

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

In the Matter of	)	
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	Docket No. 12-268
	)	
	)	
Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band	)	WT Docket No. 08-166
	)	
	)	
Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition	)	WT Docket No. 08-167
	)	
	)	
Amendment of Parts 15, 74 and 90 of the Commission's Rules Regarding Low Power Auxiliary Stations, Including Wireless Microphones	)	ET Docket No. 10-24
	)	

To: The Commission

**COMMENTS OF  
THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

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## SUMMARY

The Wireless Internet Service Providers Association (“WISPA”) submits its initial Comments in this ground-breaking and complex proceeding. As the trade association representing providers of fixed wireless broadband, WISPA strongly supports the Commission’s efforts to promote unlicensed use of the TV bands.

Wireless Internet service providers (“WISPs”) rely primarily on the 900 MHz, 2.4 GHz and 5 GHz unlicensed bands, along with the 3650-3700 MHz “lightly licensed” band, to deliver broadband services to rural, unserved and underserved communities across the country where, in many cases, other broadband delivery technologies are not available. WISPs are well acquainted with the spectrum sharing techniques and obligations required to effectively share and use non-exclusive spectrum. The WISP industry has fostered significant innovations in technology, equipment and best practices that have transformed so-called “junk” spectrum into shining examples of American service and ingenuity.

As is the case in the mobile wireless industry, WISPs are experiencing the effects of congestion and capacity constraints resulting from increased consumer bandwidth consumption. The ability to use unlicensed TV white space spectrum will help WISPs overcome these obstacles by enabling them to expand broadband service into areas that are currently unserved and deliver additional services in existing coverage areas.

As the Commission considers the large record in this proceeding, WISPA urges the Commission to conduct the incentive auction and to repack spectrum so as to best optimize remaining TV white space spectrum for viable, fixed unlicensed use. As the overarching objective of this proceeding, the Commission should maximize and optimize the amount of contiguous unlicensed spectrum that will remain for fixed use. Because fixed uses are prohibited in channels adjacent to TV channels, the Commission should place a premium on repacking the TV channels efficiently to enable as much as possible of the remaining spectrum to be arranged in contiguous blocks. WISPA recommends the following steps that, when taken together, will preserve the TV bands as a platform for innovation and broadband access.

First, while not ignoring the value of unlicensed VHF spectrum, where possible, the Commission should repack TV stations in a spectrally efficient manner to create unlicensed spectrum blocks starting at Channel 21 and above. By establishing the UHF band as the primary band for fixed TV bands devices, the cost of equipment will be lower than if one set of equipment were required to operate across both the UHF and the VHF frequency bands.

Second, the Commission should expedite the relocation of receive-only radioastronomy (“RAS”) and wireless medical telemetry systems (“WMTS”) that operate on Channel 37. In the interim, the Commission should adopt its proposal to allow unlicensed operations outside of

protected areas and, where the RAS or WMTS station does not object, allow operation inside of protected areas.

Third, the Commission should amend its wireless microphone registration rules to promote greater spectrum efficiency and free up spectrum for other unlicensed devices. This can be accomplished by eliminating the two-channel reservation, requiring wireless microphones to register in channels below Channel 21, limiting registration to only the 200 kHz that they actually use and reducing the co-channel distance separation. The Commission also should require wireless microphones to transition to more spectrally efficient digital technology.

Fourth, the Commission should promote efficiency in secondary broadcast services by allowing channel sharing between low power television (“LPTV”) and full power television and translator stations where technically feasible, and should prioritize channels for displacement by considering the interests of unlicensed spectrum users in having access to contiguous blocks of unlicensed spectrum. The Commission should also protect in the TV bands database only those LPTV and translator stations that are entitled to protection. For instance, the Commission should diligently enforce its rules requiring license cancellation where a station is dark beyond the deadlines established in the Communications Act and Commission rules. Class A stations that have been found to lack compliance with certain rules should be downgraded to secondary status, a process that the Commission has begun to implement. The Commission should also enforce its LPTV digital transition rules.

Fifth, the Commission should allow unlicensed use to continue in areas where 600 MHz spectrum has been auctioned but where mobile wireless service has not yet been deployed. In the interest of spectrum efficiency, the Commission should not use the incentive auction process to simply transform unused TV broadcast spectrum into unused mobile broadband spectrum. WISPA proposes a notification process by which auctioned but unused spectrum can be used to deliver unlicensed fixed wireless broadband service until mobile wireless infrastructure has been built out and turned on in each area.

Sixth, the Commission should expedite the relocation of T-Band spectrum so that there is generally more TV band spectrum available for commercial wireless services.

Seventh, WISPA supports unlicensed use of the guard bands, as the Commission proposes. Guard band spectrum can be an important resource to allow wireless service innovation. Requiring competitive bidding for the guard bands will act as a disincentive to efficient use of this spectrum.

Last but not least, when it auctions 600 MHz spectrum, the Commission should make available for bidding at least two contiguous spectrum pairs for licensing according to Cellular Market Areas (“CMAs”). In cases where the Commission has auctioned spectrum by CMA, a greater percentage of “designated entities” have obtained licenses, an outcome that is consistent with Congressional and Commission objectives. As a further step to stimulate meaningful

participation by small companies, the Commission should enable companies with average gross revenues of \$3 million or less to obtain a 35 percent bidding credit. These rule changes will increase participation in the 600 MHz auction and facilitate the deployment of fixed wireless broadband service in areas that today have no service.

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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 provides its Comments concerning many of the important issues raised in the Notice of Proposed Rulemaking (“*NPRM*”)<sup>1</sup> and the

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<sup>1</sup> *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, FCC 12-118, Docket No. 12-268 (rel. Oct. 2, 2012); *see also Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Order, DA 12-1916, Docket No. 12-268 (rel. Nov. 29, 2012) (extending the deadline for filing initial Comments to January 25, 2013).

Public Notice (“*Public Notice*”)<sup>2</sup> in the above-captioned proceedings. WISPA’s Comments focus on three issues central to the expansion of fixed broadband services to consumers and businesses, especially those that reside in rural, unserved and underserved areas of the country: (1) access to a sufficient amount of unlicensed TV bands spectrum, especially on TV Channel 21 and above, (2) efficient spectrum planning and management to optimize the unlicensed spectrum that will result from the incentive auction and repacking processes, and (3) the auction of a portion of the 600 MHz spectrum in small geographic areas to enable greater participation by smaller bidders and to reduce barriers to entry.

## **Introduction**

### ***Wireless Internet Service Providers***

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. WISPA’s members include more than 700 WISPs, equipment manufacturers, distributors and others. WISPA estimates that WISPs serve more than 3,000,000 people, many of whom reside in rural, unserved and underserved areas where wired technologies like DSL and cable Internet access services 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.

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<sup>2</sup> Public Notice, *The Wireless Telecommunications Bureau and the Office of Engineering and Technology Seek to Update and Refresh the Record in the Wireless Microphones Proceeding*, DA 12-1570, WT Docket Nos. 08-166, 08-167, ET Docket No. 10-24 (rel. Oct. 5, 2012); *see also Revisions to the Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band*, Order, DA 12-1926, WT Docket Nos. 08-166, 08-167, ET Docket No. 10-24 (rel. Nov. 30, 2012) (extending the deadline for filing Comments to January 25, 2013). WISPA’s Comments in response to the *Public Notice* are contained in Section II.C of these Comments.

WISPs are not eligible for Universal Service Fund (“USF”) subsidies because they are not considered to be “eligible telecommunications carriers” under the Act.<sup>3</sup> As a result, WISPs must rely on their own financial resources and private investment to build and operate their networks to provide broadband service. The vast majority of WISPs are “small businesses” as defined by the Small Business Administration<sup>4</sup> and would qualify as “designated entities” entitled to the 35 percent bidding credit specified in Section 1.2110(f)(2)(i).

The area that a WISP network covers depends on several factors. In many cases, a single tower can provide point-to-multipoint service within a radius of ten miles or more. In other areas, terrain, foliage and other obstructions limit service to shorter distances. Depending on the availability of sufficient spectrum, WISPs can sometimes expand their service areas by adding additional base stations (*i.e.*, access points) to “fill in” and cover adjacent areas. Access points are generally located on vertical structures of all kinds – shared towers, water tanks, grain silos and buildings. WISPs innovate by selecting the frequencies, equipment and design techniques needed to achieve the best coverage for the customers they desire to serve. In most areas, WISPs provide service that is comparable in speed, latency and data capacity to wired broadband service. Elsewhere, WISPs may experience capacity constraints resulting from customers’ increased use of bandwidth-intensive applications such as Netflix and from congestion within unlicensed bands that are shared with other users. As an additional challenge, in some areas, there is little or no availability of second-mile access, which makes the cost of connectivity and backhaul higher than in areas where multiple backhaul options are available.

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<sup>3</sup> Communications Act of 1934, as amended (the “Act”), § 214(e).

<sup>4</sup> *See* 13 C.F.R. § 121.101-121.201.

Despite the many challenges, in the past few years WISPs have greatly expanded their coverage areas and subscribership. WISPA estimates that, in the last year alone, over 500,000 new customers in the United States have begun receiving fixed wireless broadband service from WISPs. This growth is expected to continue.

### ***Unlicensed Spectrum***

WISPs rely principally on unlicensed spectrum in the 900 MHz, 2.4 GHz and 5 GHz bands, along with “lightly licensed” spectrum in the 3650-3700 MHz band, to deliver fixed broadband services. These bands are shared with other WISPs, industrial users such as smart grid companies, and consumer devices such as baby monitors, garage door openers, cordless telephones and home WiFi networks. WISPs have demonstrated an ability to coordinate and share spectrum with other users through the use of antenna cross-polarization, sectorization, voluntary databases<sup>5</sup> and other interference mitigation techniques.

Compared to licensed spectrum, the primary benefit of unlicensed and “lightly licensed” spectrum is that the barriers to market entry are lower and infrastructure deployment can occur much more rapidly. Because unlicensed spectrum is non-exclusive, it is not required to be assigned by competitive bidding under Section 309(j) of the Act. WISPs therefore do not have to wait until the Commission conducts an auction to initiate service, nor do they have to compete with multi-billion dollar carriers for spectrum rights for large-area exclusive spectrum. Although they do not obtain “exclusivity by rule,” WISPs have been able to quickly deploy and expand services because of the availability of reasonably-priced, innovative, license-free equipment.

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<sup>5</sup> See, e.g., Memorandum from Julius Knapp, Chief, Office of Engineering and Technology, and P. Michele Ellison, Chief, Enforcement Bureau, to Manufacturers and Operators of Unlicensed 5 GHz Outdoor Network Equipment (July 27, 2010) (*available at* [http://www.spectrumbridge.com/Libraries/Misc\\_docs/FCC\\_Memorandum\\_on\\_UNII\\_Device\\_Operartion.sflb.ashx](http://www.spectrumbridge.com/Libraries/Misc_docs/FCC_Memorandum_on_UNII_Device_Operartion.sflb.ashx)) (acknowledging availability of WISPA database for voluntary registration of Part 15 operations in 5 GHz bands that are shared with Terminal Doppler Weather Radio facilities).

The ability by WISPs to serve over 3,000,000 people in 15 years using “junk” spectrum is one of the Commission’s true success stories, as the Commission rightfully acknowledged in both the *NPRM* and the National Broadband Plan.<sup>6</sup> In his Statement accompanying the *NPRM*, Chairman Genachowski affirmed that “[u]nlicensed spectrum has a powerful record of driving innovation, investment, and economic growth – hundreds of billions of dollars of value creation for our economy and consumers. Why would we turn our back on WiFi-like innovation, particularly when we can unleash both licensed and unlicensed spectrum?”<sup>7</sup>

WISPA appreciates the stated need of mobile wireless companies to have access to more spectrum below 1 GHz. However, this need is not confined solely to mobile wireless demand. It also applies to demand for fixed wireless broadband services for those citizens who do not have access to broadband today. For these reasons, WISPA actively participates in Commission proceedings intended to increase the amount and utility of spectrum available for unlicensed broadband services. A partial list of these recent and pending proceedings follows:

- *TV White Space Spectrum.* WISPA has advocated for shared use of TV white space spectrum since the Commission commenced the proceeding.<sup>8</sup> Among other things, on reconsideration WISPA successfully advocated for an increase in maximum antenna height to enable more of the country to be covered in a cost-efficient manner.<sup>9</sup>
- *4.9 GHz Band.* WISPA recently filed Comments and Reply Comments supporting commercial use of the 4940-4990 MHz band on a shared basis with primary public

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<sup>6</sup> See *NPRM* ¶ 228 (describing the way unlicensed devices are “driving economic growth”); National Broadband Plan, 50 CR 1, 94 (rel. Mar. 16, 2010).

<sup>7</sup> Statement of Chairman Julius Genachowski, Docket No. 12-268 (Oct. 2, 2012) (“Genachowski Statement”) at 3.

<sup>8</sup> See, e.g., Comments of WISPA, ET Docket Nos. 04-186 and 02-380 (Feb. 20, 2007).

<sup>9</sup> See Joint Petition for Partial Reconsideration, ET Docket No. 04-186 and 02-380 (Jan. 5, 2011).

safety licensees.<sup>10</sup> Under WISPA’s proposal, shared use would be governed by a geolocation database to protect public safety licensees.

- *3550-3650 MHz Band.* The Commission recently released a Notice of Proposed Rulemaking seeking comment on proposals regarding the 3550-3650 MHz band.<sup>11</sup> This band is adjacent to the “lightly licensed” 3650-3700 MHz band that many WISPs are using today to provide fixed broadband service. WISPA will file Comments strongly supporting the addition of this 100 megahertz of spectrum to allow cost-effective fixed broadband deployment.
- *5 GHz Bands.* Chairman Genachowski recently announced that the Commission would “take the first steps next month to unleash up to 195 megahertz of spectrum in the 5 gigahertz band.”<sup>12</sup> These bands – at 5350-5470 MHz and 5850-5925 MHz – lie immediately adjacent to the 5 GHz bands that WISPs are already using to provide fixed broadband service and point-to-point backhaul to support those services. The allocation of all or some of this 195 megahertz of additional spectrum in these bands would help ease congestion and, given the proximity of these bands to existing unlicensed bands, can be easily integrated into existing fixed broadband operations. WISPA looks forward to participating in this proceeding as well.

In addition to unlicensed spectrum, WISPs are increasingly seeking to acquire licensed spectrum rights for fixed broadband services, particularly in the 2.5 GHz band. Though there are few opportunities, these licenses have the benefit of ensuring exclusive use over a small regional area. Unlike unlicensed spectrum, 2.5 GHz spectrum is authorized at higher power and both WiMax and LTE standardized equipment is available. Licensed spectrum affords WISPs another tool they can use alongside unlicensed spectrum to increase coverage, expand into additional areas and offer new services, which support the Commission’s public interest objectives of innovation, competition and service to rural, unserved and underserved areas.

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<sup>10</sup> See Comments of WISPA, FCC 12-61, WP Docket No. 07-100, PS Docket No. 06-229 and WT Docket No. 06-150 (Nov. 1, 2012); Reply Comments of WISPA, FCC 12-61, WP Docket No. 07-100, PS Docket No. 06-229 and WT Docket No. 06-150 (Nov. 29, 2012).

<sup>11</sup> See generally *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Notice of Proposed Rulemaking and Order, FCC 12-148, GN Docket No. 12-354 (rel. Dec. 12, 2012) (“*Citizens Broadband Service NPRM*”).

<sup>12</sup> News Release, *FCC Chairman Julius Genachowski Announces Major Effort to Increase Wi-Fi Speeds and Alleviate Wi-Fi Congestion at Airports, Convention Centers, and in Homes with Multiple Devices and Users* (rel. Jan. 9, 2013).

In the *NPRM*, the Commission cites the documented benefits of unlicensed devices and summarizes the significant steps the Commission has taken in recent years to make more spectrum available for unlicensed uses. The Commission observes that “unlicensed devices have become an essential component for providing short-range broadband connectivity that supports business communications, research, education, online shopping, and other communications that are driving economic growth.”<sup>13</sup> WISPs have played an integral role in this innovation and development by providing fixed broadband services in unlicensed bands to serve millions of Americans in their homes and businesses. A robust domestic equipment manufacturing and distribution economy has also expanded, with new companies like Ubiquiti Networks providing competition at lower price points that enable WISPs to expand their networks. In the television bands, Koos Technical Services, Carlson Wireless and Adaptrum are leading the way in developing technology solutions that can be used with geolocation databases worldwide. Companies like Spectrum Bridge, Telcordia, Google and Microsoft are at the forefront of innovation in white space database administration under a competitive model that can be replicated in other bands in the United States and abroad. In short, the unlicensed spectrum economy is booming. As Commissioner Mignon Clyburn correctly observed, “[f]inding sufficient spectrum for unlicensed services is also important to companies, who have already spent considerable capital and other resources, trying to develop networks and devices that comply with the TV White Space rules we adopted, in September 2010.”<sup>14</sup>

Notwithstanding the history of achievement in unlicensed bands, the success of the unlicensed spectrum economy generally, and the ability of WISPs to continue to deliver

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<sup>13</sup> *NPRM* ¶ 228 (footnotes omitted).

<sup>14</sup> Statement of Commissioner Mignon Clyburn, Docket No. 12-268 (Oct. 2, 2012) (“Clyburn Statement”) at 2.

broadband to rural, unserved and underserved areas specifically, a number of challenges remain. First, the incentive auction process creates lingering uncertainty over the amount and location of unlicensed TV band spectrum that can be used for fixed broadband services. Second, there are still millions of Americans that lack access to fixed broadband service, and many more that are increasing their demand for increased bandwidth and faster throughput for video and other applications. This proceeding affords the Commission a golden opportunity to address these challenges so that the promise of unlicensed TV band spectrum can become reality and manifest itself in expanded and affordable fixed broadband services.

### **Discussion**

#### **I. UNLICENSED SPECTRUM IN THE TV BANDS IS CRITICAL TO IMPROVING ACCESS TO FIXED BROADBAND SERVICE.**

WISPA has a keen interest in this proceeding in light of the substantial benefits that shared use of sub-1 GHz spectrum can bring while protecting incumbent stations through geolocation databases. According to the Commission, there are approximately 19 million Americans that do not have access to fixed broadband services.<sup>15</sup> The Commission stated in the *Eighth Broadband Report* that:

Approximately 14.5 million of the 19 million (or 76 percent) Americans without access to fixed broadband meeting the speed benchmark reside in rural areas. In comparison, 4.5 million of the 19 million (or 24 percent) of Americans living in non-rural areas are without access to these services. The percentage of Americans without access in rural areas is 23.7 percent as compared to 1.8 percent in non-rural areas. These figures indicate that nearly one in four rural Americans lack access to fixed broadband meeting our speed benchmark. These data reflect that

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<sup>15</sup> See *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 Broadband Progress Report, 27 FCC Rcd 10342, 10370 (2012) (“*Eighth Broadband Report*”); *In the Matter of Connect America Fund*, Report and Order and Further Notice of Proposed Rulemaking, WC Docket No. 10-90, *et al.* (rel. Nov. 18, 2011), at ¶ 4 n.3.

rural Americans are more than thirteen times more likely to lack access to fixed broadband than Americans in non-rural areas.<sup>16</sup>

With continued access to sufficient unlicensed TV band spectrum, WISPs would be extremely well positioned to expand their coverage areas – without the benefit of Connect America Fund subsidies – and initiate service to those consumers and businesses that currently lack access to fixed broadband service.

First, the propagation characteristics of TV band spectrum are extremely well-suited for fixed broadband applications in rural areas. As a consequence of the superior propagation characteristics at lower frequencies, WISPs will require fewer towers to construct and operate transmission facilities for fixed wireless broadband networks. WISPA conservatively estimates that a TV white space base station will cover at least three times more area than a base station operating in the 2.4 GHz unlicensed band, especially in the presence of trees and terrain obstructions. This will result in a corresponding reduction in tower and infrastructure costs. With three times the coverage for the same cost, WISPs can deploy broadband service to more areas more quickly and economically, and offer service at lower prices. In sparsely populated areas of the country, low infrastructure cost can be the difference between deploying broadband or not. The significance of these benefits cannot be overlooked.

Second, market trials in the United States have shown that unlicensed broadband devices can co-exist successfully with incumbent licensees. Additionally, trials of white space equipment are proving that this spectrum can overcome foliage and geographic obstructions in rural and tribal areas. A few examples:

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<sup>16</sup> *Eighth Broadband Report* at 10370 (footnotes omitted).

- In September 2012, Rural Broadband Network Services Inc. dba Highspeedlink began providing fixed broadband service on TV white space spectrum in rural Nottoway County, Virginia. The trial uses equipment from Adaptrum, based in California, and spectrum use was confirmed through the Telcordia geolocation database. The area includes the Fort Pickett Army National Guard Base.
- In 2011, broadband service via TV white space spectrum commenced on the Yurok Indian Reservation along the Klamath River in Northern California. Located in a rural and terrain-challenged area, the Carlson Wireless network provides important public safety and first responder communications services that were not previously available.<sup>17</sup>

Third, the benefits of white space technology extend beyond the U.S. borders and beyond rural broadband. TV white space operations are being trialed in England, Finland, Singapore and other countries. Vertical markets include broadband on university campuses (through AIR.U), farm automation, digital signage and machine-to-machine communications. These are just a few of the applications under development for use in TV band spectrum.

Fourth, despite the uncertainty over the future of white space spectrum that clouded the Spectrum Act<sup>18</sup> deliberations, a large ecosystem is developing. The Commission has certified two white space radios manufactured by Koos Technical Services, Inc.<sup>19</sup> and another device made by Meld Technology, Inc.<sup>20</sup> Carlson Wireless is working with a number of WISPs that have obtained experimental licenses and has begun to ship white space equipment. Other companies are known to be developing equipment. The Commission recently authorized expanded areas of white space database operation with the expectation that the entire country

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<sup>17</sup> See Press Release, *California's Largest Tribe Deploys First White Space Broadband for Remote Public Safety Environment*, (June 10, 2011), available at <http://www.carlsonwireless.com/press-releases/69-californias-largest-tribe-deploys-first-white-space-broadband-for-remote-public-safety-environment.html>.

<sup>18</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012) (“Spectrum Act”).

<sup>19</sup> FCC ID No. ZBGAWR-1, granted Dec. 22, 2011; FCC ID No. ZBGAWR2UHF, granted June 7, 2012.

<sup>20</sup> FCC ID No. OKVMT300, granted Nov. 28, 2012.

will be authorized via geolocation databases in the very near future.<sup>21</sup> In short, the use of unlicensed TV band devices for broadband access is on the verge of becoming an important, nationwide platform for broadband access and other fixed applications.

WISPA appreciates that the remaining amount, location and frequency of unlicensed TV band spectrum necessarily will depend on a number of factors over which it has no control, to-wit: the number of TV stations that participate in the incentive auction, the outcome of the incentive auction and the repacking of TV stations. However, as the Commission designs, implements and conducts the auction and repacking processes, WISPA asks the Commission to be mindful of the opportunities that can be created – or lost – for use of unlicensed TV band spectrum.

The Commission should, to the extent possible, ensure that there is as much contiguous unlicensed spectrum as possible, preferably on Channel 21 and above. The Commission also should allow shared use of Channel 37, accelerate other permissible band-clearing activities and repack so as to optimize the remaining white space spectrum for unlicensed use. In particular, the Commission should attempt to create large contiguous blocks of unlicensed spectrum for regional unlicensed use, rather than leaving smaller, piecemeal chunks of spectrum that may not be viable for fixed broadband use under the existing first-adjacent channel technical rules. The Commission also should adopt its proposal to make guard band use unlicensed. Finally, the Commission should apply a 35 percent bidding credit to “extremely small businesses” and auction at least two contiguous paired 600 MHz blocks according to Cellular Market Areas (“CMAs”) to allow WISPs and other small companies to participate in the 600 MHz forward

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<sup>21</sup> Public Notice, *Office of Engineering and Technology Authorizes TV White Space Database Administrators to Provide Service to Unlicensed Devices Operating on Unused TV Spectrum in the East Coast Region*, DA 12-1956 (rel. Dec. 6, 2012) (also indicating that the Commission expects to authorize nationwide operations in mid-January 2013).

auction in a meaningful way. By adopting these proposals, the Commission can create the appropriate balance between licensed and unlicensed spectrum, fixed and mobile services and incumbent and new uses, consistent with the Commission’s objectives.<sup>22</sup>

**II. THE COMMISSION SHOULD ENSURE ACCESS TO THE MAXIMUM AMOUNT OF CONTIGUOUS SPECTRUM FOR UNLICENSED FIXED WIRELESS BROADBAND USE.**

The *NPRM* contains a number of proposals designed “to best preserve and improve the use of unused spectrum in the broadcast television bands for unlicensed operations.”<sup>23</sup> The Commission also emphasizes that its proposals, taken together, “will help create certainty for the unlicensed industry and promote greater innovation in new services, including increased access for broadband services across the country.”<sup>24</sup> A necessary product of this objective is the optimization of unlicensed spectrum that will remain following the incentive auction and repacking of incumbent stations. For WISPs, who will be significant users of TV band spectrum as they have been in other unlicensed bands, this means access to as much contiguous spectrum as possible, preferably on Channel 21 and above in each market. WISPA fully appreciates that this objective must not limit the post-repacking rights of incumbents beyond what the Spectrum Act may allow,<sup>25</sup> but WISPA urges the Commission to repack so as to optimize the utility and viability of the remaining white space spectrum. The Commission should take a number of steps to achieve this objective.

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<sup>22</sup> See, e.g., *NPRM* ¶ 239.

<sup>23</sup> *Id.* ¶ 227.

<sup>24</sup> *Id.* ¶ 232.

<sup>25</sup> See, e.g., Spectrum Act, § 6403(b)(2) (requiring the Commission to make “all reasonable efforts to preserve . . . the coverage area and population served” of broadcast stations as of the date of enactment). *But see* Spectrum Act, § 6403(b)(3) (limiting certain channel reassignments); § 6403(b)(5) (prescription against altering spectrum usage rights of low power television stations).

**A. The Commission Should Repack TV Stations In A Spectrally Efficient Manner To Create Large Contiguous Blocks Of Unlicensed Spectrum At Channel 21 And Above For Fixed Use.**

At the time of their adoption, the Commission described its TV white space rules as “a conservative first step that includes many safeguards to prevent harmful interference to incumbent communications services.”<sup>26</sup> One example is Section 15.709, which prevents fixed-station operation in the six megahertz of spectrum adjacent to TV stations. As such, there must be three contiguous vacant TV channels in order to enable unlicensed fixed service on just one vacant channel. If there are only one or two vacant channels between TV stations, this spectrum cannot be used for fixed services under the current rules.

The Commission will have the ability to avoid this result. By repacking to create, say, a block of six contiguous vacant channels for unlicensed use in a market, the middle four of those channels – 24 megahertz – could be used for fixed broadband services. With a significant amount of contiguous spectrum, the Commission will ensure that white space spectrum remains viable for fixed broadband use, a key objective of this proceeding.<sup>27</sup> Moreover, repacking to create contiguous blocks of at least three channels will promote and optimize spectrum efficiency by reducing the number of “stray” channels and will allow more spectrum to actually be placed in operation.

WISPA urges the Commission to establish as an overarching objective of this proceeding the optimization of unlicensed white space spectrum for unlicensed fixed use, preferably at Channel 21 (512-518 MHz) and above. Where it is possible to do so, repacking to create contiguous spectrum for fixed unlicensed use at Channel 21 and above may enable white space

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<sup>26</sup> *In the Matter of Unlicensed Operation in the TV Broadcast Bands*, Second Report and Order and Memorandum Opinion and Order, 23 FCC Rcd 16807, 16808 (2008).

<sup>27</sup> *See, e.g., NPRM* ¶ 10.

equipment manufacturers to build devices that operate in a single band rather than multiple bands. This can be expected to lower the cost of equipment because equipment manufacturers will not need to incorporate technology to allow a single radio to switch between multiple VHF and UHF frequency segments. If, however, it is not possible to locate all of the fixed unlicensed channels at Channel 21 and above, the Commission should optimize the remaining spectrum in each of the VHF and UHF bands to maximize the availability of contiguous spectrum. The objective should be to create large contiguous blocks of unlicensed spectrum, first by looking to Channel 21 and above and then by simply repacking to create more than three contiguous channels in any TV band.

**B. The Commission Should Allow Unlicensed Use Of Channel 37.**

TV Channel 37 currently is used for receive-only radioastronomy (“RAS”) operations and certain registered wireless medical telemetry systems (“WMTS”) in designated areas of the country. Under the Spectrum Act, the Commission has authority to relocate these operations to “other suitable spectrum” if all such operations can be relocated and relocation costs do not exceed \$300 million.<sup>28</sup> WISPA agrees that the Commission should begin the process of relocating incumbents by initiating a rulemaking proceeding seeking comment on issues such as the timing of the transition to other spectrum, the suitability of alternative spectrum and the costs involved.<sup>29</sup> Among other things, the Commission should consider whether the 1395-1400 MHz and 1427-1432 MHz bands that are also used for WMTS can accommodate the WMTS devices

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<sup>28</sup> See Spectrum Act, § 6403(b)(4)(A)(iii).

<sup>29</sup> See NPRM ¶¶ 211-13.

registered for use on Channel 37 and the costs associated with retuning existing Channel 37 equipment.<sup>30</sup>

In the meantime, WISPA agrees that the Commission should immediately make Channel 37 available for unlicensed use in areas where existing RAS and registered WMTS operations can be protected from harmful interference.<sup>31</sup> There is no public policy reason to impose a nationwide restriction on six megahertz of spectrum when incumbents are using that spectrum in a limited number of clearly defined areas. Channel 37 users receive protection through inclusion in the existing geolocation database with protection zones to be determined based on realistic propagation models.

To provide further flexibility, the Commission should allow unlicensed users to operate *within* the RAS and WMTS protection zones where the incumbent does not object. For operation within designated RAS zones, WISPA proposes that unlicensed users would comply with Section 1.924(a), which requires written consent from the National Radio Astronomy Observatory (“NRAO”) to operate within the Quiet Zone. Under that rule, with which NRAO and regulated entities are already familiar, the unlicensed user would provide a notification to the NRAO consisting of the geographical coordinates of the antenna location, antenna height, antenna directivity, channel, emission type and power. The NRAO would have 20 days to approve the request, in this case by informing the database administrators that operation inside the exclusion zone with the specified parameters was approved. Upon receipt of such notice, the geolocation database would allow the unlicensed user to operate pursuant to the approved parameters.

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<sup>30</sup> *See id.*

<sup>31</sup> *See id.* ¶ 237.

For operation within an area containing registered WMTS facilities, a different process would be warranted because both the incumbent and the unlicensed user are commercial entities. WISPA proposes adoption of a process similar to the one described in Section 90.1331(a)(2), which allows base and fixed stations in the 3650-3700 MHz Service to operate within grandfathered earth station exclusion zones if the parties mutually agree. Consistent with Section 90.1331(a)(3), any such negotiations would be conducted in good faith.

The Commission asks whether it should suspend the issuance of new WMTS reservations for Channel 37.<sup>32</sup> WISPA believes that a freeze would be appropriate under the circumstances. The Commission typically imposes freezes when a band is in the process of transitioning in order to preserve a stable spectrum environment and reduce relocation costs.<sup>33</sup> Where, as here, the Commission is proposing to clear Channel 37 incumbents, it would be consistent with the public interest and precedent to impose a freeze on new WMTS registrations. This freeze would not prevent registrations because WMTS systems could continue to be registered in the 1395-1400 MHz and 1427-1432 MHz bands. Further, the Commission should not reimburse relocation costs to WMTS systems that are operating without having registered in the ASHE database or that were not registered prior to the effective date of the *NPRM*.<sup>34</sup>

To the extent possible, the Commission also should work to restrict the installation of any new RAS stations on Channel 37. Although WISPA understands that the NRAO governs RAS

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<sup>32</sup> See *id.* ¶ 213.

<sup>33</sup> See, e.g., *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Notice of Proposed Rulemaking and Order, FCC 12-148, GN Docket No. 12-354, ¶ 69 (rel. Dec. 12, 2012) (imposing freeze on new earth stations in the 3600-3650 MHz band); Public Notice, *Wireless Telecommunications Bureau and Public Safety and Homeland Security Bureau Suspend the Acceptance and Processing of Certain Part 22 and 90 Applications for 470-512 MHz (T-Band) Spectrum*, DA 12-643 (rel. Apr. 26, 2012) (“*T-Band Freeze Notice*”).

<sup>34</sup> See *NPRM* ¶ 211.

stations, the Commission should communicate with the NRAO so that installation of new RAS stations can be deferred and located on the spectrum to which RAS could be re-located.

**C. The Commission Should Promote More Efficient Spectrum Use By Wireless Microphones.**

**1. The Commission Should Eliminate The Channel Reservation For Unlicensed Wireless Microphones.**

The Commission asks whether it should continue to designate two TV channels for wireless microphones, or whether the spectrum should be available for unlicensed use.<sup>35</sup> The Commission observes that wireless microphones “operate for relatively short intervals at different times” and “recent technological advances are enabling more efficient use of wireless microphones.”<sup>36</sup> Moreover, wireless microphones operate on 200 kHz of spectrum, yet obtain registration rights in the TV bands database for a full six megahertz channel. WISPA believes that the current two-channel set-aside is overprotective and an inefficient use of spectrum, and that wireless microphones can be protected through more spectrally efficient means without prejudicing their operational ability. By adopting WISPA’s proposals, more unlicensed spectrum can be cleared for fixed white space devices.

Existing rules reserve two TV channels – one above Channel 37 and one below Channel 37 – for wireless microphone reservation in the TV bands database.<sup>37</sup> Licensed microphones may register for protection on any available TV channel at the venue where they are used. Unlicensed microphones can register on the non-reserved channels under certain

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<sup>35</sup> See *id.* ¶ 238; see also *id.* ¶ 224.

<sup>36</sup> See *id.* ¶ 223.

<sup>37</sup> See Sections 15.707(a) and 15.712(f)(2).

circumstances.<sup>38</sup> The two exclusive channels and the ability for wireless microphones to reserve additional TV channels provide considerable spectrum for microphones without risk of interference from unlicensed devices. In the *TV White Spaces Second MO&O*, the Commission stated that:

The two reserved TV channels will accommodate a minimum of at least 16 wireless microphones, and the additional channels that are not available for TVBDs at most locations will accommodate many additional wireless microphones . . . . Such entities may consult with a TV bands database to identify the reserved channels at their location, as well as the TV channels that may not be available for TV bands devices.<sup>39</sup>

There are two categories of “additional channels that may not be available for TV band devices.”<sup>40</sup> One set of channels consists of vacant TV channels below Channel 21 that are available only for fixed uses (and only where, under Section 15.709, there are at least three vacant contiguous TV channels). The second set consists of those wireless microphones that operate co-channel to broadcast stations in distant markets. As stated in the *NPRM*, existing rules require co-channel wireless microphone operations to be separated by a distance of at least 113 kilometers (70 miles) from a television station.<sup>41</sup> The Commission notes that this separation distance was established before the digital TV transition.<sup>42</sup>

The current registration scheme creates the potential for TV channels to be registered in ways that would block other unlicensed uses. Instead of reserving two full channels for wireless

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<sup>38</sup> See *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, Second Memorandum Opinion and Order, 25 FCC Rcd 18661, 18671-18677 (2010) (“*TV White Spaces Second MO&O*”).

<sup>39</sup> *TV White Spaces Second MO&O*, ¶¶ 31-32.

<sup>40</sup> *Id.*

<sup>41</sup> *NPRM*, ¶ 223.

<sup>42</sup> See *id.* ¶ 225.

microphones, the Commission should amend its microphone registration requirements in several significant ways.

First, the two channels currently reserved for wireless microphones should no longer be exclusive to wireless microphones, but rather should be designated as white space channels (to the extent they are not auctioned) that can be used by other unlicensed devices. With Channel 37 available for unlicensed use in certain areas of the country, clearing the two reserved channels and Channel 37 will make available significant spectrum resources for fixed broadband.

Second, wireless microphones should instead be required to register in the TV bands database for channels below Channel 21. This will spectrally separate wireless microphone channels from TV white space operations on Channel 21 and above, thereby improving the availability of “clean” unlicensed spectrum for both wireless microphones and TV bands devices and mitigating the potential for “pop-up” intermittent uses that will require TV bands devices to relocate to another available channel, if any. Given the restrictions on personal portable use on these channels and the desire to promote fixed use in Channels 21 and above, wireless microphones can expect to have sufficient spectrum to use below Channel 21.

Third, a microphone should not be permitted to register an entire six megahertz channel, but should only be permitted to register the portion of a channel that it actually plans to use. There is no public policy reason to block out a whole channel where the microphone is using only a narrow sub-channel of 200 kHz of spectrum. Adopting this requirement also would allow multiple wireless microphones to be registered within a single TV channel.

Fourth, where possible, wireless microphones should operate co-channel with broadcasters in closer proximity than current rules permit.<sup>43</sup> Given that the separation distance

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<sup>43</sup> *See id.*

of 113 kilometers was established *before* the digital TV transition, to the extent that this distance can be shortened to a lesser standard distance or be determined by the “particular interference conditions” at the location, as the Commission suggests, the Commission do so.<sup>44</sup>

As an alternative, WISPA suggests that the Commission adopt WISPA’s earlier proposal to make the two channels reserved for wireless microphones *non-exclusive*.<sup>45</sup> This solution would mitigate the potential for interference by designating specific channels for wireless microphones (or retaining the existing reserved channels) while allowing TV bands devices to use additional spectrum with a higher degree of certainty that they will not suffer or cause interference to wireless microphones. Because the two designated channels would not be exclusive to wireless microphones, they would not preclude use by unlicensed and unregistered devices, and this would enable more efficient white space spectrum use.

2. **The Commission Should Require Wireless Microphones To Transition To Digital Technology.**

In the *NPRM* and the *Public Notice*, the Commission observes that Shure and Sennheiser, two of the leading wireless microphone manufacturers, are now producing digital wireless microphones that support from 12 to 15 systems on a single six megahertz channel, an amount that is roughly twice the number of analog microphones that can be supported.<sup>46</sup> The Commission further notes that analog devices occupy a small portion of a six-megahertz channel “while the remainder is effectively left fallow. This constitutes a very inefficient use of valuable

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<sup>44</sup> *See id.*

<sup>45</sup> *See* WISPA’s Consolidated Opposition to Petitions for Reconsideration, ET Docket Nos. 04-186 and 02-380, filed May 8, 2009, at 6-8.

<sup>46</sup> *See NPRM* ¶ 223 n.353; *Public Notice* at 6.

spectrum.”<sup>47</sup> The Commission seeks comment on whether it should adopt efficiency standards that would promote more efficient use of the spectrum and the timeframe for transitioning to more efficient technology.

WISPA certainly favors any bandwidth requirement and transition plan that promotes more efficient use of the TV band spectrum in the shortest reasonable time period. By reducing the amount of bandwidth that wireless microphones use – and by eliminating the exclusive channel reservations as described above – more unlicensed devices can be put to use for fixed broadband and other applications. Over time, WISPA believes that wireless microphones can be converted to white space devices. WISPA looks forward to the contributions that wireless microphone companies will make to the record.

**D. The Commission Should Repack Secondary Television Stations In A Spectrally Efficient Manner And Should Diligently Enforce Its Rules.**

Pursuant to the Spectrum Act, only full power television stations and low power television (“LPTV”) stations that have been accorded primary status as Class A television licensees under Section 73.6001(a) are eligible to participate in the reverse auction.<sup>48</sup> As secondary stations, LPTV and television translator stations will not be eligible to participate in the reverse auction and are not protected during repacking.<sup>49</sup> The Commission has explained that LPTV stations will be “‘displaced’ and will either have to relocate to a new channel that

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<sup>47</sup> *Id.* at 6.

<sup>48</sup> *See* Spectrum Act, § 6001(6) (excluding non-Class A LPTV and television translator stations from the definition of “broadcast television licensee”), § 6001(30) (explaining that only broadcast television licensees are eligible to participate in the reverse auction).

<sup>49</sup> *See NPRM* ¶¶ 74, 118 (“[W]e do not propose to extend protection in the repacking process to low power television and translator stations. Such stations have always had secondary status for interference purposes, and . . . the Spectrum Act’s mandate with respect to preservation of coverage in the repacking process does not extend to them”); ¶ 358 (“full power and Class A television stations will be assigned new channels in the broadcast television spectrum reorganization without regard to whether such channel assignments, or the modified facilities required to implement service on them, would interfere with existing low power television and translator facilities”).

does not cause interference or else discontinue operations altogether.”<sup>50</sup> The displacement process would occur after full-power and Class A stations are repacked.<sup>51</sup> These rules create flexibility for the Commission to implement displacement procedures that will help optimize remaining white space spectrum.

**1. The Commission Should Allow Channel Sharing Among LPTV And Translator Stations.**

The Commission seeks comment on procedures for handling the inevitable displacement of LPTV and translator stations.<sup>52</sup> Consistent with the Commission’s goal of making “a substantial amount of spectrum available for unlicensed uses,”<sup>53</sup> WISPA recommends that the Commission take two important steps that will help accomplish this objective without diminishing the rights of secondary broadcast stations. First, as proposed in the *NPRM*, the Commission should allow LPTV and translator stations to share channels with each other and with full-power and Class A TV stations.<sup>54</sup> Channel sharing promotes spectral efficiency by freeing up six megahertz of spectrum, and can be more cost-effective for broadcast stations because tower lease, infrastructure and other costs can be shared. The Commission has previously authorized channel sharing and its use should be encouraged as part of the overall repacking plan.<sup>55</sup>

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<sup>50</sup> *Id.* ¶ 358.

<sup>51</sup> *See id.* ¶ 360.

<sup>52</sup> *See id.* ¶¶ 359-61.

<sup>53</sup> *Id.* ¶ 9.

<sup>54</sup> *See id.* ¶ 359.

<sup>55</sup> *See, e.g., Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, 27 FCC Rcd 4616, 4621-24 (2012).

Second, the Commission should establish parameters for displacement applications that will promote the overall goal of optimizing the remaining white space spectrum for unlicensed use. In some cases, this may mean that the Commission will identify preferred channels for which displacement applications can be filed so as to rationalize the TV band plan in a given market as a whole, and optimize the utility of white space spectrum. As one example, it may be technically feasible to locate LPTV stations on channels adjacent to each other. Allowing displacement to any available channel could have the effect of precluding TV bands devices from operating, a result the Commission should prevent wherever possible.

**2. The Commission Should Clarify That Protection From The TV Bands Database Only Applies To Licensed And Operating Stations.**

The Commission also should diligently enforce its rules to ensure that those LPTV and translator stations not entitled to interference protection do not have protected status in the TV bands database. Section 15.713(b) states that the TV bands database will rely on information in the Commission's existing database to determine the protection for "facilities" of LPTV and translator "stations." Section 15.713(h) provides further detail, explaining that "a TV bands database is to include only TV station information from station license or license application records." The clear intent of these rules is to ensure that database protection attaches only when the station is broadcasting. If a station is "dark," the station would lose database protection and the channel would become available for unlicensed use unless or until the station resumed broadcasting.

The Commission should vigorously enforce Section 74.763(c), which states that LPTV stations failing to operate for a period of 30 days or more shall in certain circumstances be deemed to be evidence of discontinued operation, after which the "license of the station may be

cancelled at the discretion of the FCC.”<sup>56</sup> Likewise, the Commission also should enforce Section 312(g) of the Act requiring any station that “fails to transmit broadcast signals for any consecutive 12-month period” to automatically lose its license. The statute affords the Commission limited discretion to reinstate a broadcast license “for any other reason to promote equity and fairness.”<sup>57</sup> WISPA submits that, in circumstances where a non-broadcasting TV station can have protected status in the TV bands database and prevent that channel from being used for unlicensed purposes, the Commission’s discretion should account for the potential availability of the channel for unlicensed purposes.

In addition, the Commission should continue to enforce its rules that downgrade Class A television stations to secondary, LPTV status where the licensee has failed to meet the eligibility criteria in the Community Broadcasters Protection Act of 1999.<sup>58</sup> The Commission has taken these steps<sup>59</sup> and it should continue to do so.<sup>60</sup>

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<sup>56</sup> Section 74.763(c) (“Failure of a low power TV, TV translator, or TV booster station to operate for a period of 30 days or more, except for causes beyond the control of the licensee, shall be deemed evidence of discontinuation of operation and the license of the station may be cancelled at the discretion of the FCC. Furthermore, the station’s license will expire as a matter of law, without regard to any causes beyond control of the licensee, if the station fails to transmit broadcast signals for any consecutive 12-month period, notwithstanding any provision, term, or condition of the license to the contrary.”); *see also* Act, § 312(g) of the Act (indicating that a license will expire at the end of the term as a matter of law if silent for any consecutive 12-month period); *Silent Station Authorizations*, 11 FCC Rcd 16599, 16599-601 (1996).

<sup>57</sup> Act, § 312(g).

<sup>58</sup> *See NPRM* ¶ 75. Such secondary LPTV stations are ineligible to participate in the incentive auction. *See* Spectrum Act, §§ 6001(6), 6001(30).

<sup>59</sup> *See NPRM* ¶ 75 (“We note that Class A television stations must continue to meet the Community Broadcasters Protection Act of 1999 (CBPA) eligibility criteria in order to retain Class A status, or else they are subject to modification of their license to low power television status”); *id.* ¶ 75 n.103 (“In order to qualify for Class A status, the CBPA provided that, during the 90 days preceding enactment of that statute, an LPTV station must have: (1) broadcast a minimum of 18 hours per day; (2) broadcast an average of at least three hours per week of programming produced within the market area served by the station; and (3) been in compliance with the Commission’s rules for low power television stations. *See* § 336(f)(2)(A)(i) of the Act. Class A stations are also required to comply with certain full power television rules to maintain their Class A status. *Id.* § 336(f)(2)(A)(ii).”).

Finally, the Commission should enforce its LPTV digital transition rules. In its *Second Report and Order* adopted in 2011, the Commission clearly stated that all LPTV stations, without exception, would be required to cease analog operations by September 1, 2015.<sup>61</sup> Further, “last-minute” extensions of time to construct digital facilities must be filed by May 1, 2015 and would be granted only in limited circumstances.<sup>62</sup> The Commission should enforce these standards and deadlines so that non-compliant stations can be removed from the TV bands database and thereby make the vacant spectrum available for unlicensed use.

By diligently enforcing its rules and statutes and exercising its discretion in a manner that considers the public interest benefits of unlicensed spectrum, the Commission can make unused white space spectrum available to broadband providers and other users that will put the spectrum to more productive use.

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<sup>60</sup> See, e.g., *Reclassification of License of Class A Television Station WBVT-CA Burlington, Vermont*, Order, 27 FCC Rcd 13550 (MB 2012) (downgrading a Class A station to a low power station after concluding that the licensee, which failed to file several Children’s Television Programming Reports, had “not fulfilled its obligations as a Class A licensee, and that the modification of its Class A license to a low power television license therefore serves the public interest”); *Reclassification of License of Class A Television Station KGLR-LP Lubbock, Texas*, Order, 27 FCC Rcd 10917 (MB 2012) (same); *Reclassification of License of Class A Television Station WGSA-CA, Savannah, Georgia*, Order to Show Cause, 27 FCC Rcd 2544 (MB 2012) (station silent for most of three years subject to loss of Class A status).

<sup>61</sup> See *Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, Second Report and Order, 26 FCC Rcd 10732, 10739 (2011).

<sup>62</sup> See *id.* Pursuant to Section 74.788(c), LPTV stations must show that the delay in constructing digital facilities was “due to circumstances that are either unforeseeable or beyond the licensee’s control where the licensee has taken all reasonable steps to resolve the problem expeditiously. Such circumstances shall include but shall not be limited to: (i) Inability to construct and place in operation a facility necessary for transmitting digital television, such as a tower, because of delays in obtaining zoning or FAA approvals, or similar constraints; (ii) The lack of equipment necessary to obtain a digital television signal; or (iii) Where the cost of construction exceeds the station’s financial resources.”

**E. The Commission Should Allow Unlicensed Use Of Auctioned TV Band Spectrum Until The Licensee Commences Service In The Area Served By Unlicensed Users.**

Following the auction and the licensing of the 600 MHz band for mobile wireless services, auction winners will not immediately commence service. In fact, depending on the market, it may be several years before service in a given market commences and, if the past is prologue, mobile wireless deployments will occur first in urban areas. To promote further flexibility and spectrum-efficient use, the Commission thus should make clear that auctioned spectrum will remain available in the TV bands database until the licensee notifies the Commission and the database administrators that it is commencing service to the public. Thereafter, unlicensed use could continue in those areas where the licensee is not operating simply by relying on the TV bands database. As an example, if the auction winner first offered service in the urban core of its licensed geographic area, unlicensed operations should be permitted to remain in operation in rural areas where such operations would not cause interference in accordance with the database protection requirements. Over time, as 600 MHz licenses are built out, the unlicensed use will need to cease, but this may take many years.

There is no public policy reason for the Commission to require unlicensed uses to cease operating before a licensee actually commences service in the particular area of unlicensed operation. To the contrary, allowing unlicensed operations to continue post-auction will ensure maximum use of the spectrum for the longest period of time. As with other services, only actual operations are protected by the TV bands database, and there is no reason why 600 MHz licensees should be given greater rights.<sup>63</sup>

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<sup>63</sup> See, e.g., Section 15.713(b) (listing services protected by the TV bands database).

WISPA's proposal is as follows. Thirty days prior to initiating service in the licensed area, the licensee would submit an initial notice of service commencement to the Commission. In order to preserve the licensee's confidentiality, this notice need not report the areas of operation within the licensed area, but would merely indicate that service had commenced. The notice would be placed on the Commission's public notice so that unlicensed users in the market would receive notice that the licensee would be commencing service and could begin to take any necessary steps to accommodate the licensee's actual operations.

Simultaneously with the submission of the notice to the Commission, the 600 MHz licensee would provide more detailed information to the database administrator. This information would include shape files or maps that depict the actual areas of operation, and presumably would be readily available from the licensee's engineering analyses. Within the 30-day pre-launch period, the database administrator would then work with the licensee to ensure that the area of operation was accurately incorporated into the TV bands database. This verification process would be an important feature because, unlike other stations in the TV bands database, there would be no Commission database containing contours of licensed 600 MHz operations. Once verified, the area of operation would become unavailable for co-channel unlicensed operation. Unlicensed operations would then be automatically precluded on the channel and in the area of actual operation. Unlicensed operations could continue elsewhere in the licensed area until such time as the licensee initiated service there.

Following the filing of initial service commencement notice and the submission of information to the database administrators, the licensee would have a continuing obligation to provide information to the database administrators (but not the Commission). For each subsequent submission to the administrators, the licensee and the database administrators would

have 30 days to ensure that the data incorporated into the TV bands database was accurate, at which time protection would attach in the new areas of operation and unlicensed use would be precluded in such areas.

The Commission incorporated similar policies into its rules for the 2.5 GHz band. Under Section 27.55(a)(4), a licensee may exceed the signal strength at the border of its licensed area without consent where another licensee is not providing service. Thereafter, when a licensee begins providing service, the other user is required to comply with the applicable power level at the boundary and can only operate in the affected licensee's area if the licensee consents. In adopting this rule, the Commission recognized "the importance of ensuring the ubiquitous availability of broadband services."<sup>64</sup> The same rationale should apply here – continued operations of an existing service should be permissible where they will not disrupt the new licensee's operations.

**F. The Commission Should Expedite The Relocation Of T-Band Licensees.**

Section 6103 of the Spectrum Act requires the Commission to reallocate the 470-512 MHz band, which corresponds with TV Channels 14-20, and to reallocate that spectrum via competitive bidding. The Spectrum Act affords the Commission nine years to reallocate the spectrum and another two years to relocate public safety incumbents.

WISPA notes that the Commission has adopted a limited suspension on the acceptance of new T-Band applications for this band<sup>65</sup> and has indicated that relocations issues will be

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<sup>64</sup> *In the Matter of Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165, 14209 (2004).

<sup>65</sup> *See T-Band Freeze Notice*.

addressed in an upcoming rulemaking proceeding.<sup>66</sup> WISPA requests that the Commission commence this proceeding expeditiously. Although the T-Band is designated for competitive bidding, such spectrum could be useful to fixed broadband providers. Given the relationship between the T-Band and the other TV channels subject to the incentive auction proceedings, considering the issues holistically would be a logical approach.

**III. THE COMMISSION SHOULD ENSURE THAT ANY GUARD BANDS CAN BE USED ON AN UNLICENSED BASIS.**

WISPA supports the Commission's proposal that the guard bands be available for unlicensed use.<sup>67</sup> The Commission's proposal rests on the "significant benefit" that TV band devices are designed for use with the guard band spectrum as well as the remaining white space spectrum.<sup>68</sup> Moreover, as the Commission's statements recognize, unlicensed bands have been a proving ground for successful innovation and an engine for economic growth, contributing "hundreds of billions of dollars of value creation for our economy and consumers."<sup>69</sup> With a nationwide footprint, there will be even greater incentive for entrepreneurs and companies to create new products, services and applications that will fuel innovation and competition and benefit the economy, objectives that are consistent with the public interest.

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<sup>66</sup> See *NPRM* ¶ 19.

<sup>67</sup> See *id.* ¶ 234.

<sup>68</sup> *Id.* ¶ 234.

<sup>69</sup> Genachowski Statement at 3; see also Clyburn Statement at 2 (estimating that unlicensed spectrum generates between 16 and 37 billion dollars each year).

**IV. THE COMMISSION SHOULD ESTABLISH AUCTION RULES THAT WILL ENABLE MEANINGFUL PARTICIPATION BY SMALLER ENTITIES.**

Section 6403(e)(3) of the Spectrum Act states that, in conducting the forward auction, “the Commission shall consider assigning licenses that cover geographic areas of a variety of different sizes.” The Commission seeks comments on the geographic areas that it should auction.<sup>70</sup> WISPA urges the Commission to auction at least two contiguous paired blocks of the 600 MHz spectrum according to smaller CMAs. This will afford smaller, regional operators the opportunity to acquire spectrum that more precisely overlays existing networks, and will encourage greater participation in the auction.<sup>71</sup>

Many WISPs are considering various options for additional spectrum they can use to deliver fixed broadband services in a wireless environment that is becoming increasingly more congested and capacity-constrained. As discussed above, some WISPs believe that unlicensed TV white space spectrum can address their business needs and the demands of consumers. Others have interest in obtaining exclusive spectrum, and may consider participating in the forward auction as they attempt to add new advanced wireless services to better serve the public.

WISPA believes that the Commission should auction at least two contiguous blocks of paired 600 MHz licenses nationwide in each of the 734 CMAs. As the Commission proposes, these blocks should be five megahertz each and should be auctioned in pairs.<sup>72</sup> Thus, there would be two pairs of 10 megahertz (5 megahertz + 5 megahertz) each, for a total of 20 megahertz of spectrum auctioned by CMA. Because WISPs generally operate in local and regional areas, CMAs more closely approximate their service territories and the 600 MHz

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<sup>70</sup> See *NPRM* ¶ 149.

<sup>71</sup> WISPA takes no position at this time on the 600 MHz band plan the Commission should adopt.

<sup>72</sup> See *NPRM* ¶¶ 128, 132.

spectrum would act as an overlay to help alleviate congestion and capacity constraints. Most WISPs do not have the financial wherewithal to compete in auctions for Economic Areas (“EAs”) or Regional Economic Area Groups (“REAGs”), and have no desire to acquire large geographic areas when they only want the spectrum to cover a smaller area. Moreover, by auctioning smaller areas, the Commission would invite more participation in the auction, not less, which would tend to drive up auction revenues.

The Commission expresses some reservations about auctioning small areas, suggesting that “having a large number of very small licenses may raise implementation risks for the auction designs contemplated in this proceeding” and “could complicate potential bidders’ efforts to plan for, and participate in, the auction.”<sup>73</sup> The Commission can, of course, auction other blocks according to EAs and REAGs, and it can be expected that the larger carriers will devote their financial resources primarily to those blocks, though they would retain the ability to bid on the CMA blocks. WISPA further submits that the ability of small providers would be “complicated” by auctioning all of the 600 MHz licenses in large geographic areas, a concern the Commission must acknowledge. The auction should not be an opportunity for just the large established carriers to acquire spectrum, but also for smaller companies and new entrants to participate as well.

Past auctions indicate that small entities have acquired wireless licenses via competitive bidding in CMAs. In the AWS auction (Auction 66), the Commission auctioned the A Block according to CMAs. As the table below makes clear, designated entities purchased a higher percentage of licenses in rural areas:

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<sup>73</sup> *Id.* ¶ 147.

<b>Block</b>	<b>A (RSA)</b>	A (MSA)	B and C	D, E and F
<b>Service Area</b>	<b>CMA</b>	CMA	EA	REAG
<b>Total Licenses</b>	<b>428</b>	306	352	36
<b>DE Winner</b>	<b>113</b>	46	51	5
<b>% DE Winner</b>	<b>26.4</b>	15.0	14.5	13.9

Similarly, in the Lower 700 MHz auction (Auction 73), the Commission auctioned the B Block according to CMAs. Here again, there was a higher percentage of designated entity in the rural markets (RSAs) as compared to the high bidders for the other licenses.

<b>Block</b>	A	<b>B (RSA)</b>	B (MSA)	C	E
<b>Service Area</b>	EA	<b>CMA</b>	CMA	REAG	EA
<b>Total Licenses</b>	176	<b>428</b>	306	12	176
<b>DE Winner</b>	81	<b>206</b>	85	3	2
<b>% DE Winner</b>	46.0	<b>48.1</b>	27.8	25.0	1.1

These results illustrate the interest and success that small entities have had in obtaining spectrum for broadband and other advanced services in rural markets, and further show that the Commission’s practice of including a geographic mix of licenses, including small areas, was consistent with the statutory requirements of “disseminating licenses among a wide variety of applicants.”<sup>74</sup>

To provide further incentive to participate in the forward auction, WISPA also supports adoption of bidding credits for “designated entities” that participate in the forward auction.<sup>75</sup>

The Commission should apply all three tiers of bidding credits established in Section 1.2110(f)(2) – a 15 percent bidding credit for businesses with average gross revenues for the preceding three years of \$40 million or less, a 25 percent bidding credit for businesses with average gross revenues for the preceding three years of \$15 million or less, and a 35 percent bidding credit for businesses with average gross revenues for the preceding three years of \$3

<sup>74</sup> Act, § 309(j)(3)(B).

<sup>75</sup> See *NPRM* ¶ 295.

million or less.<sup>76</sup> Adopting this bidding credit will encourage greater participation by smaller entities in the auction and increase the likelihood that they can acquire licenses, without limiting participation by larger companies.

**V. THE COMMISSION SHOULD CONSIDER CHANGES TO ITS TV WHITE SPACE RULES TO PROMOTE GREATER FLEXIBILITY.**

WISPA appreciates that the Commission has not, in this proceeding, proposed changes to the operating requirements for unlicensed TV bands devices. As the incentive auction process moves forward and white space use proliferates, opportunities to re-examine certain rules may emerge. For example, in certain areas, it may be possible and beneficial to allow TV bands devices to operate at higher power without increasing the potential for harmful interference to incumbents. This could be accomplished by adopting graduated distance separation criteria that sets maximum power limits based on factors such antenna height and distance from a protected contour. Other examples would be to relax the restrictions that prevent TV bands devices from operating on channels adjacent to protected stations<sup>77</sup> and to relax the out-of-band emissions standards.<sup>78</sup> Over time, and as technology advances, greater comfort with the database and “real-world” spectrum sharing experience may suggest that more flexible unlicensed use would be both possible and beneficial, without increasing the potential for harmful interference to stations entitled to database protection. WISPA commits to working with incumbents and the Commission on ways to promote operational flexibility, and urges the Commission to consider

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<sup>76</sup> The *NPRM* does not reference the designated entity category prescribing the 35 percent bidding credit.

<sup>77</sup> See Section 15.709.

<sup>78</sup> See *Unlicensed Operation in the TV Broadcast Bands*, Second Report and Order and Memorandum Opinion and Order, ET Docket Nos. 04-186 and 02-380 (rel. Nov. 14, 2008), ¶¶ 170, 178. The Commission declined to relax the adjacent-channel emission standards. See generally *Unlicensed Operation in the TV Broadcast Bands*, Third Memorandum Opinion and Order, 27 FCC Rcd 3692 (2012).

initiating proceedings to develop a public record when circumstances suggest it would be possible to do so.

### **Conclusion**

This multi-faceted and complex proceeding involves many issues of first impression and the interests of many legitimate stakeholders. Among those are the interests of unlicensed users of TV bands devices such as WISPs that provide vital and significant broadband access to more and more Americans by using spectrum more and more efficiently. This practice cannot continue forever – additional spectrum resources are necessary to meet the public’s demand. TV white space spectrum offers a significant opportunity to expand the reach of broadband, especially in rural areas where the need is greatest.

Within the confines of the incentive auction process, the Commission should maintain focus on the benefits that the unlicensed economy has brought and can bring, and the objectives of creating a balanced approach to spectrum management. The Commission can better promote these benefits and achieve its goals by spectrally efficient repacking, expeditious band clearing and diligent rule enforcement that optimizes the amount of contiguous, unlicensed white space spectrum. The Commission can also ensure that any guard bands created through its band plan are available for unlicensed use. In addition, the Commission can adopt changes to its auction

rules to encourage greater participation by small entities that have historically been unable to bid for wireless licenses. WISPA urges the Commission to adopt the rule changes and practices proposed herein.

Respectfully submitted,

**WIRELESS INTERNET SERVICE  
PROVIDERS ASSOCIATION**

January 25, 2013

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