAXED EMISSIONS LIMITS

Ruckus Networks agrees with Nokia that any changes to the current emissions limits must not result in slowing the authorization of the band for CBRS operations.²⁴ We further agree with the concern raised by Comcast and Nokia that relaxed emission limits may adversely impact operations on adjacent channels.²⁵ Qualcomm also acknowledged this concern in their comments, noting “[t]his across-the-board power reduction overrides the potential benefit that the graduated mask potentially may offer in terms of less interference to unsynchronized adjacent channel operations.”²⁶ Ruckus urges the Commission to study the impacts on adjacent channel operations as it considers relaxing the emission limits.

V. CONCLUSION

The Commission should act quickly to conclude this rulemaking and expeditiously move forward with the authorization of GAA operations in the band. Ruckus Networks believes that any adjustments to the CBRS rules should be for the benefit of all the planned participants in the band, and not favor any specific interest group over others. The proposed change to ten-year license terms and the requested change to PEA-sized PAL license areas are not supported by the realities of the 3.5 GHz CBRS band or the record. The Commission should make targeted enhancements to the light-touch leasing framework in order to promote the most intensive use of

²⁴ Comments of Nokia at 6.

²⁵ Comments of Comcast at 28; Comments of Nokia at 2.

²⁶ Comments of Qualcomm at 5.

the PAL tier by a diversity of users and use cases, with a special focus on incentivizing PAL holders to make unneeded PAL rights available for lease.

Very respectfully,

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