In the Matter of Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band

To: The Commission

COMMENTS OF THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

The Wireless Internet Service Providers Association (“WISPA”), pursuant to Sections 1.415 and 1.419 of the Commission’s Rules, hereby submits its Comments in response to the Second Further Notice of Proposed Rulemaking (“FNPRM”) adopted by the Commission on April 17, 2015. ¹

The Commission seeks comment on three distinct issues that were not fully addressed in the new rules for the Citizens Broadband Radio Service. First, the Commission asks how it should determine whether a Priority Access License (“PAL”) is actually in “use” or not in “use.” Under the Commission’s “use-it-or-share-it” rule, PAL spectrum that is not in “use” is available for General Authorized Access (“GAA”) use. Second, the Commission invites input on whether and to what extent it should allow secondary market transactions for PALs. Third, the Commission requests comment on protection criteria for Fixed Satellite Service (“FSS”) earth stations.

As the FNPRM acknowledges, WISPA addressed these issues in the proceedings leading to adoption of the Report and Order. In these Comments, WISPA reiterates its positions and provides additional detail in response to the record and the Commission’s specific questions.

Discussion

I. THE COMMISSION SHOULD ADOPT WISPA’S PROPOSED ENGINEERING DEFINITION OF “USE”

In the Report and Order, the Commission affirmed the principle of authorized opportunistic “use” of spectrum when and where the spectrum is not being used by Priority Access licensees. In so doing, the Commission stated that “Priority Access Licensees should not be permitted to exclude other authorized users unless and until their networks are in use.”

The Commission deferred, however, consideration of how “use” should be defined in this context based on “a wide range of disagreement in the record.” It seeks comment on a number of proposals that it broadly categorizes under three definitional approaches – an engineering definition, an economic definition and a hybrid definition. Based on its review of the record, WISPA maintains its belief that its proposed engineering definition would be the most spectrum-efficient way to determine PAL “use.” This definition considers a PAL channel to be available for opportunistic GAA use when a CBSD has not received 300 end-user data packets within a five-minute interval. To determine where within a census tract that use would be permitted, the

---

2 Report and Order at 25.

3 Id. See also FNPRM at 123.

4 See id. at 124, citing Comments of WISPA, GN Docket No. 12-354 (filed July 14, 2014), at 17.
SAS can create a polygon identifying the coverage area where the PAL is being used based on the engineering data (EIRP, antenna gain and pattern, etc.) provided by each CBSD.\(^5\)

There are a number of benefits to this definition. First, it is based on actual data traffic from actual end-user devices measured over a defined time interval. It therefore ensures that “license-savers” that are merely registered with the SAS do not foreclose opportunistic GAA use when and where PALs are not actually actively exchanging real-world data traffic with end-users. Second, it encourages PALs to be placed in operation and not warehoused for future use, consistent with the Commission’s objective of prohibiting the exclusion of other authorized users. PALs should provide an opportunity for exclusive use, but not convey a right to a licensee to prohibit everyone else from using valuable spectrum. Third, this definition of use can be easily incorporated into the SAS in a transparent, “equitable and non-discriminatory” way that is not subject to manipulation and gamesmanship.\(^6\) In short, this approach is simple, reliable and trustworthy, and can be easily incorporated into the SAS.

InterDigital appears to agree with WISPA that CBSD data, as received by the SAS, should determine when and where a PAL channel is unused and therefore available for GAA use.\(^7\) It suggests that average over-the-air data rates (or the average throughput), peak data rates or usage events should be evaluated by the SAS as usage-determining factors, an approach that is similar to defining “use” according to the transmission of 300 end-user packets in each five-minute interval. Because all radios collect end-user data statistics, this data is available to support a reliable engineering-based frequency “use” decision by the SAS.

---

\(^5\) See 47 C.F.R. § 96.39(c).

\(^6\) FNPRM at 125.

\(^7\) See Comments of InterDigital, Inc., GN Docket No. 12-354 (filed July 14, 2014), at 8.
Other than WISPA, only AT&T actually presented an engineering definition of how channel “use” could be operationally determined by the SAS.\(^8\) While perhaps elegant, AT&T’s proposal to use 3GPP standards for TD-LTE channel occupancy\(^9\) is neither simple nor practical. It relies on a single, mobile-centric standard that will not apply to the thousands (or millions) of other devices that will not use TD-LTE such as higher-power fixed devices that WISPs and utilities use or Wi-Fi devices and other devices that may use a different standard or proprietary technology.

Three other filers discuss engineering methods to determine interference levels experienced by PAL users.\(^10\) Although WISPA acknowledges that controlling interference is important to making effective use of shared spectrum, interference determination is not a sufficient or appropriate metric to determine if a PAL user is making actual “use” of a licensed frequency by delivering service. A CBSD that is exchanging actual end-user data packets with one or more customer end-user devices (in the case of point-to-multipoint use) or one other CBSD (in the case of point-to-point use) is the best example of actual “use,” a principle that WISPA’s proposal recognizes.

Three other commenters suggest that a PAL frequency be considered to be in “use” when the Priority Access licensee notifies an SAS or requests access from an SAS.\(^11\) Although this approach may appear good in theory, to avoid “gaming” the system, SAS “notification” must be defined more specifically. For example, an operator that only needs to log into a web portal to


\(^9\) See FNPRM at 124.

\(^10\) See id. at 123-24 (discussing proposals from Google, Pierre de Vries and Federated Wireless).

\(^11\) See id. at 124 (discussing proposals from Microsoft, the Public Interest Spectrum Coalition and Shared Spectrum).
provide “use” notification may be tempted to claim “use” before an actual CBSD has been deployed and is delivering service to actual end users in the field. By contrast, WISPA’s proposal would enable a deployed CBSD to self-log into the SAS and report actual end-user packet data transmission statistics, a more trustworthy “notification” of actual PAL frequency use.

Other proposed definitions contain serious flaws. Using an “interference limits policy” would only define PAL reception limits, not real-world, two-way data transmission. Further, it would prove challenging when evaluating aggregate interference from multiple devices.\textsuperscript{12} The Commission rightfully expressed discomfort with delegating to a third-party SAS administrator the decision of who would be denied opportunistic access “absent the adoption of an equitable and non-discriminatory methodology” that, in WISPA’s view, will be very difficult to develop and implement using aggregate interference data.\textsuperscript{13}

Especially troubling is Verizon’s proposal that would allow a channel to be determined to be in “use” even when there is no traffic on it.\textsuperscript{14} Although Verizon suggests that a PAL could be used as guard band, adopting this approach would entirely gut opportunistic use because a Priority Access licensee could always claim “guard band” use even when it was warehousing spectrum to foreclose use. WISPA does not see how legal or engineering standards of productive non-use could be developed to separate “bad” warehousing from “good” warehousing, assuming the latter even exists. Moreover, as the Commission implies, the technical rules adopted in the Report and Order are sufficient to protect Priority Access licensees

\textsuperscript{12} FNPRM at 124.

\textsuperscript{13} Id. at 125.

\textsuperscript{14} See id.
from interference. Finally, adopting Verizon’s “guard band” proposal could encourage the production and deployment of low-quality receivers that lack selectivity and thus are overly sensitive to interference.

The economic definition proposed by William Lehr also should be rejected. It is nothing more than a ruse to foreclose opportunistic use when there are engineering bases that can easily allow opportunistic use. Lehr’s options approach would vest in licensees the ability to hoard and warehouse spectrum, outcomes that would be diametrically opposed to efficient spectrum use when and where a licensee is not operating and contrary to the Commission’s embrace of opportunistic use in the Report and Order. The proposal also layers a payment structure on top of the auction regime. Given the potential for seven PALs in 74,000 census tracts, implementing and enforcing an options approach to determine where opportunistic use should not be permitted would be extremely challenging. Lehr’s options approach may have interest in the academic community, but should have no place in a regulatory system designed to encourage efficient spectrum use.

The hybrid definition approach suggested by Federated Wireless would impose a use fee to “incentivize Priority Access licensees to only reserve spectrum that they intend to use.” WISPA believes that an engineering approach based on actual use eliminates the need to reserve spectrum and would be a more accurate reflection of use to determine GAA availability.

In sum, the Commission must draw clear distinctions among 1) actual use of a frequency to deliver service versus interference to a licensed user of a frequency, 2) actual use of a frequency to deliver service versus “affirmatively requesting access” from the SAS to use a PAL,

\[15 \text{ See id.}\]

\[16 \text{ Id. at 127.}\]
and 3) actual use of a frequency to deliver service versus advising a GAA user to stop using a frequency. The record demonstrates the benefits of WISPA’s engineering approach founded on actual, measurable use and exposes the serious flaws inherent in other proposals that, if adopted, would improperly authorize exclusivity for non-use, hoarding and warehousing.

II. THE COMMISSION SHOULD ALLOW LEASING, PARTITIONING AND DISAGGREGATION OF PALS UPON NOTIFICATION TO THE COMMISSION AND THE SAS

The Commission acknowledged in the FNPRM that a number of parties, including WISPA, support the adoption of rules that would allow PALs to be leased, disaggregated and partitioned. However, notwithstanding the Commission’s agreement that secondary market rules “will increase liquidity . . . as well as reduce costs and increase flexibility of use . . . , regarding partitioning and disaggregation,” the Commission’s “initial view is to prohibit such further segmentation of PALs given their relatively small size (census tracts) and limited duration (three years) as well as the availability of significant GAA spectrum in all license areas.” The Commission did not specifically state its position on spectrum leasing for PALs.

WISPA continues to believe that the Commission can and should implement rules that allow for leasing, partitioning and disaggregation. While the size of census tracts in non-rural areas may be small, that is not always the case for rural census tracts, which may cover thousands of square miles. For these larger tracts, there may be multiple broadband providers.

---

18 FNPRM at 128.  
19 See 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) (“Licensing PN”). The Commission noted that census tracts have an “optimum population of 4,000,” and that the largest census tract in the continental U.S. covers approximately 40,000
that desire the exclusivity of PALs in a particular area that conforms to an existing area of operation where more spectrum may be needed. In other cases, the desired areas of operations may straddle two or more census tracts, forcing a party desiring a PAL to acquire multiple PALs even though it only wants to serve a small area of multiple PALs. Without the ability to lease or partition these areas, unused PAL spectrum would be available only for opportunistic GAA use. Similarly, the inability to disaggregate spectrum may compromise business models that do not conform to 10 megahertz channels.

To the extent the Commission believes partitioning or disaggregation might be administratively burdensome, the Commission should adopt WISPA’s proposal to allow PAL holders to provide written notification to the SAS if it enters into a lease, partition or disaggregation agreement. The notice would provide contact information for the non-licensee, the expiration date of the agreement, partitioned area (for partitions) or spectrum disaggregated (for disaggregations) and other basic information, in addition to the registration information that the SAS requires. WISPA believes that leasing, partitioning and disaggregation should not allow a party to exceed its spectrum aggregation cap and that the notification process should be able to enforce this. By notification to the SAS and not the Commission, the agency should have very few administrative burdens which, in any case, would be outweighed by the flexibility accorded to Priority Access licensees and third parties.

square miles. *Id.* at 7; *Report and Order* at 33. See *Licensing PN* at 7 n.38; *Report and Order* at 33 n.224.

20 See *FNPRM* at 128-29.

21 See *id.* at 129.
The Commission seeks comment on whether it should require spectrum exchanges to facilitate secondary market transactions. WISPA does not object to the use of spectrum exchanges, which may prove to be a very efficient way for the secondary market to blossom, but does not believe that spectrum exchanges should be required. Rather, the secondary market should evolve based on market forces that may favor spectrum exchanges, brokers, principal-to-principal relationships or other facilitators.

III. THE COMMISSION SHOULD RIGHT-SIZE EARTH STATION PROTECTION ZONES TO ENABLE MORE EFFICIENT SHARING OF SPECTRUM

In the Report and Order, the Commission found that the 150 km circular protection zone around licensed FSS earth stations in the 3650-3700 MHz band “to be excessively large, overly simplistic, and inefficient given the capabilities of the SAS to predict realistic path loss.” The Commission thus concluded that the analytic framework “similar” to the methodology offered by the Commission in the 3650-3700 MHz band applies to the 3550-3650 MHz band. The Commission will require FSS licensees to register annually with the Commission to report technical information to be included in the SAS.

In the FNPRM, the Commission seeks comment on several alternatives to right-size the interference protection criteria for FSS stations in the 3650-3700 MHz band. As it previously suggested, WISPA favors the sample methodology the Commission offered when it adopted

22 See id.

23 Report and Order at 88.

24 Id.

25 See 47 C.F.R. § 96.17(d).

26 See FNPRM at 129.
initial rules for the 3650-3700 MHz band.\textsuperscript{27} WISPA stated that the Appendix D formula “can be built into the SAS and applied to the entire 3550-3700 MHz band to provide greater flexibility for terrestrial operations,”\textsuperscript{28} a belief apparently shared by the Commission given its codification of the Appendix D methodology for the 3550-3650 MHz band. WISPA maintains its belief that the Appendix D methodology should be incorporated into the Commission’s rules for the 3650-3700 MHz rules as well. Adopting these rules would ensure consistency across the entire 3550-3700 MHz band by applying the same methodology and rules to protect FSS licensees, as determined by the SAS, in a way that promotes efficient and non-interfering spectrum use.

**Conclusion**

The Commission should adopt WISPA’s proposals to define “use,” adopt secondary market rules and conform the methodology for determining FSS protection zones across the 3550-3700 MHz band. These rules would ensure greater flexibility and spectrum-efficient use of the entire 150 megahertz by PALs and GAA users without increasing potential interference.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

July 15, 2015

By:

/s/ Chuck Hogg, President
/s/ Alex Phillips, FCC Committee Chair
/s/ Jack Unger, Technical Consultant

1095 Hilltop Dr. #317
Redding, CA  96003
(866) 317-2851

\textsuperscript{27} See Wireless Operations in the 3650-3700 MHz Band, 20 FCC Rcd 6502 (2005), at Appendix D.  See also Comments of Google, GN Docket No. 12-354 (filed July 14, 2014), at 22.

\textsuperscript{28} See Reply Comments of WISPA, GN Docket No. 12-354 (filed Aug. 15, 2014), at 15.