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

In the Matter of	)	
	)	
Revision of Part 15 of the Commission's Rules to	)	ET Docket No. 13-49
Permit Unlicensed National Information	)	
Infrastructure (U-NII) Devices in the 5 GHz Band	)	

To: The Commission

PETITION FOR PARTIAL RECONSIDERATION OF THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

The Wireless Internet Service Providers Association ("WISPA"),[1] pursuant to Section 1.429 of the Commission's Rules,[2] hereby respectfully requests partial reconsideration of the March 2, 2016 *Report and Order* in this proceeding.[3] As demonstrated below, the Commission did not fairly consider evidence of critical importance submitted by WISPA and others in this proceeding regarding out-of-band emission ("OOBE") limits in the 5.15-5.25 GHz (U-NII-1) band.[4] Contrary to the Commission's assertion in the *Order*,[5] the record shows that the requested less stringent OOBE limit would not create harmful interference to protected services

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[1] WISPA is the trade association that represents the interests of wireless Internet service providers ("WISPs") that provide fixed wireless broadband services to consumers, businesses and first responders across the country.

[2] 47 C.F.R. § 1.429.

[3] *See Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Memorandum Opinion and Order, ET Docket No. 13-49, FCC 16-24 (rel. March 2, 2016) ("*Order*"). A summary of the *Order* was published in the Federal Register on April 6, 2016, thereby establishing May 6, 2016 as the deadline for filing petitions for reconsideration. *See* 81 Fed. Reg. 19896 (April 6, 2016).

[4] In addition to WISPA, the following parties are signatories to the Consensus Proposal: Alcatel-Lucent (now Nokia), American Petroleum Institute, Cambium Networks, Inc., Fastback Networks, Inc., JAB Wireless, Inc., Mimosa Networks, Inc., Motorola Solutions, Inc. (now Zebra), and the Utilities Telecom Council. *See* Letter of The Wireless Internet Service Providers Association, *et al.*, ET Docket No. 13-49 (filed March 23, 2015).

[5] *See Order* at ¶ 34.

in the adjacent 5.091-5.15 GHz band and that relaxing the limits will further the public interest by promoting broadband deployment and access.

Consistent with proposals in the record below,[6] WISPA asks that Section 15.407(b)(1) be amended as follows (additions shown as underlined text):

> For transmitters operating in the 5.15-5.25 GHz band all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz <u>except that if a transmitter with a directional gain greater than 6 dBi is used, the emissions limit between 5.091 GHz and 5.15 GHz shall be increased by the amount in dB that the directional gain of the antenna exceeds 6 dBi; provided that the directional gain above 6 dBi is oriented at 30 degrees or less above the horizon</u>.[7]

Should the Commission's decision stand, the failure to increase the allowable OOBE limits as requested would unnecessarily hinder the ability of fixed wireless broadband providers to deliver improved service to rural Americans.

Discussion

At the outset, WISPA applauds the Commission for the many improvements it has made to the rules for unlicensed devices in the 5 GHz band, and WISPA greatly appreciates the Commission's adoption of a number of WISPA's proposals in this proceeding. However, in this particular instance, WISPA requests that the Commission revisit its conclusion in the *Order* that it should retain the existing OOBE limit for the 5.15-5.25 GHz band because "WISPA and Fastback have not offered *any analysis* showing that increasing the emissions limit … would not

[6] *See* Letter of WISPA, *et al*., ET Docket No. 13-49 (filed March 23, 2015) ("Consensus Proposal") (proposing identical language); Mimosa Networks, Inc., Petition for Partial Reconsideration, ET Docket No. 13-49 (filed June 2, 2014) ("Mimosa Petition") (proposing similar language in Appendix B); Notice of *Ex Parte* Presentation, Fastback Networks, Inc., ET Docket No. 13-49 (filed Sept. 25, 2015) ("Fastback *Ex Parte*"); Notice of *Ex Parte* Presentation, Fastback Networks, Inc. (filed Oct. 7, 2015) ("Fastback Second *Ex Parte*").

[7] The Commission also should amend Sections 15.205(a) and 15.209 to the extent necessary to implement the proposed change to Section 15.407(b). *See* 47 C.F.R. §§ 15.205(a), 15.209 and 15.407(b).

create an unacceptable risk of interference in the restricted band."[8] The Commission apparently seeks to ameliorate its decision to keep stringent OOBE limits in the 5.15-5.25 GHz band by pointing to its earlier adoption of rule revisions to increase utilization of the U-NII-1 band generally, including "removing the restriction to indoor operation and increasing the permitted power level for U-NII-I devices."[9] But the Commission's rationalization does not alter the real-world consequences and burdensome impact of overly restrictive OOBE limits here, which would be costly, impractical and unmanageable, especially for operators that face congestion in other U-NII bands. Although the Commission points out that the OOBE limits for the 5.15-5.25 GHz band "may not provide all of the benefits that some equipment suppliers desire, and that some equipment manufacturers may find that they need to reduce power below the level permitted under the rules in order to achieve compliance with the OOBE limit below 5.15 GHz,"[10] this statement does not change the fact that a dB-by-dB OOBE relaxation will have no adverse impact on users in the restricted band.

The record does not support the retention of the strict OOBE limits. The Commission did not give sufficient weight to the evidence in the record demonstrating that retaining strict OOBE limits in the 5.15-5.25 GHz band is unnecessary to protect adjacent-band users. WISPA, Fastback, Mimosa and other parties have, in fact, provided the Commission with multiple submissions and *ex parte* presentations, including the Consensus Proposal, demonstrating the need and ability of the Commission to adopt more realistic OOBE standards that would both

[8] *Order* at ¶ 34 (emphasis added).
[9] *Id.* at ¶ 34.
[10] *Id.*

enable improved service to rural Americans and adequately protect radio services in the 5.091-5.15 GHz band from harmful interference.[11]

Indeed, justification for minimal dB-by-dB relaxation of the OOBE limits in the 5.091-5.15 GHz band without causing harmful interference was provided to the Commission on multiple occasions in the record. For example, the Mimosa Petition included a detailed engineering analysis of OOBE concluding that relaxing the emissions EIRP limit one dB for every increase of one dB in antenna gain for antennas above 6 dBi "maintains the same stringent requirements on the radio design, but decouples the radio emissions from the type of antenna used. . . . As long as the radio meets emissions and spectral mask requirements with a reference antenna, it will continue to do so under the approach proposed here with a higher or lower gain antenna since the emissions requirement simply scales."[12] The Consensus Proposal proffered specific rule changes that would "serve the public interest by continuing to allow the robust use of unlicensed devices in the 5 MHz band" without causing harmful interference to current occupants in the band.[13] Fastback also discussed the issue during a meeting with Commission staff and in a follow-up *ex parte* letter, which focused on OOBE requirements for the U-NII-1 band into the 5.091-5.15 GHz band.[14] In these presentations, Fastback specifically proposed new OOBE limits that "would significantly improve the range and throughput of U-NII-1 rural broadband systems *without hindering* the MSS, AeroMACS, and Aeronautical Mobile Telemetry

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[11] *See, e.g.*, Comments of WISPA, ET Docket No. 13-49, at 11 (filed May 28, 2013); Mimosa Petition; Consensus Proposal; Fastback *Ex Parte*.

[12] Mimosa Petition, Appendix B at 7.

[13] Consensus Proposal.

[14] *See* Fastback *Ex Parte*. The presentation to the Commission included slides and an analysis showing that the requested relaxation of the rules would not cause harmful interference to other occupants in the adjacent band.

("AMT") services presently authorized."[15] Consequently, as these and other filings show, the Commission's claim that the parties have not provided "any analysis" regarding increased emissions and protection of services is simply not supported by the record in this proceeding.

The record shows that retention of the stringent OOBE limits compromises the ability of rural Americans to receive affordable access to broadband service. In the *Order*, the Commission failed to take proper notice of the adverse impact its decision would have on rural Americans and that its decision will hamper the ability of WISPs and others to provide broadband service to rural areas.[16] This is largely because the overly stringent OOBE limits will reduce the distances that can be covered, and will undermine the availability of rural broadband services by requiring providers to use more access points and transmission equipment, among many other technical hindrances.[17] In short, the record is replete with evidence that unequivocally demonstrates that service to rural broadband customers will suffer as a result of the Commission's decision to retain the overly strict OOBE limitations in the 5.15-5.25 GHz (U-NII-1) band.

Inexplicably, in its discussion of the proposed changes to the 5.15-5.25 GHz band rules, the *Order* made no reference to the Mimosa Petition, which contains the most detailed analysis of the problem and justification for relaxing the OOBE limit. As shown by the Mimosa Petition, not only can users below 5.15 GHz tolerate more lenient OOBE limits, but the record shows that

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[15] Fastback Second *Ex Parte* (emphasis added). Fastback also pointed to recent submissions by the Aerospace and Flight Test Radio Coordinating Council, Inc. ("AFTRCC") in ET Docket No. 15-99/IB Docket 06-123 regarding proposed AMT allocations in the 4400-4940 MHz and 5925-6700 MHz bands, and the ease with which AMT services could share the band with incumbent FS and ENG operations. And as stated in the Fastback Second *Ex Parte*, given AFTRCC's showing, "the Commission could conclude that AMT services in the 5.091-5.15 GHz band would not be adversely affected by U-NII-1 OOBE signals that were 50 dB lower than the emissions AMT would be facing as they shared the 4400-4940 MHz and 5925-6700 MHz bands with incumbent FS and ENG users." *Id*.

[16] *See, e.g.*, Mimosa Petition; Fastback *Ex Parte*.

[17] *See, e.g.*, Mimosa Petition at 8 and Appendix A.

users in the 5.15-5.25 GHz band will obtain many benefits. The Mimosa Petition observed that strict OOBE limits "will severely undercut the ability of fixed wireless Internet access providers to continue efforts to make broadband services available in remote rural areas throughout the Nation. . . . Taking these steps would likely diminish the distances achieved and the reliability of fixed point-to-point systems, requiring the use of additional access points and transmission equipment."[18] Adding specificity, the engineering analysis attached to the Mimosa Petition included calculations showing that the stringent OOBE limits "are, at the very least, 30+ dB more stringent than even the IEEE 802.11 mask requirements when used with a high-gain antenna for point-to-point applications."[19] Fastback explained that relaxing OOBE to enable higher gain point-to-point antenna use will typically enable an increase in transmit EIRP for point-to-point links of about 6-10 dB, which corresponds to an increase in range of around 250 percent or a doubling of the throughput.[20] These conclusions, supported by sound engineering analysis, make clear that maintaining stringent OOBE limits is unnecessary to protect adjacent-band users from harmful interference and inhibits the ability of rural Americans to receive affordable fixed wireless broadband service.

If it stands, the Commission's decision to retain the strict OOBE limits for the 5.15-5.25 GHz band will have a substantial adverse impact upon equipment manufacturers, WISPs, and the delivery of fixed broadband services to rural Americans, who would face increased costs or the potential lack of access to wireless broadband services as a direct result of the Commission's decision to retain the overly strict OOBE limits.

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[18] Mimosa Petition at 4-5, *citing* WISPA Comments, ET Docket No. 13-49 (filed May 28, 2013) at 2.
[19] *Id.*, Appendix A, at 3.
[20] Fastback *Ex Parte*, Presentation at 7.

Conclusion

For the reasons set forth herein and those provided to the Commission earlier in this proceeding, WISPA respectfully requests partial reconsideration of the Commission's *Order* to the extent described above.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

May 6, 2016 By: */s/ Alex Phillips, President*
/s/ Mark Radabaugh, FCC Committee Chair
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