

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

In the Matter of)	
)	
Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and)	ET Docket No. 14-165
)	
Amendment of Part 74 of the Commission’s Rules For Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap)	
)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions)	GN Docket No. 12-268

To: The Commission

**PETITION FOR PARTIAL RECONSIDERATION
OF THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

The Wireless Internet Service Providers Association (“WISPA”), pursuant to Section 1.429 of the Commission’s Rules,¹ hereby respectfully requests reconsideration of two actions taken by the Commission in the *Report and Order* adopted in this proceeding.² First, the Commission should allow the TV white space database to incorporate antenna directivity to determine whether vacant TV channels are available for unlicensed use in a given area. Second, the Commission should allow unlicensed TV band operations from higher elevations, with

¹ 47 C.F.R. § 1.429.

² *Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, et al.*, Report and Order, ET Docket No. 14-165 and GN Docket No. 12-268, FCC 15-99 (rel. Aug. 11, 2015) (“*Report and Order*”). A summary of the *Report and Order* was published in the Federal Register on November 23, 2015, thereby establishing December 23, 2015 as the deadline for filing petitions for reconsideration. See 80 Fed. Reg. 73044 (Nov. 23, 2015).

corresponding changes in the distance separation criteria. By making these changes, the Commission will promote greater flexibility in the design of unlicensed TV band networks, efficient and robust use of vacant spectrum and more ubiquitous fixed broadband service to unserved and underserved areas of rural America.

Introduction

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. Using primarily unlicensed spectrum in the 900 MHz, 2.4 GHz and 5 GHz bands along with lightly licensed 3.65 GHz spectrum, WISPs serve more than 3,000,000 people, many of whom reside in rural, unserved and underserved areas where wired technologies may not be available. In some of these areas, WISPs offer the only terrestrial source for fixed broadband access. In areas where other broadband options are available, WISPs provide a local access alternative that fosters competition in service, cost and features.

For many years, WISPA has advocated for unlicensed use of vacant TV band spectrum as a means to economically and efficiently provide fixed broadband access to rural areas, and to increase the amount of spectrum – and thus bandwidth capacity – to areas WISPs already serve. WISPA filed Comments³ and Reply Comments⁴ and made ex parte presentations in this docket,⁵ urging the Commission to adopt rules that would enable more intensive and flexible use of TV

³ See Comments of WISPA, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 4, 2015) (“WISPA Comments”).

⁴ See Reply Comments of WISPA, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 25, 2015) (“WISPA Reply Comments”).

⁵ See Letter from Stephen E. Coran, WISPA Counsel, to Marlene H. Dortch, ET Docket No. 14-165 and GN Docket No. 12-268 (filed June 18, 2015); Letter from Stephen E. Coran, WISPA Counsel, to Marlene H. Dortch, ET Docket No. 14-165 and GN Docket No. 12-268 (filed July 30, 2015).

band spectrum for rural broadband deployment. Accordingly, WISPA is an “interested person authorized to seek reconsideration of the *Report and Order*.⁶

Discussion

In the *Report and Order*, the Commission adopted rules that will facilitate the expansion of fixed TV white space devices into rural areas. For example, allowing users to operate at 10 Watts EIRP in less congested areas will enable cost-effective, wider-area coverage without increasing potential interference to facilities entitled to protection. Permitting the TV white space database to recognize devices transmitting at less-than-maximum power will make more spectrum available in more areas.

In significant respects, however, the Commission neglected the clear record.⁷ As a result, the *Report and Order* maintains an overly conservative approach to interference management, at the expense of WISPs and others that have supported the development of the white space industry with the intent to responsibly deploy needed broadband services. The *Report and Order* manifests a missed opportunity that will, if not reconsidered, strike a serious blow to the Commission’s stated goal of enabling “more robust service and efficient spectral use” of vacant TV band spectrum “without increasing the risk of harmful interference to authorized users.”⁸

⁶ 47 C.F.R. § 1.429(a).

⁷ See *Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, et al.*, Notice of Proposed Rulemaking, ET Docket No. 14-165 and GN Docket No. 12-268, 29 FCC Rcd 12248 (2014) (“*NPRM*”).

⁸ *Report and Order* at 3.

I. THE COMMISSION SHOULD ALLOW TV WHITE SPACE DATABASES TO INCORPORATE FIXED DEVICE ANTENNA DIRECTIVITY TO DETERMINE CHANNEL AVAILABILITY.

In the *NPRM*, the Commission recognized that “[t]he directional pattern of a fixed white space device transmit antenna could affect the identification of available channels” because “[i]n the case where the transmit antenna points away from a TV station that the white space device must protect, the effect would be that the white space device has a lower EIRP in the direction of the TV station.”⁹ In response, and as the Commission acknowledged, “a number of parties support considering antenna directivity”¹⁰ – and no party opposed it.

Yet despite the one-sided record, the Commission decided to back away from allowing more efficient spectrum use by taking into account antenna directivity, not because it disagreed with commenters, but because “there is not sufficient information to show how to enable the use of antenna directivity without causing the harmful interference to authorized services.”¹¹ The Commission pointed to a lack of “consensus on the format for antenna patterns” and “information on how to ensure that accurate antenna orientation information is obtained by the antenna installer and entered into the white space databases.”¹² The Commission stated that it “could consider this issue again in the future if parties are able to develop a standard to address implementation.”¹³

The reasons cited in the *Report and Order* for failing to consider antenna directivity fail to recognize what is already common industry practice. The measurement of antenna horizontal beamwidth, as defined by the -3 dB (half-power points) is universally recognized throughout the

⁹ *NPRM* at 12271.

¹⁰ *Report and Order* at 29.

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

industry and is an integral part of the Commission's own equipment certification process. Moreover, antenna beamwidth specifications are published and a matter of public record for virtually all commercially manufactured antennas. Finally, fixed wireless base stations are typically deployed using commonly known beamwidths of 60 degrees, 90 degrees and 120 degrees.¹⁴ Accordingly, WISPA proposed that the Commission recognize the use of "simpler generic patterns that approximate commonly used antennas"¹⁵ which "are easily verifiable and can be incorporated into the database without difficulty."¹⁶

This approach is clearly sufficient to allow the databases to properly protect incumbents from interference without requiring the industry to undergo a lengthy and totally unnecessary process to reach "consensus on the format for antenna patterns."¹⁷ Further, any lack of consensus in the record on a *methodology* is not an excuse for the Commission to simply throw up its hands and say "we can't decide." The Commission makes hard choices all the time in rulemaking proceedings and, in this case, allowing identification of directional antennas under *any* approach will result in the delivery of much-needed broadband service for rural Americans.

To the extent the Commission may be concerned about the accuracy of information on antenna azimuth being accurately incorporated into the database, this is easily resolved through the professional installation requirements. During initial network design and prior to installation, the professional installer should be required to input the proposed antenna model and azimuth into the database and allow the database to determine whether and what channels are available for unlicensed use using the horizontal beamwidth and proposed antenna azimuth. The database

¹⁴ See WISPA Comments at 12.

¹⁵ *Id.* See also Comments of WhiteSpace Alliance, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 4, 2015) at 18.

¹⁶ WISPA Reply Comments at 11.

¹⁷ *Report and Order* at 29.

can then provide a list of available channels based on the directivity of the proposed antenna and azimuth. Finally, the professional installer must certify that the proposed antenna was actually, physically mounted with the correct azimuth specified by the database. If installed incorrectly, the network operator should be subject to enforcement action for violating Section 15.5 of the Commission's Rules, and the professional installer should be subject to sanctions as well, including debarment for repeated violations.

II. THE COMMISSION SHOULD INCREASE THE PERMISSIBLE ANTENNA AGL AND HAAT HEIGHTS FOR FIXED UNLICENSED DEVICES IN LESS CONGESTED AREAS.

The *NPRM* sought comment on whether the maximum antenna height should be increased from 30 meters above ground level (AGL) and the maximum height above average terrain (HAAT) increased from 250 meters in less congested areas.¹⁸ The Commission observed that a higher maximum AGL “could be beneficial in rural areas . . . to clear intervening obstacles such as trees and hills that would attenuate the transmitted signal.”¹⁹ It also stated that there would be a “lower likelihood” of harmful interference from increasing the maximum elevation in rural areas because of the lower number of facilities that are entitled to protection.²⁰

Despite support from a number of commenters,²¹ including a specific proposal from WISPA to increase the maximum AGL to 100 meters and the maximum HAAT to 500 meters

¹⁸ See *NPRM* at 12262-63.

¹⁹ *Id.* at 12262.

²⁰ *Id.* at 12263.

²¹ See, e.g., Comments of Wi-Fi Alliance, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 4, 2015) at 15; Comments of Google Inc., ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 4, 2015) at 46; Comments of Adaptrum, Inc., ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 4, 2015) at 5; Reply Comments of Microsoft Corporation, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Feb. 25, 2015) at 34.

with corresponding increases in distance separation limits,²² the Commission brushed away these recommendations in a single sentence: “We are not altering the rules limiting antenna AGL or HAAT to 30 meters and 250 meters respectively.”²³ The Commission provided no further explanation – it didn’t even attempt to refute its *own* conclusions citing the benefits of operation from higher elevation.

The Commission should reconsider its unsupported decision. Any legitimate concerns about potential interference to protected facilities can be overcome by doing what the Commission has done throughout this proceeding – establish reasonable distance separation criteria to adequately protect authorized facilities. By using the same methodology it employed in adopting and amending Section 15.712(a)(2),²⁴ the Commission can add height tiers above 250 meters HAAT to achieve the requisite level of protection to authorized facilities. Similarly, the Commission can amend Section 15.709(g)(1)(i) to increase the maximum AGL while maintaining existing protection limits.²⁵

²² See WISPA Comments at 14-15.

²³ *Report and Order* at 23.

²⁴ 47 C.F.R. § 15.712(a)(2).

²⁵ 47 C.F.R. § 15.709(g)(1).

Conclusion

By taking the actions WISPA recommends herein, the Commission can significantly improve the prospects for more ubiquitous deployment of fixed broadband service to rural Americans who today have no (or very limited) other broadband service choice. WISPA respectfully requests reconsideration to the extent described above.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

December 23, 2015

By: */s/ Alex Phillips, President*
/s/ Mark Radabaugh, FCC Committee Chair
/s/ Jack Unger, Technical Consultant

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