

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Commission Seeks Comment on Licensing Models ) GN Docket No. 12-354  
and Technical Requirements in the )  
3550-3650 MHz Band )

To: The Commission

**REPLY COMMENTS OF  
THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

December 20, 2013

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## Summary

The Wireless Internet Service Providers Association (“WISPA”) submits these Reply Comments to address Comments submitted in response to the Commission’s *Public Notice*.

As the linchpin of its proposed modifications to the Revised Framework, WISPA urges the Commission to allow higher-power operations in rural areas to enable the provision of fixed broadband services to those who have no broadband access today. The record demonstrates strong support for rules allowing higher-power operations that co-exist with small cells, governed by a robust three-tiered Spectrum Access System (“SAS”) that promotes spectral efficiency and flexible use.

On other issues, commenters generally were divided between two camps – large, mobile wireless interests that seek to apply “command-and-control” exclusive licensing requirements in the 3550-3650 MHz band, and those diverse parties, including WISPA, that favor “light touch” Commission regulation with spectrum access dynamically assigned and re-assigned by the SAS. Adopting a two-tiered exclusive licensing model with long-term, renewable licenses will benefit only large carriers that seek to acquire spectrum that, at least in rural areas, they are likely to warehouse. This would foreclose the ability of wireless Internet service providers and others that desire to choose between Priority Access and General Authorized Access (“GAA”) use to help address the unmet demand for fixed broadband services. The Commission should move forward with its Revised Framework, with modifications suggested by WISPA, to make the Citizens Broadband Service spectrum available for many important communications uses and a model for spectrum sharing.

Commenters that recognize the public interest benefits of a three-tiered SAS that dynamically assigns frequencies generally agree on the licensing rules the Commission should adopt. As proposed in the Revised Framework, the Commission should use census tracts as the

geographic license units. For those suggesting that the Commission should license larger areas, WISPA notes that census tracts can be aggregated; for those recommending smaller or microtargeted areas, the Commission can apply its secondary market rules to allow Priority Access licensees to lease, partition and/or disaggregate their spectrum. The Comments reflect strong consensus for 10 megahertz channels.

WISPA and others also believe that the Commission should adopt reasonable limits on the amount of spectrum that should be allocated for Priority Access licenses (“PALs”). In rural areas, Priority Access should be limited to 30 megahertz, leaving 70 megahertz for GAA use. In non-rural areas, Priority Access should be limited to 50 megahertz, leaving 50 megahertz for GAA use. Also, the Commission should limit each Priority Access licensee to 10 megahertz in rural areas and 20 megahertz in non-rural areas.

The Commission should have annual filing windows to grant non-renewable, one-year licenses. Applicants could seek to “stack” licenses up to a maximum of four years. As an essential component to this licensing scheme, the Commission should adopt “use it or share it” rules that allow opportunistic GAA use of spectrum that is not actually being used on a Priority Access basis at a given time. The SAS can log, monitor and report use, and dynamically assign frequencies to protect PALs from harmful interference and to mitigate interference among GAA users.

The Commission should grandfather existing 3650-3700 MHz operations by granting those licensees PALs for areas that correspond to the areas covered by their Universal Licensing System registrations. The Commission should incorporate the 3650-3700 MHz band into the Citizens Broadband Service, but only after a reasonable transitional period.

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The Wireless Internet Service Providers Association (“WISPA”), pursuant to Sections 1.415 and 1.419 of the Commission’s Rules, hereby replies to Comments submitted in response to the Public Notice (“*Public Notice*”) released on November 1, 2013 in the above-captioned proceeding.<sup>1</sup>

**Introduction**

The record shows strong support for open eligibility for Priority Access and flexible use of the 3550-3650 MHz band for the Citizens Broadband Service, including higher power uses for fixed point-to-multipoint broadband and point-to-point backhaul. Permitting higher power use will help wireless Internet service providers (“WISPs”) and others to meet demand for fixed broadband service in rural America, whereas limiting deployment to small cells would ensure that an important spectrum resource remains fallow in much of the country.

Most parties agree with the Commission’s proposal to designate Incumbent Access, Priority Access and General Authorized Access (“GAA”) tiers enabled and enforced by a

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<sup>1</sup> *Public Notice*, “Commission Seeks Comment on Licensing Models and Technical Requirements in the 3550-3650 MHz Band,” GN Docket No. 12-354, FCC 13-144 (rel. Nov. 1, 2013 (“*Public Notice*”). The face of the *Public Notice* specifies a Reply Comment deadline of December 20, 2013. Accordingly, these Reply Comments are timely filed.

dynamic and robust Spectrum Access System (“SAS”) database. A few parties continue to cling to the belief that a two-tiered “command-and-control” system that precludes opportunistic use would somehow benefit the public interest, despite the “unproven” nature of the small cell business model and the Commission’s recognition that the SAS can promote spectrally efficient, dynamic access to spectrum. The private interests of these parties in applying a rigid exclusive licensing regime to the 3550-3650 MHz band should not be elevated over the demonstrable public need for technical flexibility, dynamic spectrum access and the willingness of WISPs and others to quickly make use of spectrum on both a Priority Access and a GAA basis in rural America.

With a few exceptions, commenters generally support the allocation of Priority Access Licenses (“PALs”) and GAA spectrum in unpaired 10 megahertz channels. Most commenters also agree with WISPA that the Commission should reserve a reasonable amount of spectrum for GAA use as well as place reasonable limits on the length of time a PAL holder can hold spectrum in a given market. The record shows strong support for opportunistic use of unused Priority Access spectrum, countering the need for the Commission to adopt and enforce any construction and performance requirements.

Many commenters agree that the 3650-3700 MHz band can be integrated into the rules and SAS governance model the Commission proposes to adopt for the 3550-3650 MHz band. WISPA believes that the concerns of those that oppose this plan can be addressed by granting Priority Access to incumbent 3650-3700 MHz licensees and by allowing a sufficient period to transition to the new regulatory regime.

## Discussion

### I. THE RECORD DEMONSTRATES THE NEED FOR HIGHER POWER OPERATIONS AND THE MEANS TO ACCOMMODATE FLEXIBLE USE IN THE 3550-3650 MHz BAND.

In its Comments filed in response to the *Public Notice*, WISPA documented the unmet demand for fixed broadband services in rural America and the ability of higher-power operations in the 3550-3650 MHz band to help address the wide disparity of broadband service availability that makes rural Americans significantly more unlikely to have access to broadband.<sup>2</sup> WISPA proposed specific technical and licensing rules that would enable this spectrum to successfully provide both Priority Access and GAA higher-power operations in rural areas as well as small cell operations in non-rural areas.

Commenters representing a broad range of interests agreed that the Commission should authorize higher power operations in rural areas. PCIA states that “utilizing the 3.5 GHz Band at higher power levels in rural areas should be encouraged so long as interference is effectively mitigated. It is important that the FCC closely examine any potential opportunity to bring broadband service to rural America.”<sup>3</sup> The Telecommunications Industry Association (“TIA”) similarly suggests that the 3550-3650 MHz band can be used for “fixed wireless broadband access in rural and semi-urban areas, leveraging outdoor small cells, for small cells, indoor small cells, or perhaps even macrocellular use,”<sup>4</sup> adding simply that the Commission “should not require small cells, it should only permit them.”<sup>5</sup> New America Foundation/Public Knowledge (“NAF/PK”) agrees that the Commission should allow higher powered operations in rural areas on both a Priority Access and GAA basis to afford WISPs the choice of how to use the available

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<sup>2</sup> Comments of WISPA, GN Docket No. 12-354 (Dec. 5, 2013) (“WISPA Revised Framework Comments”) at 8.

<sup>3</sup> Comments of PCIA – The Wireless Infrastructure Association and the HetNet Forum, GN Docket No. 12-354 (Dec. 5, 2013) (“PCIA Comments”) at 5.

<sup>4</sup> Comments of Telecommunications Industry Association, GN Docket No. 12-354 (Dec. 5, 2013) (“TIA Comments”) at 6.

<sup>5</sup> *Id.* at 3.

spectrum.<sup>6</sup> KanOkla Communications, a WISP that utilizes the 3650-3700 MHz band, urges the Commission to “adopt a licensing scheme that supports deployment of spectrum-based services to rural America.”<sup>7</sup> Motorola Solutions also acknowledges the benefits that WISPs would attain, suggesting that “[a]dditional higher powered classes of equipment would be useful for both commercial (*e.g.*, WISPs) and critical access users at least in portions of the band.”<sup>8</sup> Even Nokia Solutions (“NSN”) recognizes that “there may turn out to be interest in deploying higher powered systems in areas from incumbent users, *including in rural settings*.”<sup>9</sup>

These Comments, as well as those filed in response to the Notice of Proposed Rulemaking,<sup>10</sup> demonstrate from diverse perspectives the demand for higher power fixed broadband services and the ability of higher power operations in the 3550-3650 MHz band to help meet that demand. Only Ericsson and T-Mobile appear to disagree. Ericsson asserts that the “solutions seem to support a single use case,” presumably small cells,<sup>11</sup> and Verizon similarly predicts that “[a]t least in urban areas, the most likely use case for Tier 2 [Priority Access] operations will be for small cell portions of heterogenous LTE networks.”<sup>12</sup> T-Mobile argues that the 3550-3650 MHz band “should be maximized for small cell use and that use of too-high-powered transmitters by PAL users may defeat that goal.”<sup>13</sup> But as NAF/PK observe, it

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<sup>6</sup> See Comments of New America Foundation and Public Knowledge, GN Docket No. 12-354 (Dec. 5, 2013) (“NAF/PK Comments”) at 15-16.

<sup>7</sup> Comments of KanOkla Communications, Inc., GN Docket No. 12-354 (Dec. 5, 2013) (“KanOkla Comments”) at 4.

<sup>8</sup> Comments of Motorola Solutions, Inc., GN Docket No. 12-354 (Dec. 5, 2013) (“Motorola Solutions Comments”) at 6-7.

<sup>9</sup> Comments of Nokia Solutions and Networks US LLC, GN Docket No. 12-354 (Dec. 5, 2013) (“NSN Comments”) at 7-8 (emphasis added). See also Comments of Alcatel-Lucent, GN Docket No. 12-354 (Dec. 5, 2013) (“Alcatel-Lucent Comments”) at 7 (supporting flexible use, including higher power for fixed wireless access); Comments of Google Inc., GN Docket No. 12-354 (Dec. 5, 2013) (“Google Comments”) at 24 (stating that rules should not “prescriptively prohibit” any use of devices operating with reasonable EIRP limits).

<sup>10</sup> *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Notice of Proposed Rulemaking and Order, 27 FCC Rcd 15594 (2012) (“NPRM”).

<sup>11</sup> Comments of Ericsson, GN Docket No. 12-354 (Dec. 5, 2013) (“Ericsson Comments”) at 2.

<sup>12</sup> Comments of Verizon and Verizon Wireless, GN Docket No. 12-354 (Dec. 5, 2013) (“Verizon Comments”) at 8.

<sup>13</sup> Comments of T-Mobile USA, Inc., GN Docket No. 12-354 (Dec. 5, 2013) (“T-Mobile Comments”) at 13.

is the small cell use case that is “unproven” and the mobile wireless carriers that “have been laggards in breaking beyond a business model premised on macro cells and carrier-provisioned infrastructure would foreclose the innovation and decentralized investment that has been a hallmark of the Wi-Fi boom.”<sup>14</sup> In the face of the demonstrable demand for fixed broadband access in rural areas and the cable industry’s installation of 200,000 hotspots that rely on unlicensed spectrum,<sup>15</sup> unsupported inferences that untried small cells are the “single” or “most likely use case” can be given no credibility. Based on the overwhelming support in the record, the Commission can and should authorize higher power operations to support fixed point-to-multipoint and point-to-point operations in rural areas.

WISPA recommended that the power spectral density rule for higher power operations should conform to Section 90.1321, which sets a peak EIRP power spectral density of 1 Watt/MHz with a maximum EIRP of 10 Watts in any 10 megahertz channel for fixed operations in the adjacent 3650-3700 MHz band.<sup>16</sup> BLiNQ makes a similar proposal, noting that this would “establish “a greater measure of harmonization between the two adjacent bands and could lead to an improved consumer experience in the future.”<sup>17</sup> Alcatel-Lucent expresses support for adopting the same power limits in citing the ability of existing operations to meet interference protection criteria.<sup>18</sup> The record thus far supports adoption of WISPA’s proposal.

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<sup>14</sup> NAF/PK Comments at 9.

<sup>15</sup> *See id.*

<sup>16</sup> *See* WISPA Revised Framework Comments at 10-11.

<sup>17</sup> Comments of BLiNQ Networks, Inc., GN Docket No. 12-354 (Dec. 5, 2013) (“BLiNQ Comments”) at 7. WISPA disagrees with BLiNQ, however, that the Commission should limit the total amount of higher power operations in a geographic area at any one time. *See id.*

<sup>18</sup> *See* Alcatel-Lucent Comments at 7-8.

## II. THE COMMISSION SHOULD ADOPT A THREE-TIERED SPECTRUM ACCESS SYSTEM.

### A. A Three-Tiered Approach that Allows Opportunistic Use Will Promote the Availability of Additional Spectrum in High-Demand Rural Areas.

In the *NPRM* and in the *Public Notice*, the Commission signaled its desire to adopt a three-tiered spectrum model that would enable Incumbent Access, Priority Access and GAA use governed by a robust SAS. Many commenters support this approach,<sup>19</sup> but a few outliers – all from the mobile wireless industry – continue to favor a “strict command-and-control hierarchy” that would exclusively and inflexibly license available spectrum in the 3550-3650 MHz band and preclude GAA and opportunistic uses.<sup>20</sup> Not only do their Comments reflect a desire for a two-tiered system that would leave an important spectrum resource fallow in many rural areas, their views are no longer supported by others in the mobile wireless industry that recognize the benefits of a three-tiered SAS.

T-Mobile favors a two-tiered exclusive licensing approach as “the least complex and most effective way to promote the full deployment of the 3.5 GHz Band.”<sup>21</sup> Qualcomm suggests that an exclusive licensing model is the “quickest way” to open the band for mobile broadband use because underlying technical work is complete.<sup>22</sup> But history does not support these statements. To the contrary, intensive and innovative spectrum use develops ubiquitously – not just in urban areas – when the Commission has made unlicensed or “lightly licensed” spectrum available. As stated in the WISPA Revised Framework Comments, the Commission acknowledged in the National Broadband Plan that:

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<sup>19</sup> See, e.g., Comments of the Consumer Electronics Association, GN Docket No. 12-354 (Dec. 5, 2013) (“CEA Comments”) at 1.

<sup>20</sup> Comments of QUALCOMM Incorporated, GN Docket No. 12-354 (Dec. 5, 2013) (“Qualcomm Comments”) at 2; T-Mobile Comments at 2; NSN Comments at 10; Comments of Verizon at 8-11.

<sup>21</sup> T-Mobile Comments at 2.

<sup>22</sup> Qualcomm Comments at 1-2.

The innovations spurred by unlicensed device usage have occurred because of benefits associated with such usage, including low barriers to entry and faster time to market, that have reduced costs of entry, spurred innovation and enabled very efficient spectrum usage. Taken together, these benefits have allowed many communities, entrepreneurs and small businesses to rapidly deploy broadband systems. Often, as has been the case for many WISPs, this has occurred in rural or previously underserved communities.<sup>23</sup>

Moreover, since the Commission began accepting applications for exclusive licenses in the 3650-3700 MHz band in 2007, the Commission has registered more than 39,000 fixed locations, many of which are used by WISPs for both point-to-multipoint and point-to-point service delivery in rural areas. To be sure, making spectrum available on an unlicensed or “lightly licensed” basis is uncomplicated, effective and expeditious. Meanwhile, much of the traditionally licensed mobile wireless spectrum continues to lie fallow, especially in rural areas. For example, despite having abundant spectrum resources in a large portion of the country, Sprint’s Clear service is available only in major metropolitan markets.<sup>24</sup> While 4G services may be available from major mobile carriers in urban areas, rural areas continue to lack this access – and the reason is not the so-called “spectrum crunch,” but a decision by carriers to focus their resources on more densely populated urban areas.

Founded on a mere “prediction” that foreclosing opportunistic use in 100 megahertz of spectrum will promote certainty and intensive use, NSN proposes a two-tiered model that would preclude GAA use in the 3550-3650 MHz band but would allow it in the existing 3650-3700 MHz band.<sup>25</sup> WISPA strongly believes that the opposite is true – innovative, opportunistic uses over the 150 MHz from 3550 to 3700 will drive spectrum use just as it has in the other bands where unlicensed use is permitted. Further, relegating GAA use to 50 megahertz of spectrum

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<sup>23</sup> WISPA Revised Framework Comments at 5, *citing* “Connecting America: The National Broadband Plan” (Mar. 16, 2010), at 97.

<sup>24</sup> See <http://www.clear.com/coverage> (last visited Dec. 15, 2013).

<sup>25</sup> NSN Comments at 10.

that would be shared with Incumbent Access and Priority Access users unreasonably shifts the balance of licensed and unlicensed spectrum to a model that favors “command-and-control” regulation that results in spectrum warehousing, inefficient spectrum usage and a lack of build-out in rural areas.

The Commission should reject the transparent attempt of Verizon to foreclose GAA use. Couching as a “transitional framework,” Verizon asks the Commission to permit only Priority Access in the 3550-3650 MHz band until the uncertainties and technical risks of the SAS are determined.<sup>26</sup> As part of this plan, and in reliance on unfounded claims that GAA equipment is “vulnerable to hacking,” Verizon asks the Commission to “establish certification for GAA devices that preclude their hardware from having the capability of tuning to the frequencies reserved for Tier 1 [Incumbent Access] and Tier 2 [Priority Access] use.”<sup>27</sup> Combined with its proposals to allocate a substantial portion of the 3550-3700 MHz band for long-term, large-area use with indefinite renewal expectancy, and restricting operations to LTE, Verizon’s transitional plan can reasonably be viewed as a ploy to embed its operations for an indefinite period and then claim incumbency when the Commission adopts GAA rules. At that point, it can be expected that Verizon and others would continue to press for hardware restrictions that prevent GAA equipment from opportunistic “use it or share it” frequency use. The Commission should not take the drastic steps suggested by Verizon but, as is the case with the TV white space, the Commission should require full testing of any equipment and SAS databases for functionality, accuracy and security before certifying them and accepting any PAL applications.<sup>28</sup>

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<sup>26</sup> See generally Verizon Comments.

<sup>27</sup> *Id.* at 9.

<sup>28</sup> WISPA plans to actively participate in any multi-stakeholder working groups the Commission may convene. See CEA Comments at 4-5; Comments of the Wireless Innovation Forum, GN Docket No. 12-354 (Dec. 5, 2013) at 2.

Necessarily, establishing a new regulatory model that enables spectrum access by rule and not by license conditions involves a high degree of complexity and may take some time to implement. While the need for immediate access to spectrum is readily apparent in rural areas, greater public benefit will flow from an SAS-managed database that incorporates diverse uses, technical and operational flexibility and interference mitigation. The transparent, short-sighted and archaic views of a few spectrum behemoths should not restrict the Commission from achieving the long-term public interest benefits that will inure from a carefully crafted, robust three-tiered SAS that will enable and enforce both small cell and high powered uses through dynamic frequency assignment and interference mitigation.<sup>29</sup>

**B. The Spectrum Access System Should Incorporate Dynamic Frequency Assignment Capability and Other Features to Promote Spectrally Efficient Use Across Multiple Access Tiers.**

Of those parties advocating a three-tiered SAS, some disagree that the SAS should be sufficiently intelligent and robust to incorporate principles such as dynamic spectrum access and other technical capabilities. Google asks the Commission to go beyond using the SAS as a spectrum management device and to empower the SAS to also license geographic areas based on terrain and propagation characteristics. WISPA believes that the SAS should have the ability to use terrain, propagation characteristics and other criteria to assign spectrum dynamically and to incorporate interference protection capabilities, but the SAS should not be used as the sole method, in lieu of census tracts, to define areas licensed for Priority Access.

Dynamic frequency assignment via an SAS offers significant benefits. As discussed by NAF/PK, these include (a) better protection of Incumbent Access operations, (b) “more intensive

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<sup>29</sup> KanOkla proposes a two-tiered system of Incumbent Access and GAA only, without any Priority Access licensing. See KanOkla Comments at 3. WISPA believes that this model would not afford rural WISPs and others the choice between exclusive licensing or opportunistic use, and thus offers no ability for operators to obtain the benefit of interference protection that would be present in a three-tiered system.

and productive use” of the band, (c) the “coexistence of small cell and higher power users in rural areas,” and (d) the incentive to develop common standards and interoperability among Priority Access and GAA users.<sup>30</sup> By contrast, non-dynamic frequency selection equipment would need to be laboriously and manually re-tuned to avoid causing harmful interference to a same-tier or a higher-tier user.<sup>31</sup> This manual approach would disrupt service to consumers, increase equipment and labor costs and would be very slow to react to changes in the interference environment.

Spectrum Bridge, a leader in the development of spectrum databases to manage and exchange spectrum, supports an SAS that can dynamically assign spectrum in the 3550-3650 MHz band.<sup>32</sup> Spectrum Bridge observes that the SAS that Ofcom adopted for the TV band in the United Kingdom incorporates variable maximum power limits and variable emission limits classes.<sup>33</sup> Alcatel-Lucent agrees that dynamic spectrum assignment is feasible.<sup>34</sup> Google,<sup>35</sup> NAF/PK<sup>36</sup> and Motorola Solutions<sup>37</sup> are among other commenters that ask the Commission to require devices and the SAS to assign spectrum dynamically.

WISPA discussed the variables that should be incorporated into the SAS, including geographic location, channel width, EIRP, antenna height, antenna polarization, antenna azimuth

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<sup>30</sup> NAF/PK Comments at 22-23. *See also* Comments of IEEE Dynamic Spectrum Access Networks Standards Committee, GN Docket No. 12-354 (Dec. 5, 2013)

<sup>31</sup> WISPA is puzzled by T-Mobile’s statement that the SAS would require a base station to go off-air while it is re-tuned to a different frequency block. *See* T-Mobile Comments at 10. In support of this point, T-Mobile relies on a nine-year-old case involving public safety spectrum in the 800 MHz band. Given the technological advances in the past nine years and the wider tuning range of higher frequency equipment, WISPA believes that new SAS-controlled 3550-3700 MHz band equipment will have the capability to immediately and automatically shift to any available frequency within the 3550-3700 MHz band.

<sup>32</sup> *See* Comments of Spectrum Bridge, Inc., GN Docket No. 12-354 (Dec. 2, 2013) (“Spectrum Bridge Comments”) at 5.

<sup>33</sup> *See id.* at 6.

<sup>34</sup> *See* Alcatel-Lucent Comments at 8.

<sup>35</sup> *See* Google Comments at 11.

<sup>36</sup> *See* NAF/PK Comments at 5.

<sup>37</sup> *See* Motorola Solutions Comments at 1.

and antenna beamwidth.<sup>38</sup> WISPA also recommended that the SAS have the ability to monitor, log and report actual frequency use to enable opportunistic use and to assign frequencies in the most spectrally efficient manner.<sup>39</sup> BLiNQ generally agreed that these variables would help inform the SAS's ability to calculate the interference environment.<sup>40</sup>

Not surprisingly, parties that favor an exclusive licensing scheme also would limit the capabilities and benefits inherent in an SAS that assigns spectrum dynamically. Verizon, as discussed above, would have the Commission impose restrictions that would prevent GAA devices from having the ability to tune to frequencies that they urge be reserved solely for Priority Access use.<sup>41</sup> AT&T and T-Mobile recommend that PALs be issued for specific frequencies, and that the SAS should have a policy manager's role that identifies when spectrum is available for use, but does not modify or control PAL operations.<sup>42</sup> AT&T argues that "[a]uthorizing the SAS to change the spectrum assignments for such a PAL is likely to impair the ability of the licensee to manage such an integrated [HetNet] network."<sup>43</sup> WISPA, however, believes that overall HetNet management would not be significantly harmed and that denying the overall SAS frequency-management benefits that would otherwise accrue to all operators, including Verizon, AT&T and T-Mobile would have a net negative effect on the spectral efficiency and the innovative use of the entire 3550-3700 MHz band.

Building on the TV white space geolocation database example, the Commission can and should take the next step in spectrum management by authorizing a robust, three-tiered SAS that enables and enforces classes of use and promotes flexible deployment and use. Adopting this

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<sup>38</sup> See WISPA Revised Framework Comments at 19.

<sup>39</sup> See *id.*

<sup>40</sup> See BLiNQ Comments at 15.

<sup>41</sup> See Verizon Comments at 9.

<sup>42</sup> See Comments of AT&T Services Inc., GN Docket No. 12-354 (Dec. 5, 2013) at 5; T-Mobile Comments at 7, 11. See also Ericsson Comments at 3.

<sup>43</sup> AT&T Comments at 5.

new spectrum model is essential for the 3550-3650 MHz band and for the future of spectrum management in the United States and around the world.

### **III. THE RECORD GENERALLY DEMONSTRATES SUPPORT FOR THE REVISED FRAMEWORK.**

#### **A. The Commission Should Expand Eligibility to Include All Commercial Entities.**

Most commenters supported the Commission’s proposal to open eligibility for Priority Access use of the 3550-3650 MHz band.<sup>44</sup> BLiNQ observes that expanding access “can encourage innovative and other uses requiring investment certainty.”<sup>45</sup> CEA states that allowing only “mission critical” uses in the Priority Access tier and relegating commercial operations to the GAA tier would risk underutilization of the band.<sup>46</sup> WISPA agrees that expanding eligibility to include all commercial entities would increase use of the band in rural and non-rural areas, stimulate greater competition among equipment manufacturers and enable beneficial economic growth, without compromising the ability of utilities and others to access the band for “mission critical” uses.

The Utilities Telecom Council (“UTC”) opposes open eligibility, and instead supports limiting Priority Access eligibility to mission critical communications.<sup>47</sup> UTC explains that expanding eligibility increases the likelihood for congestion, interference and auctions in which

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<sup>44</sup> See, e.g., Alcatel-Lucent Comments at 2; AT&T Comments at 3; Comments of Neptuno Media, Inc. d/b/a/ Neptuno Networks, GN Docket No. 12-354 (Dec. 5, 2013) (“Neptuno Comments”) at 4; NAF/PK Comments at 5; NSN Comments at 4; Qualcomm Comments at 3; Spectrum Bridge Comments at 2. PALs should be non-common carrier licenses outside the scope of the foreign ownership restrictions of Section 310(b) of the Communications Act of 1934, as amended. Cf. Comments of Federated Wireless, LLC, GN Docket No. 12-354 (Dec. 5, 2013) (“Federated Comments”) at 14. At most, the Commission should require that an applicant submit and keep current its ownership report (Form 602).

<sup>45</sup> BLiNQ Networks Comments at 5.

<sup>46</sup> See CEA Comments at 3.

<sup>47</sup> See generally Comments of the Utilities Telecommunications Council, GN Docket No. 12-354 (Dec. 5, 2013) (“UTC Comments”). See also Motorola Solutions Comments at 2 (suggesting that portions of band be reserved for “users with critical quality-of-service needs”).

utilities will be unable to compete for spectrum.<sup>48</sup> WISPA respectfully disagrees. Based on its review of the record, WISPA believes that the public interest instead supports expanding eligibility to accommodate the spectrum needs of rural Americans and to address the congestion and interference that exists in other bands. Further, it will take many years before UTC's concerns might be realized, especially if a dynamic spectrum assignment capability is utilized to manage spectrum efficiently and to mitigate interference. As explained by Alcatel-Lucent, utilities would have the ability to access the secondary market to serve microtargeted areas with spectrum in the 3550-3650 MHz band – PAL holders could lease or partition discrete areas to utilities and any other third party in order to meet their internal or external communications needs.<sup>49</sup> In sum, there are readily available alternatives that can enable utilities' access to spectrum which are preferable to limiting eligibility for PALs in the 3550-3650 MHz band. In the future, WISPA notes that the Commission is considering expanding eligibility in the 4.9 GHz band to enable utilities and other critical infrastructure users to obtain licensing rights in that band.<sup>50</sup> This may provide critical information infrastructure interests access to 50 megahertz of spectrum.

**B. The Commission Should Adopt Licensing Rules that Will Promote Flexible and Intensive Spectrum Use.**

The Commission's Priority Access licensing scheme must be based on a number of interrelated rules that balance the incentives for licensed spectrum use with opportunities for substantial GAA use, including use of Priority Access spectrum on a "use it or share it" basis. WISPA recommends a modified Revised Framework, as shown in the following table:

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<sup>48</sup> See UTC Comments at 1.

<sup>49</sup> See Alcatel-Lucent Comments at 6.

<sup>50</sup> See *Amendment of Part 90 of the Commission's Rules*, Fourth Report and Order and Fifth Notice of Proposed Rulemaking, 27 FCC Rcd 6577 (2012).

	<b>3550-3650 MHz Band</b>	<b>3650-3700 MHz Band</b>
<b>License Geographic Unit</b>	Census tract	Existing locations for existing licensees (grandfathered) Census tracts elsewhere
<b>Channel Size</b>	10 MHz	10 MHz
<b>Maximum Priority Access Spectrum Allocation</b>	30 MHz – rural 50 MHz – non-rural	Grandfathered registrations
<b>Single-Entity Priority Access Cap</b>	10 MHz – rural 20 MHz – non-rural	Priority Access and GAA except where grandfathered
<b>License Term</b>	One year “stackable” to four consecutive years	Existing license term for grandfathered registrations; same as 3550-3650 MHz for subsequent Priority Access licensees
<b>Renewable License Terms</b>	No	No; existing license terms grandfathered as PALs for registered locations
<b>Build-out Requirements</b>	None	None
<b>“Use it or Share it”</b>	Yes	Yes

### *Geographic Licensing Unit*

The record reflects a wide range of views on the size of the geographic unit that should be licensed for Priority Access. Some argue that census tracts are too small,<sup>51</sup> and others ask the Commission to adopt a more granular license area<sup>52</sup> or a license area that is dynamically set based on requested technical parameters and managed by the SAS.<sup>53</sup> Alcatel-Lucent observes that using census tracts can be problematic because they may change over time,<sup>54</sup> and both

<sup>51</sup> See NSN Comments at 5; PCIA Comments at 4 (suggesting Cellular Market Areas or other larger geographic areas); T-Mobile Comments at 6-7 (proposing counties)

<sup>52</sup> See NAF/PK Comments at 19 (proposing census block groups); Comments of Microsoft Corporation, GN Docket No. 12-354 (Dec. 5, 2013) (“Microsoft Comments”) at 6; Motorola Solutions Comments at 9 (proposing 100 meter x 100 meter “geographic tiles”). Smaller census blocks groups may be appropriate for non-rural areas, but not for rural areas where higher power uses could be constrained.

<sup>53</sup> See Google Comments at 2.

<sup>54</sup> See Alcatel-Lucent Comments at 5.

Google and Verizon correctly note that interference protection issues become more acute as license areas become smaller.<sup>55</sup>

WISPA continues to believe that the Commission should use census tracts as the geographic unit for PALs. The range of views suggests that, while not perfect, census tracts probably strike the appropriate balance with regard to size and are therefore the best alternative. Further, for those commenters that desire larger license areas, they can acquire PALs for multiple contiguous census tracts and/or lease spectrum in nearby areas. For those prospective spectrum users that seek a smaller Priority Access service area or microtargeted uses, they should be permitted to lease, partition or disaggregate spectrum from PAL holders upon notice to the Commission.<sup>56</sup>

While admirable, Google's proposal to authorize spectrum use based solely on the SAS and not on any baseline geographic component<sup>57</sup> would introduce a layer of complexity that would be difficult to implement and maintain over time as frequency assignments are initially determined and then dynamically re-assigned over time. Initially, all applications would need to be reviewed for mutual exclusivity on an application-specific, multi-market predicted interference basis rather than a geographic basis. This "daisy-chain" analysis would require time and complexity that would not be necessary under a more straightforward geographic licensing regime. Further, as spectrum use changes and intensifies, it may not be possible to assign new spectrum that replicates the same coverage area because other Incumbent Access and/or Priority Access users may be occupying spectrum in nearby markets that alters the areas where the same coverage can be provided. Geographic licensing places a necessary limitation on the demands

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<sup>55</sup> See Google Comments at 7; Verizon Comments at 7.

<sup>56</sup> For outdoor use, the Commission may wish to establish a minimum size of areas that may be partitioned or disaggregated.

<sup>57</sup> See Google Comments at 2, 17-18.

placed on the SAS to perform dynamic spectrum re-assignment duties and ensure that new spectrum with the same geographic coverage characteristics is always available.

To the extent that the boundaries and locations of census tracts may change over time, the Commission can simply license census tracts according to the census tracts existing at a specific point in time (*e.g.*, the census immediately preceding the initial PAL filing window), and not adjust the license areas over time if they change. The Commission has taken a similar approach in licensing Basic Trading Areas for the PCS, 800 MHz SMR and LMDS services by designating a specific edition of the Rand McNally *Commercial Atlas and Marketing Guide* as the static reference.<sup>58</sup> The Commission can fix census tracts as the geographic license unit as of date certain and maintain that regime even if the boundaries of the census tracts are modified over time.

### *Channel Size*

Commenters generally agree that PALs should be granted in unpaired 10 megahertz channels,<sup>59</sup> and that PAL holders should have the ability to “stack” licenses up to a reasonable cap and for a reasonable period of time. A few commenters suggest that the Commission should adopt larger channel sizes,<sup>60</sup> and another asks the Commission to grant licenses in 5 megahertz channel sizes.<sup>61</sup> The general consensus is that the Commission should adopt its plan to grant licenses in the 3550-3650 MHz band in unpaired 10 megahertz channels. To the extent they wish to use less than a full 10 megahertz channel for backhaul or other purposes, parties can enter into

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<sup>58</sup> See, *e.g.*, *Amendment of Parts 21 and 74 of the Commission’s Rules with Regard to Filing Procedures in the Multipoint Distribution Service and the Instructional Television Fixed Service*, 10 FCC Rcd 9589, 9608 (1995).

<sup>59</sup> See Alcatel-Lucent Comments at 6; AT&T Comments at 3; Google Comments at 10; Comments of Motorola Mobility LLC, GN Docket No. 12-354 (Dec. 5, 2013) (“Motorola Mobility Comments”) at 9; NAF/PK Comments at 20.

<sup>60</sup> See Ericsson Comments at 8; NSN Comments at 5; Qualcomm Comments at 4, 9.

<sup>61</sup> See BLiNQ Comments at 15-16, n.35

secondary market agreements with PAL holders to lease or disaggregate the desired amount of spectrum.

### ***Priority Access Spectrum***

The WISPA Revised Framework Comments proposed different technical rules for rural areas and non-rural areas to reflect the differences in consumer demand for service – high powered, fixed broadband service for rural areas and additional capacity for cellular offload and backhaul in non-rural areas to support mobile services. As discussed *supra*, a number of parties supported higher power operations in rural areas.

WISPA also proposed limits on the amount of Priority Access spectrum that would be licensed in any given area, recommending a maximum of 30 megahertz for Priority Access licensing in rural areas and a maximum of 50 megahertz available for Priority Access in non-rural areas.<sup>62</sup> Other parties made similar proposals. For example, Microsoft asked the Commission to reserve at least 50 megahertz for unlicensed GAA nationwide,<sup>63</sup> and NAF/PK similarly recommend an initial reservation of 50 percent of the spectrum for GAA.<sup>64</sup> Spectrum Bridge suggests that Priority Access be capped at one-third or one-half of the available spectrum in a given market.<sup>65</sup> By contrast, AT&T proposes a Priority Access tier of 70 megahertz<sup>66</sup> and T-Mobile proposes a Priority Access tier of 60 megahertz.<sup>67</sup> WISPA believes that the views of these major mobile wireless companies reflect a continuing adherence to an exclusive license regime that would sharply limit GAA use, especially in rural areas, and thus should be rejected.

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<sup>62</sup> See WISPA Revised Framework Comments at 14.

<sup>63</sup> See Microsoft Comments at 4.

<sup>64</sup> See NAF/PK Comments at 9-11.

<sup>65</sup> See Spectrum Bridge Comments at 5.

<sup>66</sup> See AT&T Comments at 6.

<sup>67</sup> See T-Mobile Comments at 3.

Based on the record, commenters generally favor setting aside about half of the spectrum for Priority Access and the remaining half for GAA use. In rural areas, WISPA believes that there will be less interest in Priority Access exclusive licensing such that only 30 megahertz should be allocated for PAL use, leaving 70 MHz for GAA use.<sup>68</sup>

### ***Priority Access Cap***

Many commenters did not address the issue of PAL spectrum caps, presumably favoring unlimited Priority Access licensing to a single licensee in a given area. By contrast, WISPA<sup>69</sup> and other parties<sup>70</sup> recommended that the Commission impose “reasonable” limits on the amount of spectrum a single PAL holder could have at any one time in a given license area. For example, NAF/PK recommended a 20 megahertz spectrum cap for a licensee in a given area, noting that with a 50 megahertz limit on Priority Access spectrum three entities could hold PALs in a given geographic area.<sup>71</sup> Under WISPA’s proposals to cap total Priority Access spectrum at 30 megahertz in rural areas and 50 megahertz in non-rural areas and to limit licensees from holding PALs for more than 10 megahertz in rural areas and 20 megahertz in non-rural areas, up to five licensees could hold PALs in each non-rural area and up to three could hold PALs in each rural area. These entities also could enhance their spectrum access by deploying on a GAA basis. Accordingly, WISPA continues to believe that imposing reasonable spectrum caps on PAL holders is appropriate to prevent warehousing and foreclosure of others who desire the benefits of Priority Access use.

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<sup>68</sup> As discussed *infra*, Priority Access spectrum that is not actually being used in a given location – whether licensed or not – should be available for GAA use.

<sup>69</sup> See WISPA Revised Framework Comments at 14.

<sup>70</sup> See, e.g., Microsoft Comments at 6.

<sup>71</sup> See NAF/PK Comments at 20. Two would be able to hold 20 megahertz of Priority Access spectrum and the third would be able to hold 10 megahertz of Priority Access spectrum.

### ***License Term; License Renewal; Build-out Requirements***

Comments regarding the appropriate license term for PALs generally split into two camps – those like WISPA that advocated for one-year, non-renewable terms,<sup>72</sup> and those that ask the Commission to adopt longer terms of up to 10 years.<sup>73</sup> Alcatel-Lucent proposes a hybrid licensing scheme that would include one-year PALs that can be aggregated to four consecutive years and five-year terms that can be aggregated to 15 consecutive years.<sup>74</sup> WISPA believes that the Commission should adopt its proposal for annual filing windows<sup>75</sup> with non-renewable one-year licenses “stackable” for a maximum of four consecutive terms, which will ensure that larger companies with significant financial wherewithal do not acquire long-term licenses to the detriment of smaller companies that desire the benefits of Priority Access.

The Commission should not adopt criteria for license renewal or “keep what you use” rights as proposed by AT&T,<sup>76</sup> and should not impose build-out obligations on PAL holders because “use it or share it” would ensure that the spectrum was either used by the PAL holder or available for GAA users. Those parties arguing in favor of renewal expectancy rights<sup>77</sup> ignore the difficulties and administrative burdens attendant to crafting and enforcing rules that would determine who would obtain license renewal for multiple licenses in 74,000 census tracts. Further, a Priority Access licensee will always have the right to hold PALs for up to four years and will have the annual opportunity to apply for or, in cases of mutual exclusivity, to bid on PALs for succeeding years.

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<sup>72</sup> See, e.g., AT&T Comments at 3-4; Microsoft Comments at 6; NAF/PK Comments at 5; Spectrum Bridge Comments at 2.

<sup>73</sup> See, e.g., Ericsson Comments at 8; NSN Comments at 4-5; Qualcomm Comments at 6.

<sup>74</sup> See Alcatel-Lucent Comments at 4.

<sup>75</sup> See also AT&T Comments at 4.

<sup>76</sup> See *id.* at 5.

<sup>77</sup> See *id.* See also Google Comments at 4; Qualcomm Comments at 3; T-Mobile Comments at 6.

*“Use it or Share it”*

In addition to setting aside a minimum amount of spectrum for GAA use only, the Commission should adopt its proposal to automatically make spectrum available on a GAA basis when the PAL holder is not actually using the spectrum.<sup>78</sup> A broad consensus of commenters agreed to this “essential feature of the Revised Framework,”<sup>79</sup> and the Commission should implement rules adopting this approach.<sup>80</sup>

Ericsson and Verizon oppose opportunistic use of Priority Access spectrum. Ericsson’s objection, however, appears to be borne from a misunderstanding that “[i]f a portion of the band is used opportunistically by GAA, it is unavailable for PA use.”<sup>81</sup> In fact, the opposite is true – Priority Access use will require GAA users to be shifted to other GAA spectrum or, in worst cases, cease providing service. This should allay any concerns that Ericsson may have. Verizon’s proposal to impose restrictions on devices that prevent opportunistic GAA access to Priority Access spectrum “[a]t least for an interim period” threatens to destroy the basic spectrum sharing benefits the Commission envisions and which are possible through an SAS management system that would enable varied and flexible use.<sup>82</sup> That Verizon’s proposal purports to be transitional provides little comfort to those that would need to fight an uphill battle to gain Commission approval for GAA authority once Priority Access licensees are firmly entrenched in the band.

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<sup>78</sup> See *Public Notice* at 11.

<sup>79</sup> NAF/PK Comments at 4. See also AT&T Comments at 6; CEA Comments at 3-4; Federated Comments at 2; Google Comments at 15-16; NAF/PK Comments at 11-12; Spectrum Bridge Comments at 5.

<sup>80</sup> NAF/PK proposes a process by which Priority Access licensees would notify the Commission and/or the SAS administrators within 30 days of initiating service. See NAF/PK Comments at 4. WISPA does not object to this approach as a complement to the automatic dynamic spectrum re-assignment that would occur.

<sup>81</sup> Ericsson Comments at 6.

<sup>82</sup> Verizon Comments at 9.

#### **IV. THE COMMISSION MUST AFFORD PRIORITY ACCESS PROTECTION TO EXISTING 3650-3700 MHz REGISTRATIONS.**

In its previous submissions in this proceeding, WISPA strongly urged the Commission to grant existing 3650-3700 MHz licensees Priority Access status for their existing operations.<sup>83</sup> The ability of licensees to continue to serve the public without being relegated to GAA use and being subject to displacement by PALs and potentially suffer interference from other GAA users remains a paramount concern for WISPA. Among others,<sup>84</sup> these concerns are echoed by KanOkla and Neptuno, two WISPs that have also participated in this proceeding. KanOkla states that “it is not acceptable” to place incumbent 3650-3700 MHz licensees in the GAA tier.<sup>85</sup> Neptuno similarly opines that “integrating the 3650-3700 MHz band by treating incumbent licensees as GAA tier users would cripple the ability of Neptuno and others to continue providing the commercial broadband services that they provide today.”<sup>86</sup> Neptuno further concurs that “grandfathering incumbent 3650-3700 MHz licensees as Priority Access tier users would appear to be the best mechanism to allow incumbent licensees to continue to operate without modifying the terms of their licenses.”<sup>87</sup> NSN agrees, stating that existing 3650-3700 MHz licensees should enjoy protection from GAA use.<sup>88</sup> However, in contrast to the views expressed by NSN and T-Mobile, existing licensees should not have to apply for PALs to replicate their service coverage, but should instead automatically obtain PALs.<sup>89</sup>

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<sup>83</sup> See WISPA Revised Framework Comments at 19-20; Comments of WISPA, GN Docket No. 12-354 (Feb. 20, 2013) at 8, 11; Reply Comments of WISPA, GN Docket No. 12-354 (Apr. 5, 2013) at 9-11.

<sup>84</sup> See, e.g., Spectrum Bridge Comments at 7.

<sup>85</sup> KanOkla Comments at 4.

<sup>86</sup> Neptuno Comments at 6.

<sup>87</sup> *Id.* at 6-7. Neptuno suggests that the geographic exclusion zones proposed for the 3550-3650 MHz band may be extended into the 3650-3700 MHz band. See *id.* at 7. WISPA understands that the exclusion zones described in NTIA’s Fast Track Report are specific to the 3550-3650 MHz band in which shipborne radar transmits, and that any additional fixed exclusion zones would be protected only on co-channel spectrum, as is the case with FSS earth stations in the 3650-3700 MHz band.

<sup>88</sup> See NSN Comments at 10-11; Ericsson Comments at 14.

<sup>89</sup> See *id.*

If existing 3650-3700 MHz licensees are given Priority Access status for their existing registrations and are afforded a reasonable period of time to transition into the SAS, then WISPA agrees that the 3650-3700 MHz band can be combined with the 3550-3650 MHz band to create a single 150 megahertz band with a common regulatory structure.<sup>90</sup> As Google states, “[m]ore contiguous spectrum can support more uses, attract more services, and encourage expansion of the equipment market – all of which will increase the intensity and diversity of 3.5 GHz operations.”<sup>91</sup>

The record demonstrates strong support for grandfathering existing 3650-3700 MHz registrations as Priority Access licenses and including the 3650-3700 MHz band within the regulatory structure for the 3550-3650 MHz band. The Commission should adopt these proposals.

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<sup>90</sup> WISPA proposes a five-year transition period beginning on the effective date of the SAS to install equipment that would comply with SAS registration requirements. *See* WISPA Revised Framework Comments at 20. In addition, any existing 3650-3700 MHz licenses should not be shortened by the transition to the SAS regime.

<sup>91</sup> Google Comments at 13. *See also* Motorola Mobility Comments at 8; Verizon Comments at 4.

## Conclusion

The record in this proceeding reflects strong support for the Revised Framework, with modifications to promote higher powered uses in high-demand rural areas, dynamic accessibility to spectrum and flexibility in spectrum use and licensing, enabled and enforced by a robust three-tiered Spectrum Access System. WISPA respectfully requests that the Commission adopt the proposals described in these Reply Comments.

Respectfully submitted,

### **WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

December 20, 2013

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