

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

In the Matter of	)	
	)	
Amendment of Part 90 of the Commission's Rules	)	WP Docket No. 07-100
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
Service Rules for the 698-746, 747-762 and 777- 792 MHz Bands	)	WT Docket No. 06-150
	)	
To: The Commission		

**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 submits these Comments regarding several important issues in the above-captioned proceeding.<sup>1</sup> WISPA strongly urges amendment of the Commission's eligibility rules to enable and promote efficient sharing of the 4.9 GHz band by public safety users and secondary commercial users pursuant to database registration requirements. WISPA also recommends modification of technical and operating rules to harmonize the rules with those applicable to the 5 GHz U-NII bands. Together, these rule changes will provide much-needed spectrum for fixed

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<sup>1</sup> *Amendment of Part 90 of the Commission's Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Fourth Report and Order and Fifth Further Notice of Proposed Rulemaking, WP Docket No. 07-100, PS Docket No. 06-229 and WT Docket No. 06-150, FCC 12-61, rel. June 13, 2012 ("FNPRM"). By Public Notice released August 3, 2012, the Commission established October 1, 2012 as the deadline for filing Comments in this proceeding. See Public Notice, "Public Safety and Homeland Security Bureau Announces Comment and Reply Comment Dates for the Fifth Further Notice of Proposed Rulemaking on the 4.9 GHz Band," DA 12-1268, rel. Aug. 3, 2012. See also 77 Fed. Reg. 45558 (Aug. 1, 2012).

broadband use, increase use of the band in an efficient manner and lower equipment costs, for the benefit of first responders, commercial broadband operators and consumers.

### **Introduction**

WISPA is a trade association founded in 2004 to represent the interests of fixed wireless Internet service providers (“WISPs”), vendors and customers. WISPs rely primarily on unlicensed, non-exclusive spectrum in the 900 MHz, 2.4 GHz and 5 GHz bands and lightly licensed spectrum in the 3650-3700 MHz band to provide fixed wireless broadband service to more than three million persons, residences and first responders across the country. WISPs often serve rural and remote areas that would otherwise be unserved by terrestrial fixed broadband technologies such as cable and DSL. Customers include first responders, which may use fixed wireless broadband as either a primary or redundant connection to support vital public safety communications.

Because WISPs operate on non-exclusive spectrum, they necessarily share spectrum with each other and a host of other devices and networks, including smart grids, agricultural communications and consumer devices. In some bands, WISPs avoid causing or receiving interference through careful channel planning and prior coordination on an *ad hoc* basis. In the 3650-3700 MHz Service, the Commission has established rules requiring fixed points to be registered in the Universal Licensing System (“ULS”)<sup>2</sup> and obligating licensees to first review ULS so that users can share spectrum.<sup>3</sup> In the unlicensed 5470-5725 GHz band, fixed wireless broadband providers share spectrum with military radar systems and Terminal Doppler Weather Radar (“TDWR”) facilities. As the Commission is aware, WISPA was instrumental in educating its members about

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<sup>2</sup> See Section 90.1307.

<sup>3</sup> See Section 90.1319(d).

issues relevant to spectrum sharing<sup>4</sup> and establishing a voluntary registration database for certain users of this band in an effort to help mitigate the potential for harmful interference to TDWR stations.<sup>5</sup>

WISPA also supported the use of a geolocation database for use of TV white space spectrum.<sup>6</sup> Under Commission rules, frequencies can only be available for unlicensed fixed use in a given area if the database indicates that frequencies are not being used by incumbents entitled to interference protection. The database includes all of the primary and secondary incumbent stations entitled to interference protection and their protected contours. Commission rules require the database to be updated on an ongoing basis to ensure that primary and secondary users do not receive interference from unlicensed devices.

WISPA strongly endorses spectrum sharing in the 4.9 GHz band. As described below, the Commission should extend eligibility so commercial interests can use the band on a secondary basis, subject to database registration processes that will ensure that public safety users can operate without receiving harmful interference. The Commission also should, as much as possible, modify its technical and operating rules to correspond to the characteristics of the nearby 5 GHz ISM and U-NII bands. By taking these steps, the Commission can enable fixed broadband providers to provide new services to unserved Americans and better service to consumers and businesses in need of better broadband connectivity.

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<sup>4</sup> See <http://www.wispa.org/tdwr-resources>, last visited Sept. 24, 2012.

<sup>5</sup> See <http://www.spectrumbridge.com/udia/home.aspx>, last visited Sept. 24, 2012.

<sup>6</sup> See, e.g., Letter from Jack Unger, Chair of WISPA FCC Committee, to Marlene H. Dortch, FCC Secretary, ET Docket Nos. 04-186 and 02-380, filed October 22, 2008.

## Discussion

### **I. THE COMMISSION SHOULD AMEND ITS ELIGIBILITY RULES TO ALLOW SECONDARY COMMERCIAL USE OF THE 4.9 GHz BAND ON A SHARED BASIS WITH PUBLIC SAFETY LICENSEES.**

WISPA agrees with the Commission's tentative conclusion that it should expand eligibility so that commercial users can share the 4.9 GHz band with public safety licensees.<sup>7</sup> Commercial use should be on a secondary basis subject to database registration requirements that will ensure that public safety entities do not receive harmful interference from secondary users, while at the same time enabling greater use of the band for service to the public at large. The increased number and density of commercial systems will provide additional opportunities for public safety users to communicate effectively during times of public safety incidents.

#### **A. Shared Use Of The 4.9 GHz Band Would Promote The Public Interest.**

The Commission suggests that secondary unlicensed use of the 4.9 GHz band “would benefit and reduce burdens on non-public safety entities by removing a barrier to entry to use the 4.9 GHz band.”<sup>8</sup> WISPA agrees. As WISPA has documented in other Commission proceedings, WISPs are experiencing congestion resulting from consumers' increased use of bandwidth-intensive applications.<sup>9</sup> At the same time, the Commission estimates that nearly 19 million people do not have access to fixed broadband service, and has concluded that “broadband was not being deployed to all Americans in a reasonable and timely fashion.”<sup>10</sup> Of those not able to obtain fixed broadband, people

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<sup>7</sup> See *FNPRM* at ¶ 43.

<sup>8</sup> *Id.*

<sup>9</sup> See, e.g., Comments of WISPA, GN Docket No. 12-228, filed Sept. 20, 2012, at 6.

<sup>10</sup> Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, Eighth

living in rural and Tribal areas “are disproportionately lacking such access” -- some 14.5 million unserved Americans live in rural areas.<sup>11</sup>

More spectrum for fixed use, including 4.9 GHz spectrum, will help address the twin problems of congestion and lack of service. Although it is not the only spectrum the Commission can and should make available for fixed broadband use, allowing shared use of the 4.9 GHz band would eliminate eligibility as a barrier for increased use of 50 megahertz of additional spectrum in close proximity to other unlicensed bands already used by WISPs.

The Commission notes the “spectral proximity” of the 4.9 GHz band to the 5 GHz band widely used by unlicensed Wi-Fi networks.”<sup>12</sup> WISPs are heavy users of the 5 GHz band for both point-to-multipoint broadband service and point-to-point connectivity, and are very familiar with equipment rules and capabilities, propagation characteristics and deployment architectures. Moreover, the proximity of the bands would make 4.9 GHz equipment affordable to produce, to the extent the technical and operating rules are consistent across both bands. As a result, WISPA believes that the increased use of the 4.9 GHz band will lower price points for 4.9 GHz equipment, to the benefit of both public safety and commercial users, and could spark innovation among competing vendors. In short, expanding eligibility would “improve the availability, variety, and economics of equipment that uses the band, to the benefit of public safety communications.”<sup>13</sup>

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Broadband Progress Report, GN Docket No. 12-228, FCC 12-91, rel. Aug. 21, 2012 (“*Eighth Broadband Progress Report*”), at Sections I and IV.

<sup>11</sup> *Id.*

<sup>12</sup> *FNPRM* at ¶ 43.

<sup>13</sup> *Id.*

**B. A Database Will Ensure That Public Safety Licensees Do Not Receive Harmful Interference.**

The Commission tentatively concludes that it should create a registration database to identify the actual areas of public safety operations and to enable non-interfering secondary use.<sup>14</sup> WISPA strongly supports the establishment and implementation of a database to ensure that public safety licensees are protected from harmful interference, secondary users can coordinate among themselves and temporary (incident-based) public safety use can be triggered in real time. The database would be modeled on the TV white space database that the Commission has approved to protect the interests of TV stations and other primary and secondary users.<sup>15</sup> As suggested by the Commission, and as the Commission has established for TV white space spectrum, the Commission should designate private database coordinator(s), which would be required to “demonstrate technical expertise, describe database function and architecture, and describe how devices would communicate with the database.”<sup>16</sup>

As the Commission proposes, all existing and future public safety licenses would register in the database the technical parameters of their permanent fixed point-to-point, point-to-multipoint and base-to-mobile stations and fixed receivers into the database.<sup>17</sup> Similar to the registration inputs for TV white spaces,<sup>18</sup> these would include the location, frequencies, power, antenna gain, antenna height, azimuth and other parameters necessary to describe the area of actual operation. Once the database is populated, it would work in concert with software in the equipment to provide location and other

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<sup>14</sup> *Id.* at ¶ 30.

<sup>15</sup> See Section 15.713.

<sup>16</sup> *FNPRM* at ¶ 32. See also Section 15.715.

<sup>17</sup> See *FNPRM* at ¶ 28. The registration requirement would exist separate and apart from the public safety license itself, which is based on the licensee’s jurisdiction.

<sup>18</sup> See Section 15.713(h).

technical data to ensure that primary public safety users could operate without interference. Secondary use in a given location could occur based on distance from the defined area of public safety operations and/or frequency diversity.

The database also could be used for temporary, incident-based public safety use. In the event of a public safety incident that requires additional spectrum or operation outside the geographic area defined by the registration, the public safety user could provide the request to the database administrator(s), which would then render the spectrum off-limits to secondary use in that area during the time of the incident. When the incident ended, the public safety user would again notify the database administrator that the frequencies are no longer being used in the area and would again be available for secondary use. WISPA believes that a database can provide this real-time function and that secondary use equipment can query the database periodically to determine frequency availability.

The database would also perform a second function – coordination among secondary users. Similar to the existing 3650-3700 MHz Service fixed station registration process, secondary users also would be required to input the technical data of their base stations into the database.<sup>19</sup> Secondary users would be required to have geolocation capabilities in their transmitters so that they can coordinate their facilities to avoid or mitigate interference with other secondary users. No secondary user would have priority over any other secondary user, but would be required to rely on the database

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<sup>19</sup> WISPA believes that it is not necessary for every fixed end user location to be registered, as is currently the case in the 3650-3700 MHz Service. *See* Section 90.1307. Rather, for secondary point-to-multipoint operations, the technical characteristics of the secondary use base station would define an area of operation. For secondary point-to-point stations, the endpoints should be registered.

results in order to avoid creating interference with other primary and other secondary users.<sup>20</sup>

**C. Secondary Commercial Use Of The 4.9 GHz Band Would Be Subject To Preemption By Public Safety Entities For Incident Response And Related Communications.**

The Commission asks whether secondary use should be subject to a “shutdown feature” that would allow public safety users to access commercial networks on a priority basis.<sup>21</sup> WISPA agrees that public safety entities should have the ability to preempt commercial use, but only in limited circumstances. These circumstances would include the following: (1) temporary fixed or mobile operations used to support incident-based public safety communications at or near the site of the incident, (2) lack of any public safety licenses in the area, as determined by a certified database, (3) unavailability of licensed public safety 4.9 GHz spectrum to support the required communications, and (4) use limited to the minimum necessary amount of spectrum required for the incident in question. With these conditions, the need to preempt and disrupt commercial use would be limited in time and scope for spectrum emergencies.

In addition, preemption of commercial use should not require the commercial network to shut down completely. Instead, where the equipment is compatible, the public safety entity would share the network with the commercial operator for the limited duration of the incident. The commercial user would be required to prioritize public safety traffic on its compatible network, but would be able to maintain limited operations

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<sup>20</sup> The database registration process also could be used to facilitate regional planning among public safety users. See *FNPRM* at ¶ 27. WISPA believes that this proposal would be cost-effective to create and maintain and would simplify administrative functions because a single database can be used to coordinate among public safety users, protect public safety users from interference from secondary users and coordinate among secondary users.

<sup>21</sup> *Id.* at ¶43.

for its broadband customers, many of whom may also be affected by the incident. In this way, the commercial network can maintain important broadband communications links that will compliment public safety communications for the incident.

WISPA believes that this priority access proposal is a fair and balanced way to ensure that, in limited circumstances, public safety would have priority access to commercial 4.9 GHz networks on a shared basis.

## **II. THE COMMISSION SHOULD AMEND ITS TECHNICAL AND OPERATING RULES TO PROMOTE USE OF THE 4.9 GHz BAND BY PUBLIC SAFETY AND SECONDARY USERS.**

The Commission asks whether it should modify its technical and operating rules to “promote more efficient use of the band.”<sup>22</sup> As a general proposition, WISPA believes that the technical rules for secondary use in the 4.9 GHz band should be similar to those applicable to the 5 GHz unlicensed bands, with the addition of a database requirement to protect and enhance the use of the band by public safety users. By harmonizing technical requirements with unlicensed bands in close proximity to the 4.9 GHz band, it follows that 4.9 GHz equipment can be more uniform, thereby lowering the cost. Further, secondary users can better estimate propagation in designing their networks, which makes coverage more predictable at the design stage.

More specifically, WISPA recommends adoption of the power limits stated in Section 15.407(a)(3), which apply to ISM and U-NII operations in the 5725-5850 MHz ranges. Channel sizes for secondary use should include 15 and 20 megahertz channel widths to accommodate fixed broadband service delivery.

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<sup>22</sup> *Id.* at ¶ 52.

The Commission asks whether it should designate certain 4940-4990 MHz spectrum for specific uses.<sup>23</sup> To the extent that the 4.9 GHz band is currently used by public safety licensees for permanent mobile operation, WISPA suggests that the Commission designate no more than 5 megahertz of spectrum (preferably at 4940-4945 MHz) for primary permanent mobile use within the licensed jurisdiction. If the record does not demonstrate existing extensive mobile use of the 4.9 GHz band, the Commission may not need to designate specific spectrum for mobile use at this time. It also is not necessary for the Commission to set aside specific spectrum for fixed point-to-point public safety operations.<sup>24</sup> As stated above, the technical parameters of such stations can be incorporated into the database and thereby receive protection from secondary users.

### **Conclusion**

WISPA appreciates the opportunity to participate in this important proceeding, and recommends adoption of the proposals described herein to responsibly enable the introduction of new secondary fixed broadband services in the 4.9 GHz band while improving service for public safety users and lowering public safety operating costs.

Respectfully submitted,

November 1, 2012

**WIRELESS INTERNET SERVICE  
PROVIDERS ASSOCIATION**

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<sup>23</sup> See *id.* at ¶ 55.

<sup>24</sup> See *id.*