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

In the Matter of	)	
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AMENDMENT OF THE COMMISSION'S RULES WITH REGARD TO COMMERCIAL OPERATIONS IN THE 1695-1710 MHz , 1755-1780 MHz, AND 2155-2180 MHz BANDS	)	GN DOCKET No. 13-185

REPLY COMMENTS OF AT&T

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Reply Comments of AT&T

AT&T Services, Inc. respectfully submits these reply comments on behalf of itself and its affiliates (collectively, "AT&T") in response to the Commission's Notice of Proposed Rulemaking seeking comment on proposed rules for commercial mobile wireless operations in the 1695-1710 MHz, 1755-1780 MHz, 2020-2025 MHz and 2155-2180 MHz Bands (the AWS-3 NPRM).[1]

I. The Commission's Chief Goal Should Be to Clear and Allocate 1755-1780 MHz as Uplink Paired with Downlink at 2155-2180 MHz.

In this proceeding, the Commission should allocate 1755-1780 MHz as uplink, to be paired with downlink at 2155-2180 MHz. With appropriate service rules, such a band plan would not only help to address the spectrum crunch, but do so in a way that speeds the deployment of service in this spectrum, promotes competition, and maximizes the utility and value of this spectrum to the public. By pairing 1755-1780 MHz with 2155-2180 MHz, the Commission effectively could add 50 MHz of paired AWS-3 spectrum to the 90 MHz of AWS-1 spectrum used today to support LTE, to create a contiguous, integrated band of prime, paired spectrum.

There is widespread support for this spectrum pairing.[2] As Motorola Mobility put it, "the centerpiece of this Notice is the potential pairing of the 1755-1780 MHz and 2155-2180 MHz band segments. Because of its international harmonization and adjacency to the current AWS-1

[1] In the Matter of Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, *Notice of Proposed Rulemaking and Order on Reconsideration*, 28 FCC Rcd 11479 (2013)("AWS-3 NPRM"). Citations in these Reply Comments to comments filed by AT&T and other parties in this docket are abbreviated (e.g., "Comments of AT&T at ___.")

[2] *See, e.g.,* Comments of 4G Americas at 1; Comments of Competitive Carriers Association (CCA) at 2; Comments of CTIA at 10-12; Comments of Mobile Future at 4; Comments of Motorola Mobility at 4; Comments of Nokia Solutions and Networks (NSN) at 4-7; Comments of TIA at 10; Comments of Boeing at 2; Comments of T-Mobile at 13-14; Comments of United States Cellular Corporation (USCC) at 7; Comments of Verizon Wireless at 5-7.

band . . . it should be the focus of the Commission's efforts in this proceeding."[3] Indeed, no party to this proceeding opposes it. To ensure that the 2155-2180 MHz spectrum is assigned by early 2015, as Congress requires, the FCC must adopt such a pairing, work with NTIA and the Administration to clear the 1755-1780 MHz band of federal users, adopt appropriate service rules, provide transparency and certainty with respect to when this spectrum will be available for use, and on what terms, and proceed to a rulemaking on appropriate auction rules.

A. The Commission Should Adopt Technical Service Rules for the AWS-3 Spectrum Bands that are Consistent with Existing Technical Service Rules for AWS-1 Spectrum Bands and 3GPP Specifications.

There is broad support for the Commission's proposal to adopt technical service rules for the AWS-3 spectrum bands that are equivalent to those that apply to AWS-1.[4] Moreover, consistency between the technical service rules for the AWS-3 spectrum bands and the technical service rules for the AWS-1 spectrum bands is necessary to achieve the full benefit from the adoption of the proposed band plan. Consistent rules in AWS-3 would make possible the creation of a single, combined band class. Such a consolidated AWS band would be internationally harmonized and would speed deployment, lower deployment costs through economies of scale, promote competition, increase auction valuations and amplify the public interest benefits of making this additional spectrum available.[5]

Indeed, the only widespread opposition to the Commission's proposed technical service rules is in the one instance where the Commission proposes *to modify* the AWS-1 rules.[6] In particular,

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[3] Comments of Motorola Mobility at 4.

[4] AWS-3 NPRM at ¶ 85. *See, e.g.*, Comments of CTIA at 26; Comments of Motorola Mobility at 5; Comments of TIA at 13.

[5] *See, e.g.*, Comments of NSN at 5-7; Comments of Mobile Future at 4; Comments of T-Mobile at 13-14, 29-32.

[6] Aside from opposition to the Commission's proposal to modify the handset power limits, the closest any party comes to opposing the proposed technical rules is a filing by GPS Innovation Alliance, which suggests that the

there was near universal opposition to the Commission's proposal to adopt an EIRP power limit of 20 dBm for mobiles and portables operating in the 1695-1710 MHz and 1755-1780 MHz bands.[7] There are obvious benefits to adopting technical service rules for AWS-3 that are identical to those for AWS-1, and, as Nokia points out, this would not require the enlargement of any protection zones.[8] Given the benefits that would flow from adopting AWS-3 rules consistent with those that apply to AWS-1, the handset power limits should not be modified.

B. Certainty and Transparency Regarding the Relocation of Federal Incumbents from the 1755-1780 MHz Band and the Terms of Any Necessary Sharing Arrangements Are Needed.

While the prospect of auctioning 50 MHz of paired AWS-3 spectrum is promising, such an auction is unlikely to result in rapid deployment of service (or in auction revenues that reflect the optimum value of this spectrum) unless potential bidders have a clear understanding of when, where and how they will get access to the 1755-1780 MHz band, and upon what terms. Licenses that are subject to sharing requirements and/or exclusion or protection zones will be perceived by bidders as less valuable than cleared spectrum, and uncertainty about the terms of such sharing (or its feasibility) will dampen bidding even further. To maximize the utility and value of the AWS-3 spectrum, the Commission should continue to follow Congress' directive to clear the spectrum of federal incumbents unless it proves technically infeasible to do so, and prior to any auction, publicize any sharing arrangements, protection zones or other restrictions. Additionally,

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proposed out of band emissions (OOBE) limit of 43 + 10log(P) be "re-examined" to evaluate the potential effect of AWS-3 transmissions on GPS receivers operating below 1610 MHz. Comments of GPSIC. GPSIC does not indicate, however, that existing AWS-1 operations using this OOBE limit have caused any harmful interference, nor does it provide any data to suggest that the Commission's proposal to apply the existing AWS-1 standard to AWS-3 spectrum would cause any harmful interference. While AT&T agrees with GPSIC that GPS services should be protected from harmful interference, there is nothing in the record at this point to suggest that the proposed OOBE limits should be changed.

[7] AWS-3 NPRM at ¶ 103. *See, e.g.*, Comments of Motorola Mobility at 6-7; Comments of Ericsson at 6-7; Comments of CTIA at 26-27; Comments of NSN at 20-21.

[8] Comments of NSN at 21.

it should press to accelerate negotiations over the terms of any interim sharing arrangements that might be necessary to permit commercial use at the earliest possible date.

As stated in our Comments, AT&T welcomes DoD's constructive proposals to "compress" some of its operations in the 1755-1850 MHz band into the 1780-1850 MHz portion and relocate other operations out of the 1755-1850 MHz band, a transition that the DoD predicts could be accomplished in 5 years at a cost of $3.5 Billion.[9] In addition, AT&T appreciates the extensive collaboration between the Commission, NTIA and DoD to timely prepare the 1755-1780 MHz band for auction.[10] Still, more information is needed about the DoD systems that would remain in 1755-1780 MHz, to evaluate relocation over time and to determine whether these systems can reasonably share commercial mobile spectrum and if so, how. Moreover, this proposal, like the recommendations that come out of the CSMAC working groups, should be considered together with the Congressional directive that NTIA should clear spectrum for commercial use—sharing should only be considered in cases where clearing is not feasible due to technical or cost constraints.[11] As the Commission noted in the NPRM, NTIA did not evaluate the possibility of exclusive non-Federal use of the 1755-1780 MHz band.[12] It is time to do so.

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[9] *See NTIA July 2013 Letter* at 1. Letter from Teresa M. Takai, Chief Information Officer, DoD, to Lawrence E. Strickling, Assistant Secretary for Communications and Information, NTIA, U.S. Dept. of Commerce (July 17 2013). NTIA notes that it has not forwarded two attachments to the DoD letter that have not yet been approved for public release, but that these attachments will be submitted when such approval is received. *Id.* at n.1.

[10] Letter dated October 1, 2013 from Charles T. Hagel, DoD, Penny Pritzker, DoC, Mignon Clyburn, FCC, to Hon. John D. Rockefeller IV, Chairman, Committee on Commerce, Science and Transportation, United States Senate (stating that "on July 17, 2013, DoD proposed to NTIA to make the 1755-1780 MHz band available for commercial use . . .. This proposal would . . . support the FCC's auction deadline, and enable pairing of 1755-1780 MHz with 2155-2180 MHz . . .. As it moves forward with the rulemaking proceeding, the FCC will particularly focus on evaluating and refining the details of DoD's proposed plan . . . to ensure that the agencies are able to develop their transition plans to allow a timely auction.")

[11] 47 U.S.C. § 923(j). Auction proceeds are likely to be higher where clearing is prioritized over sharing, making it unlikely that cost constraints would prevent relocation. Comments of Mobile Future at 6.

[12] AWS-3 NPRM at ¶ 9.

In any case where clearing proves to be technically infeasible, and access to some portion of 1755-1780 MHz must involve sharing, auction participants will need to know which blocks and geographic areas might be affected by protection zones, or whether sharing on a temporal basis will be feasible.[13] The CSMAC working groups have made substantial progress in this regard, but the Commission and NTIA must ensure that there is sufficient clarity and certainty with regards to the terms of any sharing arrangements well in advance of an auction. In particular, additional analysis is needed on the definition and measurement of interference. Better modeling and testing is needed to more accurately represent the real-world interference environment that would exist between Federal and commercial users, including consideration of such effects as clutter, reasonable interference protection limits, and a truly representative LTE system model.[14] Only recently has a process been initiated to allow the release of more Federal system technical characteristics that should permit commercial parties to better understand what can be done to properly model an analysis of real-world interference environments between Federal and commercial users.

C. License Terms and Performance Requirements Should Account for Timing of Spectrum Availability.

AT&T and a number of other commenters generally support the Commission's proposals regarding license term and performance requirements.[15] The proposed requirements, to provide reliable signal coverage and offer service to at least 40 percent of the population within 4 years and to least 75 percent of the population by the end of 10 years, are reasonable and reasonably

[13] *See* Comments of T-Mobile at 8-20.

[14] *See, e.g.*, Comments of Ericsson at 4-5; Comments of CTIA at 24-25; Comments of 4G Americas at 13.

[15] AWS-3 NPRM at ¶¶ 124-129, 134. *See, e.g.* Comments of AT&T at 14-15; T-Mobile Comments at 32-33.

consistent with the requirements that apply to other recent allocations.[16] There was also widespread record support for modifying the penalty for missing the final build out to a "keep what you use" rule, with the license authorization automatically terminated only for any unserved areas.[17] This requirement is more in keeping with the public interest than automatic license termination, in that it represents a sufficient penalty "without the risk of cutting off consumers."[18]

There also was support for ensuring that the timing of build out deadlines takes into account possible delays in obtaining access to the spectrum.[19] It will not be clear, until transition plans have been filed and approved, how long it might take for federal users to relocate out of the bands being reallocated for commercial use. Accordingly, AT&T believes that the FCC should consider starting the build out period on a date certain to be determined in consultation with the NTIA as the final transition date, as the FCC did in the 700 MHz band when the DTV transition was delayed.[20]

[16] AWS-3 NPRM at ¶¶ 126-129. *See* Comments of T-Mobile at 32. AT&T agrees with Raytheon's suggestion that "populations within Protection Zone[s] should not be used to measure whether build out requirements are met." Comments of Raytheon at 38.

[17] *See, e.g.*, Comments of USCC at 69; Comments of Verizon Wireless at 21; Comments of CCA at 9-10.

[18] Comments of CCA at 9.

[19] *See, e.g.*, Comments of T-Mobile at 33.

[20] For this reason, USCC suggests that the license term be 15 years, just as it was for AWS-1 licenses. Comments of USCC at 67.

D. The Commission Should Assign AWS-3 as EA Licenses.

The Commission's proposal to assign the AWS-3 spectrum at 1755-1780 MHz and 2155-2180 MHz in paired 5 x 5 MHz blocks enjoyed broad support.[21] The Commission's proposal to license AWS-3 on an EA basis[22] was also widely supported.[23] As the Commission stated, EAs represent "a natural market unit for local or regional service areas."[24] Moreover, because EAs represent a "close match" to the geographic licensing scheme used in the adjacent AWS-1 and AWS-4 bands, the adoption of EAs in AWS-3 "may therefore result in more efficient opportunities for spectrum to be put to use where needed."[25] In addition, EAs nest within and may be aggregated into MEAs and REAGs, which would accommodate a system of hierarchical package bidding.[26] And as Verizon Wireless noted, "EA's are sufficiently small to allow both for entry by small wireless providers and network deployment on a granular basis," without being so small as to be inefficient, raising the cost, both in terms of delay and transactions costs, of aggregating efficient sized footprints, costs that ultimately are borne by consumers.[27] EAs

[21] AWS-3 NPRM at ¶ 47. *See, e.g.,* Comments of Mobile Future at 15; Comments of T-Mobile at 28. VZW proposed assigning 10 x 10 MHz blocks in addition to 5 x 5 MHz pairs, noting that in LTE, 10 x10 MHz pairs allow for far greater capacity and data speeds than 5 x 5 MHz pairs, and that contiguous 10 x 10 MHz carriers are more efficient than 10 x 10 MHz carriers created through carrier aggregation. Comments of VZW at 15.

[22] AWS-3 NPRM at ¶¶ 50-52.

[23] *See, e.g.,* Comments of T-Mobile at 29; Comments of Verizon Wireless at 13-15; Comments of Mobile Future at 15.

[24] AWS-3 NPRM at ¶ 51.

[25] *Id.*

[26] Comments of AT&T at 12, n.24. The use of hierarchical package bidding (HPB) in an AWS-3 auction would likely increase bidding and competition in the auction, as it is an auction feature that accommodates a variety of auction strategies while minimizing the "exposure problem." *See, e.g.,* In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum through Incentive Auctions, GN Docket No. 12-268, Comments of AT&T at Ex. B (filed Jan. 25, 2013), Reply Comments of AT&T at Ex. C (filed March 12, 2013).

[27] Comments of Verizon Wireless at 14.

strike an appropriate balance—small enough to encourage new entry by smaller operators, and packaged in a way that would permit more efficient aggregation by carriers seeking a regional or national footprint.

While there are a few commenters who oppose EA licensing in favor of much smaller CMA licensing,[28] the reasons they offer for using CMAs are unconvincing. Despite the protestations of RWA and USCC, the Commission is not "statutorily obligated" to license on a CMA basis.[29] Over the years, the Commission has auctioned mobile wireless spectrum licenses in all sizes, CMA, EA, MEA, REAG, BTA and MTA. Some mobile wireless licenses were assigned on a nationwide basis, like the PCS G Block. Section 309(j) merely directs the FCC to "promote economic opportunity for a wide variety of applicants," and ensure that small and large bidders "are given the opportunity to participate in the provision of spectrum-based services."[30] Offering spectrum licenses on an EA basis, in an open auction in which all may participate, would clearly fulfill the FCC's statutory obligation in this regard.

Similarly, arguments by CCA and USCC that the use of CMA's would limit the extent to which protection zones might inhibit deployment in AWS-3 do not withstand scrutiny.[31] CCA for example, argues that CMA-based licensing would "minimize the effect of federal exclusion zones" by creating a "larger number of licenses that lack such encumbrances."[32] Cutting a pizza in eight slices rather than six does not yield more pizza, all things being equal. Similarly,

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[28] *See, e.g.* Comments of CCA at 7-9; Comments of RWA at 3-6; Comments of USCC at 27-36.

[29] Comments of RWA at 4; Comments of USCC at 35-36.

[30] 47 U.S.C. § 309(j)(3), (4).

[31] Comments of CCA at 8-9; Comments of USCC at 31.

[32] Comments of CCA at 8-9.

whether one divides the U.S. into 176 EAs, or 734 CMAs, this does not affect the total area in the AWS-3 band that might be covered by a protection zone. How much of the AWS-3 service area is affected by protection zones will be determined by the distance needed to protect a federal incumbent from interference from commercial AWS-3 operations and vice versa. Moreover, using CMA-sized licenses rather than EAs would likely create a greater number of AWS-3 service areas that *do include a portion of a protection zone,* a fact that might multiply the number of licensees who need to coordinate with federal incumbents, adding complexity and potential delay.

Nor is it likely that CMA-based licenses would increase auction revenues. As Verizon Wireless points out, in the last AWS auction, the B-F blocks, which are based on EAs and larger REAGs, fetched substantially higher prices than the A Block, which was based on CMAs.[33] Indeed, those who favor cutting the AWS-3 band into smaller CMAs do not favor CMAs because they wish to pay more for spectrum. They are banking on the assumption that they will not have to compete very hard for CMA-sized licenses.

As USCC puts it, "competition in major urban areas is likely to be fierce." Dividing the AWS-3 band into CMAs, would allow "bidders who focus on rural areas" to bid only on rural areas "without having to compete against . . . large carriers engaged in this intense competition [for licenses that include urban areas]."[34] Similarly, RWA favors CMAs because it assumes that "[s]mall and rural telephone companies interested in providing localized service to rural areas

[33] Comments of Verizon Wireless at 17, n.37. The Auction 73 result, held up by USCC as an example of a case where CMA licenses sold for higher prices, is not representative, due to the interference impairments on the EA-sized A Block (due to its adjacency to high-powered broadcast licensees on both the uplink and downlink pairs) and the unique economic encumbrances that afflict the upper C Block, restricting the way in which mobile services may be offered by the licensee. Not surprisingly, the B Block spectrum, which was clearly the best spectrum available, received higher bids.

[34] Comments of USCC at 29, 33.

will not have to compete against 'national' companies . . .."[35] Even if it were true that "national" companies "have historically chosen not to serve rural areas"[36] — and it is demonstrably untrue[37]-- it is difficult to see how accommodating bidders who have no "desire to launch service and compete against nationwide carriers"[38] could possibly be expected to foster competition or benefit consumers.

E. Other License Terms.

There was no support for, and widespread opposition to, the proposed "renewal showing" outlined in paragraph 135 of the NPRM. Indeed, there was general agreement that such a showing would be unduly burdensome, costly and unnecessary, and that to base eligibility decisions on a subjective, standardless review of such a filing would be unfair and create uncertainty.[39] At renewal, the Commission can reasonably meet its obligation to ensure that the spectrum is being used in the public interest by confirming that the licensee has met the performance requirements, and otherwise complied with the Communications Act and the

[35] Comments of RWA at 5.

[36] *Id.* at 4.

[37] A comparison of the coverage footprint of the 4 top carriers to the total coverage footprint of all carriers across the United States shows only minor differences, demonstrating that where rural coverage is available, it is highly likely that one or more national providers is present. *See, e.g.,* In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, *Sixteenth Report*, 28 FCC Rcd 3700 (2013)("16th Report") at Appendix C, Map C-20 ("Coverage of the Top 4 Mobile Wireless Service Providers, 2012"), Map C-23 ("Mobile Wireless Digital Coverage, 2012").

[38] Comments of RWA at 4.

[39] *See, e.g.,* Comments of T-Mobile at 33; Comments of USCC at 58; Comments of AT&T at 15-16.

Commission's Rules during the license term.[40] This should be sufficient to obtain renewal expectancy at the end of the term. The "renewal showing" proposal should be rejected.

Similarly, there was no support for, and widespread objection to the concept of an "overlay license" regime.[41] Congress' directive is to clear spectrum for assignment if it is at all feasible to do so. To assign overlay licenses "would be inconsistent with the Spectrum Act's preference to relocate federal users to the maximum extent feasible."[42] Moreover, overlay licenses would create uncertainty about the nature of the rights a licensee could obtain, which is likely to dampen bidding activity in the auction and reduce auction revenues and funding for FirstNet.[43] The Commission should not pursue the idea of "overlay licenses" any further in this proceeding.

II. The Commission Should Pair the 1695-1710 MHz Band with 15 MHz of Downlink Spectrum.

The comments in the record broadly support the Commission's proposal to allocate the 1695-1710 MHz band as uplink spectrum, to be paired with 15 MHz of downlink spectrum. While there appears to be some difference of opinion over precisely which 15 MHz should be allocated and paired with 1695-1710 MHz, there is general agreement that any failure to allocate 15 MHz of spectrum for the downlink pair here would effectively orphan this spectrum, largely destroying its value, both in terms of auction revenue and, more importantly, as a means of addressing the spectrum crunch.[44] Moreover, there is general agreement that it would be

[40] AWS-3 NPRM at ¶136.

[41] *Id.* at ¶ 76. *See, e.g.*, Comments of 4G Americas at 8-10; Comments of T-Mobile at 19-20.

[42] Comments of T-Mobile at 19.

[43] *Id.* at 20.

[44] *See, e.g.*, Comments of T-Mobile at 12-13.

contrary to the public interest, if not Congressional intent, for the Commission to declare that the reallocation of the 1755-1780 MHz band somehow satisfies the Commission's statutory obligation to allocate an additional 15 MHz for commercial wireless services.[45] As CTIA notes, Congress' intent was that the Commission reallocate 15 MHz from *commercial* allocations to go along with the 15 MHz between 1675-1710 MHz to be contributed by NTIA for reallocation.[46]

III. The Commission Should Give Further Consideration to the 2020-2025 MHz Block.

The 2020-2025 MHz block presents a number of questions that may counsel in favor of giving further consideration to the rules for this block. The Commission proposes to allocate this block as uplink, to be consistent with the adjacent AWS-4 uplink at 2000-2020 MHz. The Commission has begun a proceeding, however, to consider a petition from DISH to change the rules for AWS-4 to allow the use of 2000-2020 MHz for uplink or downlink;[47] to the extent that AWS-4 spectrum at 2000-2020 MHz is used for downlink, this could create severe interference issues for a 2020-2025 uplink allocation. Others have suggested that the Commission consider allocating 2020-2025 MHz as an addition to the 2025-2110 MHz band, to help accommodate federal uses to be relocated from 1755-1780 MHz, particularly if 2095-2110 MHz were paired with 1695-1710 MHz, as many have proposed.[48] The Spectrum Act does not require that this 5 MHz be auctioned by February 2015. In view of the questions surrounding the use of this block

[45] *See, e.g.*, CTIA Comments at 21.

[46] *Id.* Given the conflict in the record over the proposal to pair 1695-1710 MHz with 2095-2110 MHz, perhaps the Commission might consider other alternatives, such as 1370-1390 MHz, but it should not orphan the 1695-1710 MHz block by failing to pair it with downlink at all.

[47] *In the Matter of DISH Network Corporation Petition for Waiver of Sections 27.5(j) and 27.53(h)(2)(ii) and Request for Extension of Time*, Public Notice, WT Docket No. 13-225, DA 13-1877 (Wireless Tel. Bur. Sept. 13, 2013) ("*Notice*").

[48] *See, e.g.*, Comments of T-Mobile at 27.

(and the spectrum adjacent to it), the Commission's decisions with regard to service rules for this block should be made in light of the decisions it makes with respect to the AWS-4 proceeding and the decisions it makes in this proceeding with regard to the 2025-2110 MHz band.

IV. The Commission Should Complete this AWS-3 Service Rules Proceeding Promptly and Initiate An Auction Rules Proceeding.

A few parties spend considerable portions of their comments arguing issues that do not belong in this proceeding. The Commission traditionally has considered questions like package bidding[49] in a separate proceeding concerning auction rules, not in a proceeding designed to adopt service rules for a new allocation. Similarly, while the sorts of restrictions on bidding proposed by USCC[50] would be just as plainly anticompetitive and unjustified in any other proceeding,[51] they also are beyond the scope of this one. The Commission should move with haste, however, to open a proceeding to consider rules for the AWS-3 auction as soon as it completes this proceeding on service rules.

V. Conclusion

AT&T applauds the Commission for moving rapidly to develop service rules for the AWS-3 band. The Commission has a rare opportunity to adopt a band plan and service rules that effectively would add at least 50 MHz of contiguous, prime, paired spectrum to the 90 MHz AWS-1 allocation.

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[49] *See, e.g.*, Comments of USCC at 36-49. *But see*, Comments of VZW at 16-17 (Package bidding should be allowed as it would shield bidders from exposure problems, facilitate more rapid build out and increase participation and bidding competition in the auction). *See also*, Comments of AT&T Inc., *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268 (filed Jan. 25, 2013), at pp. 7-9, and Exhibit B, *Design of the FCC Incentive Auctions*, Yeon-Koo Chee, Phil Haile and Michael Kearns.

[50] Comments of USCC at 50-53.

[51] *See*, Comments of AT&T, *Policies Regarding Mobile Spectrum Holdings*, WT Docket No. 12-269, at 11-12, 59 (Nov. 28, 2012); *see also, id.*, Attachment A at ¶¶ 67-69 (Declaration of Mark Israel and Michael Katz).

The benefits of such an approach should be obvious---to greatly increase the value and utility of the AWS-3 spectrum, to promote competition, and to benefit the more than 300 million users of mobile broadband in the United States by taking a major step toward alleviating the spectrum crunch.

Respectfully submitted,

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