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

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules	)	ET Docket No. 16-56
For Unlicensed White Space Devices	)	RM-11745

To: The Commission

REPLY 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 replies to certain of the initial Comments filed in response to the Notice of Proposed Rulemaking ("*NPRM*") in the above-captioned proceeding.[1] If adopted, the "over-the-top proposals"[2] of the National Association of Broadcasters ("NAB") would not eliminate the professional installer for outdoor, higher-power fixed devices, but would so restrict TV white space operations such that the service may never develop into a viable nationwide platform for delivery of fixed broadband services to rural Americans. NAB's original proposal to eliminate the professional installation option – despite the demonstrated need to retain it for vertical location accuracy and other reasons – is compounded by its further suggestions that external geolocation be connected to devices only through wired connections and that devices check the TV white space database daily, even where the device has not changed its location. To the extent there is a problem requiring a regulatory solution, the Commission should adopt the proposals of WISPA, Spectrum Bridge, Microsoft

[1] *See Amendment of Part 15 of the Commission's Rules for Unlicensed White Space Devices*, FCC 16-23 (rel. Feb. 26, 2016) ("*NPRM*").

[2] Comments of Microsoft Corporation, ET Docket No. 16-56 (filed May 6, 2016) ("Microsoft Comments") at 2.

and Google, which demonstrate that database inaccuracies can be addressed through best practices and by making professional installers more accountable.

Discussion

I. THE RECORD DEMONSTRATES COMPELLING GROUNDS FOR RETAINING THE PROFESSIONAL INSTALLATION OPTION.

The Commission should retain its existing Part 15 rules for professional installation. First, as the Commission acknowledges and as no party denies, there have been no documented cases of harmful interference from white space operations to protected TV broadcast stations.[3] In the absence of any such interference, and contrary to NAB's claims,[4] "[i]t is unnecessary, however, to require all fixed WSDs to incorporate automatic geolocation technologies to protect incumbents."[5] Although there have been cases "where questionable location data have been provided to the databases,"[6] NAB's "over-the-top proposals to yet again try to hamstring unlicensed operations are a solution in search of a problem."[7] As Microsoft observes, "professional installers already have strong incentives to register fixed devices at their true locations" – devices will perform poorly and the installer will lose business opportunities.[8] Instead of eliminating the professional installation option for fixed devices, WISPA agrees with

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[3] *See NPRM* at ¶ 15. *See also* Comments of WISPA, ET Docket No. 16-56 (filed May 6, 2016) ("WISPA Comments") at 3; Comments of Microsoft Corporation, ET Docket No. 16-56 (filed May 6, 2016) ("Microsoft Comments") at 2; Comments of Google Inc., ET Docket No. 16-56 (filed May 6, 2016) ("Google Comments") at 2.

[4] *See generally* Comments of the National Association of Broadcasters, ET Docket No. 16-56 (filed May 6, 2016) ("NAB Comments").

[5] Microsoft Comments at 2.

[6] *NPRM* at ¶ 13.

[7] Microsoft Comments at 2.

[8] *Id.* at 5-6.

Spectrum Bridge that the Commission should continue to "permit the database providers and radio vendors . . . to develop solutions that meet the accuracy requirements without specifying how this should be achieved."[9]

Second, professional installation (or at least some form of human intervention) is required to ensure the vertical accuracy of fixed devices.[10] NAB claims that "antenna height accuracy is generally a less critical factor than geographic coordinates" and that ground elevation "can be far more significant" than antenna height above ground."[11] But there is little doubt that if a television station claimed harmful interference from a TV white space device registered pursuant to NAB's "default" approach that would apply when the antenna height is "plainly inaccurate,"[12] NAB's Johnny Interference would be making another appearance at the Commission. Moreover, as even NAB's own sample data shows, there can be significant differences in the number of available channels that would be available at 10 meters and 30 meters above ground – channel losses in five out of 40 "city centers" is significant for white space deployment. And NAB's statistically small data set fails to provide information on the impact in rural markets from higher-power fixed devices.

But even if NAB's statements can be given credibility, its proposal to require TV white space devices to automatically determine antenna height is simply untenable.[13] NAB provides no information claiming that such technology exists and, if it does, what the costs would be to

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[9] Comments of Spectrum Bridge, Inc., ET Docket No. 16-56 (filed May 6, 2016) at 1. *See also* Microsoft Comments at 3 (Commission "should not mandate an automatic geolocation requirement for any fixed devices").

[10] *See* WISPA Comments at 3-4; Google Comments at 6.

[11] NAB Comments at 5.

[12] *Id.* at 6.

[13] *See id.*

install that technology in every fixed device, including fixed devices installed at customer locations. To quote Google, any new rules "should recognize the *limitations* of today's technologies."[14]

Third, the record does not support NAB's assertion that "the cost of incorporating geolocation capability may be as little as a few dollars per unit."[15] According to Runcom, a manufacturer of TV white space equipment, the additional hardware and software that would be necessary to incorporate automatic geolocation would increase the cost of the "fixed terminal" (i.e., CPE) by around $30 per unit, or ten percent of the cost.[16] That is not insignificant. While some manufacturers may choose to incorporate geolocation over time, others should remain able to produce and sell equipment at lower cost that does not.

Moreover, for higher-power fixed broadband installations, professional installers may *always* be necessary because the size and the mounting of antennas require skills and sophistication that should not be left to the residential or business consumer. Unlike baby monitors and cordless phone systems that use unlicensed spectrum, white space devices do not just come out of a box and get plugged into a wall, but are installed outdoors. In many cases, installation will necessarily require a human to climb a secure ladder, safely carry a mast and antenna to the rooftop, carefully mount the antenna so it is pointed in the right direction, correctly connect the antenna to the radio, ensure proper operation, and climb back down to the ground. Automatic geolocation cannot replace these dangerous, specialized and inherently human activities. So the only thing that would be accomplished by requiring automatic

[14] Google Comments at 6 (emphasis in original).

[15] NAB Comments at 4.

[16] Comments of Runcom Communications Ltd., ET Docket No. 16-56 (filed April 4, 2016). *See also* Microsoft Comments at 2 (requiring all fixed white space devices to incorporate automatic geolocation "will unduly increase costs for consumers").

geolocation in higher-power fixed devices is a significant increase in equipment costs, an entirely unnecessary result that would disserve the interests of rural consumers that look to TV white space as a viable means of accessing broadband service.

Assuming *arguendo* it requires automatic geolocation capability in fixed white space devices, the Commission should adopt Google's proposal and not mandate prescriptive specific geolocation technologies.[17] Rather, the Commission should allow manufacturers and database administrators to determine through the certification process how to meet the location accuracy requirements of the rules without requiring GPS or any other specific means. Ensuring flexibility also will create an environment conductive to innovation and competition among manufacturers.

II. PROFESSIONAL INSTALLERS SHOULD BE HELD ACCOUNTABLE.

In its Comments, WISPA supported the Commission's proposal to require database administrators to confirm contact information for the professional installer.[18] Based on Comments filed by database administrators, however, WISPA understands that this may not be the best method for increasing database reliability. Spectrum Bridge points out that "there is no way to validate . . . that the phone number really belongs to the registrant" or whether an "email address is legitimate."[19] Further, until verified, the Commission would treat the registration as "pending," a new status that may require changes to the database protocol.[20] Google affirms that this proposal "would impose significant burdens on database operators, frustrate users, and create

[17] *See* Google Comments at 2-4.

[18] *See* WISPA Comments at 6.

[19] Spectrum Bridge Comments at 3.

[20] *See id.* at 3-4.

security risks . . . [that] could have unintended consequences that undermine rather than improve the registration process and data security."[21] Microsoft agrees that "a phone number and email validation process might be so cumbersome as to severely limit consumer adoption of low-power fixed white-space technologies."[22]

Given these concerns from those most closely involved in the database registration process, WISPA agrees with Microsoft that the Commission should hold accountable professional installers for database accuracy.[23] Under this proposal, professional installers would obtain an FRN and be required to provide that FRN along with location information when they register a site with the database. The obligations attendant to obtaining an FRN would require installers to provide notice of any change in contact information and hold the professional installer accountable for incorrect geolocation information by "mak[ing] clear that the FCC has jurisdiction over professional installers, enabling the Commission to apply a wide range of sanctions who submit unreliable information."[24] Any change to the existing rules should be limited to making professional installers more accountable by requiring FRN registration and subjecting them to Commission enforcement.

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[21] Google Comments at 7.

[22] Microsoft Comments at 8-9.

[23] *See id.* at 11. *See also* WISPA Comments at 7; Spectrum Bridge Comments at 3 (noting the "blurred" lines between the Commission's enforcement obligations and any proposed shift in those responsibilities to database administrators).

[24] Microsoft Comments at 11 (footnote omitted).

III. WHITE SPACE DEVICES SHOULD ONLY BE REQUIRED TO QUERY THE DATABASE WHEN EQUIPMENT IS MOVED MORE THAN 50 METERS.

The record demonstrates that daily rechecks of the database are not necessary and that the Commission should not adopt its proposal.[25] Instead, fixed devices should be required to re-register when they turn on, reboot or are moved more than 50 meters from the previous location.[26] As Google points out, once the location is established, there is no need to maintain the external connection to the database until the device turns on or reboots.[27] Existing rules are sufficient – Section 15.711(b)(ii) requires re-registration whenever white space devices are relocated. The rules should continue to reflect the presumption that registered devices have not been relocated.

IV. EXTERNAL ANTENNAS SHOULD BE PERMITTED TO USE WIRELESS CONNECTIONS.

WISPA disagrees with NAB[28] and supports Google's view that the Commission should permit wireless connections between the TV white space radio and its associated external antenna where direct access to the database is not effective.[29] Google has it right – there are many wireless technologies that would provide a secure and reliable connection to a geolocation source, and more that could be available in the future. The Commission should not artificially limit the means by which location information can be obtained.

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[25] *See NPRM* at ¶ 22.

[26] *See* Google Comments at 4.

[27] *See id.*

[28] *See* NAB Petition at 8.

[29] *See* Google Comments at 5.

Conclusion

The record shows that professional installation must remain an option to ensure location accuracy. For higher-power devices, mounting an external antenna currently requires a professional installer, and the additional costs to incorporate automatic geolocation – whether integrated or external – will confer no benefit. To the contrary, and in combination with NAB's other proposals to require external connections to the database to be wired and to require daily database re-checks for devices that have not turned off or relocated, the proposals may well doom the commercial deployment of higher-power fixed white space in the United States. The Commission therefore should maintain its existing rules.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

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

4417 13th Street #317
St. Cloud, Florida 34769
(866) 317-2851

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