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

REPLY OF FEDERATED WIRELESS, INC., TO OPPOSITIONS TO PETITIONS FOR RECONSIDERATION

Federated Wireless, Inc. (“Federated Wireless”) offers this reply to the oppositions and responses to petitions for reconsideration filed with the Federal Communications Commission (the “Commission”) regarding the Report and Order for the 3550-3700 MHz band (“Citizens Band”) in the above-captioned proceeding. At this time, there is clear support in the record for the following:

(1) The Commission should grant the petitions that request reconsideration of the power/EIRP limits for Citizens Broadband Service Devices (“CBSDs”), authorizing higher EIRPs for CBSDs which will maximize the coverage and utility of the Citizens Band;

(2) The Commission should grant the petitions that request assignment of Priority Access Licenses (“PAL”) wherever they are needed for quality of service and interference protection reasons, even if only one application for a PAL license is filed for a census tract; and

(3) The Commission should deny the petitions seeking reconsideration of the decision to allow reporting of CBSD locations either by an automated geolocation reporting capability or by a professional installer.

I. THE COMMISSION SHOULD INCREASE EIRP LIMITS FOR CBSDs.

The majority of commenters agree with Federated Wireless that the Commission should increase the power limits contained in Section 96.41(b). Specifically, Verizon, T-Mobile, CTIA, the

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WinForum, Nokia and Motorola each request that the Commission revise Section 96.41(b) to impose EIRP limits of:

- 36 dBm/10 MHz for Category A CBSDs,
- 49 dBm/10 MHz for Category B non-rural CBSDs, and
- 56 dBm/10 MHz for Category B CBSDs.2

The record makes clear that the current EIRP limits for Category A uses are too low for adequate indoor coverage, and the EIRP limits for Category B uses are too low for sufficient outdoor coverage.3 As Verizon has explained, at the increased EIRP limits, CBSDs will be able to provide appreciable indoor and outdoor coverage while still operating at power levels no greater than those employed in typical small cell deployments.4 T-Mobile notes that, as pointed out in Verizon’s petition for reconsideration, relying on EIRP limits to govern CBSD power levels will obviate the need for a separate conducted power limit, as EIRP accounts for the relationship between conducted power and antenna gain.5 Federated Wireless agrees with Verizon and T-Mobile, and encourages the Commission to adopt this proposal.

One commenter, the Wireless Internet Service Providers Association (“WISPA”), opposes the increase of Category B EIRP limits on the grounds that the petitioners “appear to be planning to deploy spectrum-inefficient, interference-prone high-power CBSD networks using omnidirectional


3 See CTIA Opposition at 5.

4 See Verizon Opposition at 3.

5 See T-Mobile Opposition at 7.
antennas,” when best practices for the deployment of an outdoor, wide-area “macrocellular network” dictate the use of high-gain, sectorized antennas. Macrocells are not expected to be deployed in the Citizens Band, so WISPA’s concerns are unclear. The Citizens Band is a small cell band, and even if the EIRP limits are increased as proposed, the band is still not well suited for macrocell uses. Moreover, as Federated Wireless and other commenters have previously explained, in many urban scenarios, the radio node will be situated below local clutter, making the use of high-gain, sectorized antennas impractical and inefficient. It is important to note that the Commission initially adopted both conducted power and EIRP limits for the Citizens Band. CBSDs are not permitted to optionally operate at either the conducted power limit or EIRP limit, they must comply with both limits simultaneously. Therefore, the sectorized deployments WISPA characterizes as “best practices” are alone not sufficient to increase or improve small cell coverage, because use of high gain antennas will require a corresponding decrease in conducted power to comply with the EIRP limit. While Federated Wireless agrees with WISPA that the Citizens Band should be utilized in a way that maximizes spectral efficiency, an increase in the EIRP limit is warranted and will improve utilization of the 3.5 GHz band without resulting in inefficient use of 3.5 GHz spectrum. The Commission should not, as WISPA implies, use power limits to dictate the type of antennas licensees and users deploy in providing service. This is particularly so in the Citizens Band, which the Commission and industry both expect to support robust innovation and a wide array of mobile services.


7 See 3.5 GHz Order, 30 FCC Rcd at 3961, para. 1 (“The 3.5 GHz Band has physical characteristics that make it particularly well-suited for mobile broadband employing small cell technology.”).

On the basis of the strong record supporting reconsideration and revision of Section 96.41(b), Federated Wireless urges the Commission to eliminate the conducted power limits and increase the EIRP limits for CBSDs to the levels described above, which will “strike a practical balance” between allowing Citizens Band users to provide sufficient coverage and maintaining the Citizens Band as a densely utilized service.9

II. THE RECORD SUPPORTS ASSIGNING PAL LICENSES WHEREVER AN APPLICATION IS FILED, EVEN IF ONLY ONE APPLICATION FOR A PAL IS FILED IN A CENSUS TRACT.

CTIA and WISPA agree with Federated Wireless, John Peha, and Motorola that the Commission should revise Section 96.29(d) and issue PALs even in census tracts where only one PAL application is filed.10 As WISPA and CTIA note, the Commission has the authority to assign these licenses on a non-auctioned basis, and in many cases a user may require a PAL to meet its quality of service requirements.11 Federated Wireless observes that no party filed in opposition to this change. The absence of another PAL applicant should not preclude a prospective Citizens Band licensee from gaining access to protected spectrum needed to support the services they intend to deploy. Federated Wireless encourages the Commission to reconsider Section 96.29(d) and adopt a policy of issuing PALs on a non-auctioned basis where there is only one PAL application is filed. Doing so will promote utilization of the Citizens Band in all areas and offer protected spectrum to users who need it, thereby serving the public interest.

9 See 3.5 GHz Order, 30 FCC Rcd at 4026, para. 214.

10 See CTIA Opposition at 6-7; WISPA Opposition at 13-14; see also Petition for Reconsideration on Auction Rules for Priority Access Licenses, GN Docket No. 12-354 (filed July 22, 2015) (“Peha Petition”); Motorola Petition at 5.

11 See WISPA Opposition at 13; CTIA Opposition at 6.
III. THE COMMISSION SHOULD RETAIN THE FLEXIBILITY TO REPORT CBSD LOCATIONS EITHER BY AN AUTOMATED GEOLOCATION REPORTING CAPABILITY OR BY A PROFESSIONAL INSTALLER.

WISPA and Google joined with Federated Wireless in opposing the petition filed by the Satellite Industry Association (“SIA”) and the National Association of Broadcasters’ (“NAB”) seeking reconsideration of Section 96.39(a). This rule allows location information for CBSDs to be reported to the Spectrum Access System (“SAS”) as part of a CBSD’s initial registration by either automated geolocation reporting or a professional installer.\(^{12}\) NAB and SIA requested that the Commission disallow registration of CBSD location of by professional installers and rely solely on mandatory automated geolocation reporting capabilities in all CBSDs, a request that SIA repeats in its opposition to petitions for reconsideration filed by other parties.\(^{13}\)

Federated Wireless agrees with WISPA that it is in the public interest to allow “professional installation in environments where [automated] geolocation may not be possible.”\(^{14}\) Professional installation is vital for Category A CBSDs in particular. Several commenters and the Commission have acknowledged GPS accuracy shortcomings in indoor settings.\(^{15}\) In fact, an industry-certified professional installer may well provide a higher level of accuracy for Category A CBSD location information than would be possible through automated reporting.

Similar to Federated Wireless’s opposition, Google’s opposition discusses the failure of NAB and SIA to analogize CBSD reporting by a professional installer to the data contained in the TV

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\(^{14}\) WISPA Opposition at 9.

\(^{15}\) See, e.g., 3.5 GHz Order, 30 FCC Rcd at 4028, para. 220; Google Opposition at 13; WInnForum Petition at 9-10; Nokia Petition at 13-14.
White Space (“TVWS”) databases, where NAB has identified certain instances of inaccurate information. First, as Google points out, many of the instances of “falsified” information were likely “innocent test entries.”\(^\text{16}\) Second, Google notes that NAB has never identified a single case of harmful interference to a broadcaster from any TVWS device whose location information is inaccurate.\(^\text{17}\) As Federated Wireless has previously pointed out, all stakeholders in the Citizens Band—FSS incumbents, SAS Administrators, and PAL and GAA licensees—will be thoroughly incented to ensure that CBSD geolocation is reported accurately, whether by automated reporting or by professional installation.\(^\text{18}\)

Federated Wireless also agrees with Google that the Commission should not grant SIA’s request that each SAS should have built into it “incorporated verification procedures to check the validity of location data.”\(^\text{19}\) Google and Federated Wireless agree that location verification is more properly addressed during the implementation of the Commission’s framework for certifying SAS Administrators and not by a revision of the Citizens Band rules themselves.\(^\text{20}\)

Federated Wireless disagrees with SIA that if the vertical position of a CBSD is not available at the ±3 meter accuracy level required by Section 96.39(a), then worst-case location assumptions must be employed in the SAS’s calculations.\(^\text{21}\) First, as Federated Wireless has pointed out, the use of worst-case assumptions in interference modeling is likely to lead to overly conservative protection

\(^\text{16}\) Google Opposition at 10-11.

\(^\text{17}\) Id.

\(^\text{18}\) See Federated Wireless Opposition at 11-12.

\(^\text{19}\) SIA Petition at 15.

\(^\text{20}\) See Google Opposition at 14-15.

\(^\text{21}\) See SIA Opposition at 11.
distances, to the detriment of both incumbent and new users of a service.\textsuperscript{22} Second, Federated Wireless has identified a number of methods by which a SAS could possibly verify a CBSD’s location and elevation. For location, the SAS could check the device’s IP address or coordinate with the downstream infrastructure. For elevation, the SAS could calculate a Category B CBSD’s elevation by reference to a detailed terrain elevation database.\textsuperscript{23} For all CBSDs, and for indoor Category A CBSDs in particular, this further highlights the importance of professional installation, which will be able to provide significantly more accurate elevation information than an automated reporting function and eliminate the need to adopt worst-case assumptions. In addition, the question of how a SAS might verify a CBSD’s location, and if and when it would employ worst-case location assumptions, would also be more appropriately resolved during the implementation of the SAS Administrator certification framework, rather than through the imposition of any requirement in the Commission’s rules.

Finally, Federated Wireless joins WISPA in encouraging NAB, SIA, and their members concerned about the protection of FSS earth stations to actively participate in the WInnForum efforts to develop certification standards for professional installers to ensure the FSS interests’ concerns and proposals are addressed.\textsuperscript{24} Collaboration will help ensure that the SAS receives accurate CBSD geolocation information, which is needed both to provide FSS incumbent protection, and to ensure the success of the Citizens Band.

\textbf{IV. CONCLUSION.}

Federated Wireless again commends the Commission for the progress made thus far for the Citizens Band framework. Progress on the Citizens Band continues to gain momentum among


\textsuperscript{23} See Federated Wireless Opposition at 10-11.

\textsuperscript{24} See WISPA Opposition at 11.
potential service providers, equipment manufacturers, and users. To continue this progress, and for the reasons set forth above, the Commission should:

(1) Authorize higher EIRPs for CBSDs, which will maximize the coverage and utility of the Citizens Band;

(2) Assign PALs wherever they are needed for quality of service and interference protection reasons, even if only one application for a PAL license is filed for a census tract; and

(3) Retain reporting of CBSD locations either by an automated geolocation reporting capability or by a professional installer.

Respectfully submitted,

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