

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

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

REPLY COMMENTS OF AT&T SERVICES, INC.

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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 reply comments in response to the Federal Communications Commission’s (“Commission”) Notice of Proposed Rulemaking (“3.5 GHz NPRM”) in the above-captioned proceeding.¹ AT&T broadly supports the Commission’s objectives of ensuring efficient spectrum use and promoting robust network deployment in the 3.5 GHz band and reiterates its support for many of the Commission’s proposals in the 3.5 GHz NPRM. As Commissioner O’Rielly has observed, “the role of the Commission in executing spectrum policy is to ensure that investment and innovation is promoted, that flexible use is permitted, and that the spectrum is attractive to as many users as possible.”² AT&T believes that the Commission has advanced a number of proposals in this proceeding that will further these objectives.

¹ *Promoting Investment in the 3550-3700 MHz Band; Petitions for Rulemaking Regarding the Citizens Broadband Radio Service*, GN Docket No. 17-258, RM-11788, RM 11-789, Notice of Proposed Rulemaking and Order Terminating Petitions, FCC 17-134 (2017) (“3.5 GHz NPRM”).

² *Id.*, Statement of Commissioner Michael O’Rielly.

Specifically, the Commission should move expeditiously to adopt the proposed changes to license terms and renewal expectancy and geographic area license sizes. The Commission should also adopt its proposal to prohibit the public disclosure of CBSD registration information. The record also indicates broad support for auctioning all Priority Access Licenses (“PALs”), regardless of the number of bidders, as well as allowing bidding on specific PAL blocks. AT&T strongly supports these rule changes and encourages the Commission to act quickly on these proposals.

AT&T also supports Qualcomm’s proposal regarding out-of-band emissions (“OOBE”). AT&T has evaluated the technical merits of the proposal and believes that it would offer 3.5 GHz PAL licensees the necessary flexibility to size and scale deployments without requiring them to operate within artificially defined boundaries. AT&T appreciates the concerns expressed by some commenters that this proposal would interfere with operations in the adjacent C-Band, but as a C-Band licensee itself, AT&T believes these concerns are unfounded.

AT&T reiterates its call for the Commission to continue the forward momentum in the 3.5 GHz band and to do so regardless of the status of the upfront deposit issue the Commission has highlighted.³ Despite potential legislative roadblocks to conducting an auction, the Commission can and should work to adopt rules that will allow it to promptly conduct an auction once these roadblocks are cleared. With Spectrum Access System (“SAS”) and Environmental Sensing Capability (“ESC”) administrators anticipating final certification and testing in 2018, it is vital for the Commission to move the PAL licensing framework on a parallel track to allow

³ See *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et al.*, GN Docket No. 14-177, et al., Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, FCC 17-152, ¶ 6 (2017) (“*Spectrum Frontiers Second Report and Order*”).

this band to continue its transition from an experimental band to one that supports advanced wireless technologies and services.

II. AT&T ENCOURAGES THE COMMISSION TO ADOPT PROPOSED RULE CHANGES FOR THE 3.5 GHZ BAND

A. Providing PAL Licensees with 10 Year License Terms and an Expectation of Renewal Will Spur Investment and Innovation in the 3.5 GHz Band

AT&T agrees with commenters supporting the Commission’s efforts to provide certainty to PAL licensees by increasing license terms to ten years with a right of renewal, replacing the existing single three-year term. As commenters correctly observe, longer license terms will “attract new investment, operators and other potential users of the band.”⁴ Furthermore, extending the license term as proposed “would provide rural service providers and utilities the long-term certainty required to invest in mission critical solutions utilizing the CBRS spectrum.”⁵

AT&T supports the observations made by the many commenters who support longer license terms, and notes that ten-year license terms will enable PAL licensees to conduct necessary testing and develop networks that meet consumers’ high expectations. Licensees will benefit from greater certainty that their investments in the 3.5 GHz band can be leveraged to their fullest potential. This certainty will benefit PAL and General Authorized Access (“GAA”)

⁴ Comments of Ericsson, GN Docket 17-258, at 5 (December 28, 2017) (“Ericsson Comments”). *See also id.* (noting that Ericsson has observed “strong interest in the band from multiple market segments, and one area of agreement among these potential users is support for longer license terms for PALs.”). *See also, e.g.*, Comments of Verizon, GN Docket 17-258, at 6 (December 28, 2017) (“Verizon Comments”) (“Extending the license term provides time for licensees to invest, build, and begin to recoup their investments. . . . Without some renewal expectancy, licensees must endure a high risk of stranded investments.”).

⁵ Joint Comments of the National Rural Telecommunications Cooperative and the National Rural Electric Cooperative Association, GN Docket No. 17-258, at 4 (December 28, 2017).

users alike as it will enable investment and deployment without undue risk of stranded investment and allow for the development of a balanced and robust licensing regime for the entire 3.5 GHz ecosystem.

In tandem with increasing the license term and creating a renewal expectancy, the Commission should permit partitioning and disaggregation to alleviate concerns expressed by some commenters that longer license terms will result in spectrum warehousing. AT&T believes that by allowing partitioning and disaggregation, the Commission will alleviate any concerns that spectrum will be underutilized, and will promote more efficient spectrum use. The benefits of these rules will inure not only to prospective auction bidders, but also to entities that wish to enter the PAL marketplace in the future.⁶ AT&T also notes that the unique, multi-tiered structure of the band provides a safeguard against spectrum warehousing concerns, as opportunistic GAA use of the band will ensure that at any given time, the band is either fully utilized or is utilized to a degree that reflects demand.

B. Prior Commission Auctions Demonstrate that Utilizing Partial Economic Areas as the Geographic License Size Will Encourage Greater Auction Participation

AT&T reiterates its support for increasing the size of the geographic area of PALs by using Partial Economic Areas (“PEAs”) rather than Census Tracts. The Commission has used PEAs with great success in previous auctions and has determined that additional spectrum in future auctions also will be auctioned on a PEA-basis. Furthermore, the use of PEAs as the

⁶ Comments of NCTA-The Internet & Television Association, GN Docket 17-258, at 10 (December 28, 2017) (“NCTA Comments”) (“Robust secondary markets rules, including for partitioning and disaggregation, would provide more flexibility both to the license holder (who may itself wish to deploy in a targeted area smaller than a county or PEA) and potentially to others who have a need for in[ter]ference-protected spectrum in a discrete area but did not or could not win a license at auction.”).

license area size for 3.5 GHz PALs is logical in light of the Commission’s decision to employ PEA licensing for other spectrum bands expected to support 5G.⁷

The use of PEA licensing for PALs has numerous benefits from an auction administration perspective. As CTIA observes, PEAs would “simplify licensing, enable flexible and targeted networks, and reduce border areas and accompanying risks for interference.”⁸ Conversely, utilizing Census Tracts would require the Commission to potentially auction over 500,000 PALs, resulting in a complex and burdensome process for the Commission to administer. Moreover, as AT&T previously observed and the record confirmed, the total shared borders between Census Tracts are nearly eight times longer than the total shared borders between PEAs, hindering the ability of PAL licensees to effectively manage interference borders and efficiently deploy their networks.⁹ AT&T further notes that Census Tract licensing would run counter to the Commission’s statutory mandate to promote “efficient and intensive” use of the band.¹⁰

The Commission itself has recognized the advantages of PEAs. In the context of the 600 MHz incentive auction, the Commission noted that “PEAs will best promote entry into the

⁷ Comments of United States Cellular Corporation, GN Docket 17-258, at 5 (December 28, 2017) (“U.S. Cellular Comments”) (“Authorizing PALs on the basis of PEAs also would be consistent with the licensing framework the Commission adopted for both the low- and high-band spectrum that, along with the 3.5 GHz band, will be used to deploy 5G networks.”).

⁸ Comments of CTIA—The Wireless Association, GN Docket 17-258, at 8 (December 28, 2017) (“CTIA Comments”).

⁹ *See, e.g.*, Comments of Mobile Future, GN Docket 17-258, at 7-8 (December 28, 2017); Comments of T-Mobile US, Inc., GN Docket 17-258, at 9 (December 28, 2017) (“T-Mobile Comments”); Verizon Comments at 10 (noting that this “cluttered and chaotic environment could create substantial interference risks and thus necessitate operational adjustments or “buffering zones” that would significantly limit the utility of the band and result in less efficient and intensive use.”).

¹⁰ 47 U.S.C. § 309(j)(3)(D).

market by the broadest range of potential wireless service providers[.] . . . PEAs are small enough to allow bidders to acquire a limited coverage area—often only a few counties—which should enable small businesses and rural carriers to compete with larger carriers in these areas.”¹¹ Additionally, the Commission determined that PEAs were appropriate for the millimeter wave band auctions in the *Spectrum Frontiers* proceeding. Specifically, the Commission indicated that “[l]icensing the 39 GHz band on a PEA basis strikes the appropriate balance between facilitating access to spectrum by both large and small providers and simplifying frequency coordination while incentivizing investment in, and rapid deployment of, new technologies. PEAs also nest into EAs but can also be broken down into counties, allowing operators to combine or partition their PEAs into the license areas of their choice. We believe that the size and ability to combine/partition will aid in the rapid deployment of these licenses.”¹² Particularly appropriate given some commenters’ concerns, the Commission also noted that “PEAs [are] small enough to permit access to licenses by smaller carriers while still large enough to incentivize investment in new technologies.”¹³

That being said, AT&T recognizes that a number of commenters have expressed concerns about licensing on a PEA basis.¹⁴ Should the Commission determine that PEAs alone

¹¹ *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd 6567, ¶ 80 (2014).

¹² *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et al.*, GN Docket No. 14-177, et al., Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, ¶ 82 (2016).

¹³ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et al.*, GN Docket No. 14-177, et al., Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, FCC 17-152, ¶ 170 (2017).

¹⁴ *See, e.g.*, Comments of Frontier Communications, Windstream Services, LLC, and Consolidated Communications, Inc., GN Docket 17-258, at 6-12 (December 28, 2017);

do not sufficiently promote auction participation, AT&T encourages the Commission to evaluate the merits of a hybrid approach that combines PEAs with smaller bidding units such as counties or Census Tracts. For example, the Commission could auction PALs on a PEA basis in the top 110 markets and reserve the remaining PALs to be auctioned on a county or Census Tract basis. Such an approach may appropriately balance the needs of the wide range of parties that are expected to participate in the 3.5 GHz auction. However, it is vitally important to ensure that any differences in geographic area licensing sizes are consistent by market (*i.e.*, all available spectrum in a market is licensed using the same geographic area). Otherwise, PAL entities will be required to manage varying border coordination requirements for spectrum blocks, diminishing the value of PALs for prospective auction bidders.

C. Commenters Have Failed to Provide Any Compelling Reason Necessitating Public Disclosure of Citizens Broadband Radio Service Device Registration Information

AT&T agrees with commenters that the Commission's current rules requiring public disclosure of Citizens Broadband Radio Service Device ("CBSD") registration data are unnecessary and do not provide any tangible benefit to the public at large.¹⁵ The record demonstrates that there is no compelling reason to disclose this information to the general public, and operators who do require this information are free to directly contact SAS administrators and request necessary information on a confidential basis.¹⁶

Comments of Microsoft, GN Docket 17-258, at 4-6 (December 28, 2017); Comments of the Wireless Internet Service Providers Association, GN Docket 17-258, at 24-36 (December 28, 2017) ("WISPA Comments").

¹⁵ 47 C.F.R. § 96.55(a)(3).

¹⁶ Comments of Comsearch, GN Docket 17-258, at 2-3 (December 28, 2017).

As commenters correctly observe, there are serious risks and potential harms associated with the Commission’s current requirements. For example, Alaska Communications expresses concern that disclosure of registration information would “compromise network security and raise serious competitive concerns,” particularly in areas with a small numbers of operators, such as Alaska, such that “increasing the potential that even ‘anonymous’ location information could easily be used to identify a competitor’s market entry plans and network architecture.”¹⁷ NCTA also notes that, even with obfuscation of licenses identities, an outside party could easily “correlate the CBSD locations with a network operator’s known footprint,” providing “very detailed, competitively sensitive network information that could also be used to inform cyber or physical attacks on particular network infrastructure.”¹⁸

The Commission should be wary of commenters advancing conclusory rationales that disclosure of this information is vital to ensuring successful operations in the 3.5 GHz band.¹⁹ Commenters who favor mandatory disclosure have provided no basis that such requirements would be necessary for the CBRS framework. Moreover, these parties have not demonstrated that disclosure would outweigh the serious risks and harms described in the record. The Commission should therefore eliminate its current rule requiring SAS administrators to make CBSD registration information available to the general public. Instead, the Commission should impose the same standards of protection that are applied to other critical infrastructure data. Specifically, AT&T urges the Commission to remove section 96.55(a)(3) of its rules and to not

¹⁷ Comments of Alaska Communications, GN Docket 17-258, at 8 (December 28, 2017).

¹⁸ NCTA Comments at 17.

¹⁹ Comments of the Dynamic Spectrum Alliance, GN Docket 17-258, at 6 (December 28, 2017); Comments of Starry, Inc., GN Docket 17-258, at 7 (December 28, 2017); Comments of Google LLC, GN Docket 17-258, at 22-23 (December 28, 2017).

allow any data to be publicly shared unless explicitly allowed by the contractual relationship between the provider and the SAS.

III. THE COMMISSION CAN ENSURE A SUCCESSFUL AUCTION BY ESTABLISHING A BALANCED AUCTION FRAMEWORK

A. Permitting Bidding on Specific PAL License Blocks Will Provide Greater Certainty to Licensees

AT&T agrees with commenters who call on the Commission to revise its rules and permit prospective PAL licensees to bid on specific spectrum blocks, rather than leaving it to SAS administrators to assign frequencies. Permitting specific-block bidding will lead to benefits for PAL licensees, device manufacturers, and end users alike. As commenters note, this mechanism will enable bidders to accurately assign value to licenses,²⁰ allow co-channel licensees to leverage existing coordination processes,²¹ and enable device manufacturers to develop higher quality equipment.²² Most importantly, the net effect of these benefits is a higher quality of service for end users.

²⁰ Comments of Motorola Solutions, GN Docket 17-258, at 6 (December 28, 2017) (“Motorola Solutions Comments”) (stating that allowing potential licensees to bid on a particular channel allows them to “more accurately assign a value to a particular spectrum block by fully accounting for the presence of incumbent users in the region”).

²¹ T-Mobile Comments at 16 (arguing that dynamically assigning channels to licensees will eliminate the traditional coordination process between adjacent users, as “co-channel licensees in adjacent geographic areas often agree between themselves on mechanisms for maximizing each entities’ spectrum use, including, for example, deployment of downtilt antennas and an agreed-upon azimuth modification”).

²² Ericsson Comments at 7 (observing that specific block bidding will also benefit device manufacturers, as “static channel assignments make it easier to provide end-user devices with a strong anchor for signaling and control, as well as a fallback for network control of mobility via known neighbor cell designations”).

AT&T disagrees with claims that bidding on specific channel assignments is unnecessary because of the Commission's Part 96 rules.²³ The current Part 96 rules serve only as a high-level guideline and do not fully protect licensees. For example, contiguous block assignments at the edge of the band are not comparable to contiguous channels in the middle of the band due to compliance with the OOB limits. Additionally, a PAL adjacent to a Fixed Satellite Service ("FSS") operating frequency will not be able to have the same transmission power as a PAL that does not have to contend with incumbents in the same licensee area. Relatedly, AT&T observes that many of the commenters opposed to specific-block bidding are providers of fixed services that have different technical requirements than mobile providers. Mobile systems necessarily require a stable control channel for signaling and for handling mobility through the network.²⁴ Since PALs will be the anchor channel (with GAA channels aggregated as needed for capacity), and specific PAL channels will serve as control channels for signaling, permitting PAL auction participants to bid on specific, unencumbered channels is essential for effective deployment of mobile operations.

AT&T believes that the Commission should allow licensees to determine the optimal channel on which to operate and the proper auction price of the channel, rather than leaving it to the SAS to control channel assignments. The Commission's current framework inhibits the ability of providers to undertake that planning, creating uncertainty that will result in depressed investment in the band.

²³ See Comments of Open Technology Institute at New America and Public Knowledge, GN Docket 17-258, at 34 (December 28, 2017).

²⁴ Theodore S. Rappaport, *Wireless Communications, Principles and Practice*, at 14 (2d ed. 2002) (noting the need for control channels to setup mobile calls and for supervisory and data messages required to facilitate automatic channel changes and handoffs).

B. Auctioning All PALs in a Given License Area, Regardless of the Number of Bidders, Would Promote Greater Participation and Opportunity

AT&T echoes the many commenters who urge the Commission to make all PALs in a given license area available for auction, even in areas where there is only one applicant. AT&T agrees that the Commission's existing limitations serve only to artificially constrain the supply of PALs,²⁵ and provide few attendant benefits. Conversely, by making available additional PAL licenses, the Commission will ensure that there are enough PALs to support multiple use cases in each market.²⁶ A consistent, guaranteed supply of PALs in each market will also promote investment throughout the 3.5 GHz band.²⁷ Finally, such action by the Commission is logical in light of its previous decision to allow providers in rural areas to obtain interference protections even if there is only one applicant in a license area.²⁸

AT&T agrees with commenters' arguments in favor of increasing the number of PAL licenses available for auction, and urges the Commission not to unnecessarily constrain the supply of PALs in each license area. By making the full supply of PALs available in each market, the Commission not only can increase competition in the auction, but also can encourage the deployment of new technologies and services in the 3.5 GHz band. This is because PAL licensees may be more likely to experiment with additional innovative use cases if they are

²⁵ Comments of Comcast Corporation, GN Docket 17-258, at 22 (December 28, 2017).

²⁶ Motorola Solutions Comments at 6.

²⁷ U.S. Cellular Comments at 13.

²⁸ CTIA Comments at 14 (citing *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, ¶ 50 (2016) (explaining that "if there is a single applicant for one or more PALs in a License Area within a Rural Area . . . we will allow for the assignment of one PAL in that License Area.")).

afforded interference protection. Additionally, AT&T believes the Commission should award PALs even in areas where only one bidder is present: if an entity wishes to serve a specific area, it should not be unnecessarily penalized for being the only entity willing to do so.²⁹

IV. THE CURRENT OUT-OF-BAND EMISSIONS RULES INHIBIT THE DEPLOYMENT OF INNOVATIVE SERVICES IN THE 3.5 GHZ BAND

A. Relaxing the Emissions Limits Allows for the Use of Wider Channels Without Power Reduction

AT&T supports commenters' requests that the Commission revise the 3.5 GHz band emissions limits. As the Telecommunications Industry Association observes, the Commission's current band emissions limits "require significant signal attenuation outside the channel of operation" and "significantly diminishes signal coverage and mobile service quality."³⁰ Additionally, Ericsson notes that "5G services in particular benefit from wider channels, and changes to the emission mask to accommodate channels wider than 10 MHz will increase the utility of PALs."³¹

More specifically, AT&T supports Qualcomm's proposal to revise the OOB limits, as it will "best enable channels of 20 MHz and wider, which . . . will be crucial for both 4G and 5G NR mobile operations in both the Priority Access License ("PAL") and General Authorized Access ("GAA") tiers of the CBRS band."³² The Commission's alternative emission limit

²⁹ See, e.g., *3.5 GHz NPRM*, Statement of Commissioner Michael O'Rielly ("If an entity seeks the priority and protection PALs offer, then they should be able to obtain this spectrum, even if they are the only entity interested in a market.").

³⁰ Comments of the Telecommunications Industry Association, GN Docket 17-258, at 4 (December 28, 2017).

³¹ Ericsson Comments at 8.

³² Comments of Qualcomm Incorporated, GN Docket 17-258, at 2 (December 28, 2017) ("Qualcomm Comments").

proposals fail to properly account for certain technical characteristics that are integral to 3.5 GHz deployments. As the analysis that Qualcomm has provided in the record in its comments demonstrates,³³ user equipment in the 3.5 GHz band requires significant power decreases to comply with the existing Commission emission mask that is mitigated with its OOBE proposal. Similarly, T-Mobile highlights that the Commission’s approach would be inconsistent with industry standards and would require “additional power back-off [that] will result in a reduction of transmission power which in turn will reduce the cell coverage area, increasing deployment costs.”³⁴ Thus, AT&T believes Qualcomm’s OOBE proposal best balances the need for more relaxed emissions limits with the Commission’s goal of ensuring strong interference protections.

B. Concerns Expressed by Commenters Regarding Interference with Adjacent Band Services Are Without Merit

AT&T recognizes that some commenters have opposed any changes to the emissions limits, arguing that increased emissions would harm operations in the adjacent C-Band.³⁵ These concerns are unfounded. AT&T – like the parties opposing Qualcomm’s proposal – is a C-Band licensee that uses this spectrum for FSS earth stations. However, when reviewing the Qualcomm proposal, it is apparent that it would not modify the existing protections for C-Band operations. Qualcomm’s revised emissions limit proposal affects only inner channels in the 3.5 GHz band, and specifically excludes edge channels.³⁶ Additionally, Qualcomm’s proposal incorporates the

³³ Qualcomm Comments at 6.

³⁴ T-Mobile Comments at 19.

³⁵ Comments of The Content Companies, GN Docket 17-258, at 6-7 (December 28, 2017); Comments of the National Association of Broadcasters, GN Docket 17-258, at 1 (December 28, 2017).

³⁶ Qualcomm Comments at 5 (noting that the -40 dBm/MHz limit to protect operations above 3700 MHz would be maintained and therefore its proposal would not impact the C-Band).

same -40 dBm/MHz limit at the band edge that the Commission originally adopted for the 3.5 GHz band.³⁷ In fact, Qualcomm explicitly notes in its comments that it “maintains its support of the FCC’s proposal to maintain the additional -40 dBm/MHz protection level to protect incumbent operations 20 MHz below and above the 3550-3700 MHz band.”³⁸ Given that adjacent-band interference levels are not affected by the proposed Qualcomm limits, AT&T supports adoption of the Qualcomm proposal to allow flexible deployment of broadband systems in the 3.5 GHz band.

³⁷ *Id.*

³⁸ Qualcomm Comments at 8.

V. CONCLUSION

AT&T continues to broadly support the Commission's efforts to adopt measured, flexible licensing rules for the 3.5 GHz band. The Commission has a unique opportunity to further the goal of continued United States leadership in advanced wireless technologies and services by transforming this band from an experimental band to one that will foster investment and innovation. AT&T encourages the Commission not only to adopt the rule changes described above, but also to move expeditiously to auction PALs in the 3.5 GHz band to ensure a continuing pipeline of spectrum for wireless broadband services.

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