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

In the Matter of	)	
	)	
Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band	)	GN Docket No. 12-354

COMMENTS OF THE WIMAX FORUM

The WiMAX Forum® hereby submits its comments in response to the Wireless Telecommunications Bureau's October 23, 2015 *Public Notice* soliciting comment on the Bureau's proposed methodology for determining the Grandfathered Wireless Protection Zone (the "GWPZ") pursuant to recently-adopted Section 96.3 of the Commission's Rules.[1]

1. In the initial *Report and Order* in this proceeding,[2] the Commission elected to incorporate the 3650-3700 MHz band into the larger Citizens Broadband Radio Service ("CBRS"), notwithstanding substantial industry concerns over potential adverse impacts to incumbent 3650-3700 MHz operations.[3] To address those concerns, the Commission adopted a transition plan that was designed, among other things, to "preserve . . . network deployments, including those providing smart grid and WISP services, which have taken root under the

[1] "Wireless Telecommunications Bureau Seeks Comment on An Appropriate Method for Determining The Protected Contours For Grandfathered 3650-3700 MHz Band Licensees," *Public Notice*, DA 15-1208, 30 FCC Rcd 11557 (rel. Oct. 23, 2015)["*Public Notice*"].

[2] Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, *Report and Order and Second Further Notice of Proposed Rulemaking,* 30 FCC Rcd 3959 (2015)["*3.5 GHz R&O*"].

[3] Among those expressing concerns were the WiMAX Forum, which has been an active participant in this proceeding. *See, e.g.* Letter from Brett Heather Freedson to Marlene H. Dortch, GN Docket No. 12-354 (filed Dec. 10, 2014)(reporting on *ex parte* meetings by WiMax Forum, American Petroleum Institute, Utilities Telecom Council, CenterPoint Energy Houston Electric, LLC and Exelon Corporation in which concerns were expressed that "The Part 96 framework, as proposed, threatens to create new, potentially insurmountable obstacles for incumbent users of the 3650-3700 MHz band, strand investment, and frustrate future planned deployments."); Reply Comments of the WiMAX Forum, GN Docket No. 12-354 (filed Aug. 15, 2014); Comments of the WiMAX Forum, GN Docket No. 12-354 (filed July 11, 2014); Letter from Roger B. Marks to Marlene H. Dortch, GN Docket No. 12-354 (filed Sept. 13, 2013).

existing rules governing the 3650-3700 MHz band."[4] To accomplish the goal of preserving legacy deployments, the Commission established a multi-year transition period[5] during which "grandfathered licensees will receive interference protection from other 3.5 GHz Band users operating in the 3650-3700 MHz band segment (i.e., GAA users)" within GWPZs.[6]

2. Newly-adopted Section 96.3 of the Commission's Rules defines the GWPZ as "[a] geographic area and frequency range in which Grandfathered Wireless Broadband Licensees will receive protection from Citizens Broadband Radio Service transmissions."[7] The Commission's *3.5 GHz R&O* delegated to the Bureau and the Office of Engineering and Technology the task of defining the geographic boundaries of the GWPZ.[8] And, with the *Public Notice*, the Bureau has commenced the process of developing that definition.

3. The WiMAX Forum is generally supportive of the approach proposed in the *Public Notice* for providing actual grandfathered operations the interference protection they are entitled to under the *3.5 GHz R&O*. We agree, among other things, that the area of protection around a base station that serves unregistered stations operating in compliance with the power limitation set forth in Section 90.1321(c) of the Rules[9] should be based on "[t]he calculation of the maximum range of an unregistered CPE," which in turn should be "based on the link

[4] *Id.* at 4074 ¶394.

[5] The requirements for qualifying as a grandfathered deployment and the duration of the transition period are set forth in Sections 90.1338 and 96.21(b) of the Commission's Rules.

[6] *3.5 GHz R&O*, 30 FCC Rcd at 4076-77 ¶402.

[7] 47 C.F.R. §96.3.

[8] Section 96.3 of the Rules defines the GWPZ as "[a] geographic area and frequency range in which Grandfathered Wireless Broadband Licensees will receive protection from Citizens Broadband Radio Service transmissions and defined using methodology determined by the Wireless Telecommunications Bureau and Office of Engineering and Technology."

[9] That section provides that "Mobile and portable stations are limited to 1 watt/25 MHz EIRP. In any event, the peak EIRP density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum." 47 C.F.R.§90.1321(c).

budget between an unregistered CPE and the base station using the receiver (RX) sensitivity threshold of the lowest order modulation scheme, and assuming free space loss."[10]

4. However, the WiMAX Forum is troubled that certain of the assumptions made by the Bureau in calculating the area of protection around base stations that serve unregistered stations operating in compliance with Section 90.1321(c) do not reflect actual real-world deployments, and thus fail to achieve the Commission's stated objective of preserving legacy deployments during the transition period.

5. Two assumptions are of particular concern. First, as explained in Appendix A to the *Public Notice*, the Bureau assumes a base station receiver ("RX") sensitivity threshold of -95 dBm for purposes of its calculations. This threshold, it explains, is "the average value for minimum receiver threshold based on equipment specification of the top five most widely deployed base station device." By using an average value, however, the Bureau leaves outside the GWPZ, and thus vulnerable to interference, operating unregistered legacy links back to base stations that are designed with above-average RX sensitivity. The better the base station RX sensitivity threshold, the farther away from the base station an unregistered device can be and still engage in actual communications with the base station. For example, as noted in Table 2 to Appendix D, the third most widely deployed base station in the band bears FCC ID ABZ89FT7632. That base station, as noted in Appendix D, has a RX sensitivity threshold of -103 dBm (*i.e.* 8 dBm better that the sensitivity assumed in the *Public Notice*'s calculation). Thus, were the Bureau to define the GWPZ as proposed in the *Public Notice,* there will be unregistered devices successfully operating outside the GWPZ (transmitting at power levels compliant with Section 90.1321(c), but receivable by the base

[10] *Public Notice,* App. A.

station farther away because the base station has an above-average RX sensitivity threshold). Yet, those unregistered deployments, despite meeting the other pre-requisites for protection under the *3.5 GHz R&O*, will not be receive protection against interference during the transition period under the GWPZ definition proposed in the *Public Notice*.

6. Second, as explained in Appendix A, the Bureau assumes that mobile and portable stations are transmitting at a maximum of 21.5 dBm EIRP. This, the *Public Notice* explains, is the "[a]verage EIRP value for unregistered equipment from type certifications."[11] Again, the problem with using this average figure is that mobile and portable devices that operate at higher power levels (but still within the limitations of Section 90.1321(c)) may be located at a greater distance than reflected by the Bureau's GWPZ model, and would not be entitled to protection. For example, as noted in Appendix D, the devices carrying FCC ID PIDASMAX36 operate with an EIRP of 0.197 Watts, or 23 dBm.[12] All else being equal, a device operating at 23 dBm EIRP can successfully communicate with a base station farther away than one operating at the 21.5 dBm EIRP assumed by the Bureau. Thus, were the Bureau to define the GWPZ as proposed in the *Public Notice,* there will be devices successfully operating outside the GWPZ (because they operate at power levels above average but still compliant with Section 90.1321(c)) that will not receive the interference protection promised by the *3.5 GHz R&O*.

[11] *Public Notice*, Appendix A n.2

[12] Three other devices identified in the table at the bottom or Appendix D also operate at an EIRP in excess of the 21.5 dBm assumed by the Bureau in its calculations – those bearing FCC IDs PIDGWU-200, Q3K-BSA3XS and WQE-703702.

7. While the WiMAX Forum appreciates the Bureau's desire to adopt a simple approach that avoids excessive protection,[13] the Bureau's proposal simply cannot be squared with the Commission's promise in the *3.5 GHz R&O* that the transition process would "preserve . . . network deployments, including those providing smart grid and WISP services, which have taken root under the existing rules governing the 3650-3700 MHz band."[14] Thus, the WiMAX Forum urges the Commission to define the GWPZ for unregistered devices operating at or below the power level specified in Section 90.1321(c) utilizing a RX sensitivity level of -103 dBm and an unregistered device transmit power of 23 dBm EIRP. Apply those corrections to the formula d=10^[((MAPL-92.45)/20)-log(f)] used by the Bureau to calculate the radius of the GWPZ and we can see that viable communications between an unregistered device operating at or below the maximum power level for a mobile or portable station and its base station can be achieved at a distance of 11.2 kilometers.

[13] *See Public Notice* at 2.

[14] *3.5 GHz R&O,* 30 FCC Rcd at 4074 ¶394.

CONCLUSION

8. For the foregoing reasons, the WiMAX Forum urges the Bureau to modify the assumptions underlying its calculation of the GWPZ for unregistered mobile and portable devices and establish 11.2 kilometers as the radius within which legacy service for unregistered devices compliant with Section 90.1321(c) will be preserved.

Respectfully submitted,

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December 28, 2015