

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
Amendment of Parts 15, 73 and 74 of the Commission’s Rules to Provide for the Preservation of One Vacant Channel in the UHF Television Band for Use by White Space Devices and Wireless Microphones)	MB Docket No. 15-146
)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions)	GN Docket No. 12-268
)	
To: The Commission		

**COMMENTS OF
OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA
AND PUBLIC KNOWLEDGE**

The Open Technology Institute at New America (“OTI”) and Public Knowledge (“PK”) are pleased to submit these comments in response to the issues raised in the above-referenced *Vacant Channel NPRM*¹ and *Procedures PN*.² OTI and PK strongly support the Commission’s proposal and tentative conclusion that a minimum of either one or two vacant UHF-band television channels should be reserved in every market nationwide after the incentive auction for public use on an unlicensed basis.

¹ *Amendment of Parts 15, 73 and 74 of the Commission’s Rules to Provide for the Preservation of One Vacant Channel in the UHF Television Band For Use By White Space Devices and Wireless Microphones*, MB Docket No. 15-146, Notice of Proposed Rulemaking, FCC 15-68 (rel. June 16, 2015) (“*Vacant Channel NPRM*”).

² *Procedures for Competitive Bidding in Auction 1000, Including Initial Clearing Target Determination, Qualifying to Bid, and Bidding in Auctions 1001 (Reverse) and 1002 (Forward)*, AU Docket No. 14-252, GN Docket No. 12-268, WT Docket No. 12-269, MB Docket No. 15-146, Public Notice, FCC 15-78 ¶ 32 (Rel. Aug. 11, 2015) (“*Procedures PN*”).

I. INTRODUCTION AND SUMMARY

The Open Technology Institute at New America (“OTI”) and Public Knowledge (“PK”) strongly support the Commission’s proposal to reserve at least one vacant television channel in every market nationwide for public use on an unlicensed basis, as well as a second channel in any market where a TV station is repacked into or otherwise impairs the Duplex Gap.

The Commission can best optimize TV band spectrum for innovation, job creation, consumer welfare and economic growth more broadly only by ensuring continued public access to a substantial number of six-megahertz blocks of *unlicensed* TV White Space spectrum in *every* local market nationwide. The Commission’s proposal to reserve one channel in every market (and, in some markets, possibly two channels) for unlicensed use is critical because falling below a threshold amount of unlicensed bandwidth in even a single major market (e.g., Los Angeles) is likely to negate the public interest benefits of the TV White Spaces allocation for consumers in every market. Public access to a minimum of three unlicensed six-megahertz channels in every market nationwide is essential to spurring investment and achieving the enormous public interest benefits of incorporating low-band WiFi in personal/portable devices.

Both the Communications Act and the 2012 Spectrum Act provide clear authority for the Commission’s proposal to require certain broadcast license applicants to demonstrate that their new, modified or displacement facility will not eliminate the last (or second to last) vacant UHF channel. OTI and PK strongly agree that the vacant-channel demonstration condition should apply immediately and fully to lower-power secondary broadcast licensees, particularly LPTVs, translator, BAS and digital replacement translator (DRT) stations. The most salient factor justifying the proposed vacant-channel demonstration is that because their coverage areas are relatively small, LPTV and translator stations can engineer facilities to operate in the

spectrum between full power stations and, as a result, are more likely than full power stations to eliminate vacant channels that would otherwise be available to the general public for unlicensed use across the entire market area. If the Commission does not adopt a bright-line rule that preserves a baseline amount of unlicensed UHF spectrum for white space devices and for wireless microphones, a single small-area translator or LPTV station in a single market could effectively undermine the far greater public interest benefit of investment, innovation and deployment of unlicensed devices in the band nationwide.

Finally, OTI and PK urge the Commission to make both Class A and full power stations subject to the vacant-channel demonstration condition for licensing changes after the 39-month transition period ends. The Commission's proposal for Class A stations strikes the right balance. If the Commission does not impose the vacant-channel demonstration requirement after a reasonable period (e.g., after the 39-month transition), there will be no end to the uncertainty that has so far stymied investment in the IEEE's 802.11af standard and in other unlicensed personal/portable device and machine-to-machine innovations.

II. THE COMMISSION'S PROPOSALS TO PRESERVE VACANT UHF CHANNELS IN EVERY MARKET NATIONWIDE ARE CRITICAL TO THE VIABILITY AND ENORMOUS PUBLIC INTEREST DERIVED FROM UNLICENSED WHITE SPACE DEVICES AND WIRELESS MICROPHONES

OTI and PK strongly agree with the Commission's tentative conclusion in the *Vacant Channel NPRM* that "preserving a vacant channel in every area for use by white space devices and wireless microphones will ensure that the public continues to have access across the nation to the significant benefits described above, consistent with our intent to strike 'a balance between the interests of all users of the television bands . . .'"³ OTI and PK continue to believe that the Commission can best optimize the use of TV band spectrum for communication, innovation, job

³ *Vacant Channel NPRM* at ¶ 10.

creation, consumer welfare and economic growth more broadly only by ensuring the availability of a substantial number of six megahertz blocks of *unlicensed* access to TV White Space spectrum in *every* local market nationwide.

The Commission’s proposal to reserve one channel in every market (and, in some markets, possibly two channels) for unlicensed use by white space devices and wireless microphones is critical because falling below a threshold amount of unlicensed bandwidth in even a single major market (e.g., Los Angeles) is likely to negate the public interest benefits of the TV White Spaces allocation for consumers nationwide. As leading chipmakers and technology companies have asserted repeatedly throughout this proceeding, ensuring a substantial amount of unlicensed spectrum on a nationwide basis is critical for developing markets with scope and scale for new, innovative and affordable “Super WiFi” chips, devices, applications and services.

The family of IEEE 802.11 WiFi standards and devices has proven to be an unparalleled economic boon to both the wireless and wired broadband ecosystems, generating at least \$200 billion in consumer welfare each year in the U.S. alone. Yet Wi-Fi never would have flourished without access to a substantial and predictable amount of unlicensed bandwidth in *every market* nationwide (and, increasingly, worldwide). As the Commission stated in the *Incentive Auction NPRM*, by ensuring that a substantial amount of unlicensed spectrum “will be available on a nationwide basis,” the Commission “will help to create certainty for the unlicensed industry and promote greater innovation in new services, including increased access for broadband services across the country.”⁴ And while the Commission has proposed opening access to additional unlicensed spectrum at in the upper 5 GHz band, the TV white space spectrum remains critical

⁴ *In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, FCC 12-118, Docket No. 12-268, at ¶ 239 (rel. Oct. 2, 2012)(hereinafter “*Incentive Auctions NPRM*”).

because a diverse ecosystem of both low-band and high-band spectrum is necessary to fully realize the benefits of unlicensed spectrum.

In retrospect, it is difficult to imagine the tremendous opportunity cost to the U.S. economy, to the nation's wireless ecosystem, and to the broad public interest if the FCC had decided that there would be no certainty about the availability of spectrum for WiFi at 2.4 GHz in every area of the country – and that instead, at some unpredictable time in the future, a secondary licensee could emerge and foreclose public access. That is precisely the sort of uncertainty and immense opportunity cost that the Commission is prudently proposing to avert with its first and second vacant channel proposals here.

OTI and PK, like most of the unlicensed stakeholders participating in this proceeding, believe that shared public access to a bare minimum of three six-megahertz channels in every market nationwide remain essential to achieving the enormous public interest benefits of making low-band Wi-Fi over TVWS available in personal/portable devices. At the time of the 2014 Report and Order, it was widely discussed and accepted that locating an unlicensed channel in the Duplex Gap nationwide was essential to ensuring three six-megahertz channels in every market. Accordingly, in its incentive auction framework order, the Commission opted to strike a careful balance. The Commission determined that unlicensed users could operate in a 6 MHz portion of the duplex gap “nationwide,” expanding opportunities for unlicensed operations.⁵

The Commission's “second vacant channel” proposal in the *Procedures PN* is therefore just as critical to the public interest in low-band unlicensed innovation as the *Vacant Channel*

⁵ *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567, ¶¶ 266, 271 (“Under the band plan we adopt in this Order, between 14 and 28 megahertz of spectrum in **the 600 MHz Band guard bands will be available for unlicensed use nationwide**, . . . including in major markets where today and post-auction few if any vacant television channels may be available. . . . Putting unlicensed operations in the 600 MHz Band guard bands **will make additional spectrum available for unlicensed devices nationwide**. The record provides significant support for this action.”)

NPRM proposal to reserve a single UHF-band channel in every market. In a market such as Los Angeles, if the Commission’s band optimization process uses the Duplex Gap to accommodate a local TV station, precluding the Duplex Gap’s use for white space devices and wireless microphones, then it will be necessary to compensate by identifying a replacement channel (i.e., a “second vacant channel”). Together with unlicensed access to Channel 37 (shared with Wireless Medical Telemetry Services) and to one reserved channel in the ongoing TV band (shared with unlicensed wireless microphones), the second vacant channel proposed in the *Procedures PN* remains the minimum needed to spur and sustain the investment by leading chipmakers to integrate the IEEE 802.11af standard for TVWS into Wi-Fi chips for smartphones, tablets and other mobile devices that would benefit from the greater penetration and range of low-band unlicensed spectrum. It also does not reduce the total number of channels available for local TV stations, since by definition one will be accommodated in the Duplex Gap.

III. **THE COMMISSION SHOULD ADOPT ITS PROPOSALS TO PRESERVE VACANT CHANNELS FOR UNLICENSED USE IN EVERY MARKET**

OTI and PK agree the Commission should adopt its proposal to require secondary broadcasters to demonstrate that their proposed new, modified or displacement facility “will not eliminate the last available vacant UHF channel in an area for use by white space devices and wireless microphones”⁶ or, in markets where the Duplex Gap is impaired by a TV station, will not eliminate either of the two remaining vacant channels available for unlicensed use.⁷ The Commission clearly has the authority to adopt this license condition and assignment decision.

⁶ *Vacant Channel NPRM* at ¶ 10, 12.

⁷ *Procedures PN* at ¶ 32.

A. The Commission Clearly has the Authority to Assign TV Band Channels for Unlicensed Use

Both the Communications Act and the 2012 Spectrum Act provide clear authority for the Commission’s proposal to require certain broadcast license applicants to demonstrate that their new, modified or displacement facility will not eliminate the last (or second to last) vacant UHF channel. The Commission’s general authority to impose conditions on licensees in the public interest has deeper roots than the Communications Act truism that licenses confer no exhaustive or permanent rights. The Supreme Court and recent precedents have affirmed that Title III delegates “expansive powers” to the Commission, including a “comprehensive mandate to ‘encourage the larger and more effective use of radio in the public interest.’”⁸ Section 303(b) of the Act specifically gives the Commission wide-ranging authority to “[p]rescribe the nature of the service to be rendered” by a licensee.”⁹

Reinforcing this authority, section 303(r) empowers the Commission to “[m]ake such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this chapter.”¹⁰ And even after licenses are granted Section 316 of the Act authorizes “new conditions on existing licensees” “if in the judgment of the Commission such action will promote the public interest, convenience, and necessity.”¹¹ The Commission’s proposal here to condition new, modified and displacement licenses on a demonstration that the public will continue to have access to either one or two vacant UHF-band channels for unlicensed use is unquestionably within the Commission’s traditional authority.

⁸ *CNBC v. United States*, 319 U.S. 190, 219 (1943) (quoting 47 U.S.C. § 303(g)); *see also Cellco Partnership*, 700 F.3d 534, 542 (D.C. Cir. 2012) (upholding the Commission’s authority to require licensees to offer data roaming agreements on commercially reasonable terms and conditions).

⁹ 47 U.S.C. § 303(b). *See also Cellco Partnership v. FCC*, 700 F.3d at 542.

¹⁰ 47 U.S.C. § 303(r). *See also Cellco Partnership v. FCC*, 700 F.3d at 542.

¹¹ 47 U.S.C. § 316.

The Spectrum Act of 2012 explicitly preserves the Commission’s general authority to reorganize the ongoing broadcast TV band and ratifies the Commission’s intention to implement and continue its allocation of TV band spectrum for unlicensed use.¹² Section 6403(b), which governs “Reorganization of Broadcast TV Spectrum,” gives the Commission great discretion subject to certain limitations related to protecting the coverage areas of relocated stations. The Act provides that the FCC “shall evaluate the broadcast television spectrum” and “(i) make such reassignments of television channels as the Commission considers appropriate; and (ii) reallocate such portions of such spectrum as the Commission determines are available for reallocation.”¹³

The subsection on “Commission Authority” explicitly confirms that “nothing in [subsection (b), governing repacking] shall be construed to . . . expand or contract the authority of the Commission, except as otherwise expressly provided.”¹⁴ Moreover, that subsection explicitly provides that “nothing in [subsection (b), governing repacking] shall be construed to— prevent the implementation of the Commission’s ‘White Spaces’ Second Report and Order and Memorandum Opinion and Order . . . in the spectrum that remains allocated for broadcast television use after the reorganization required by such subsection.”¹⁵ In short, Congress both acknowledged that it expected the continued allocation of TV band spectrum for unlicensed use and it explicitly declined to limit the FCC’s general authority under Title III to determine the allocations, assignments and licensing conditions that best serve the public interest.

B. OTI and PK Strongly Support the Commission’s Proposal to Require LPTV, Translators, BAS and DRT Stations to Make the Vacant Channel Demonstration. Class A and Full Power Stations Should do so Following the Post-Auction Transition Period

¹² See generally Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6403(b), 126 Stat. 156, 226 (2012) (“Spectrum Act”).

¹³ Spectrum Act § 6403(b)(1).

¹⁴ Spectrum Act § 6403(i)(1).

¹⁵ Spectrum Act § 6403(b)(1).

OTI and PK strongly support the Commission’s tentative conclusion that most secondary broadcast stations will be required to affirmatively demonstrate that their proposed displacement facility (or other proposed license modification) would not eliminate the last remaining vacant channel in the repacked TV band or, in the case of a market where the Duplex Gap is impaired by a TV station, that it would not eliminate one of two remaining vacant channels. As noted above, the Commission correctly places the burden on LPTV and TV translator stations “to engineer their proposed replacement facilities so as not to eliminate a sole remaining vacant channel” otherwise available for shared use by white space devices and wireless microphones.¹⁶ Because digital replacement translator (“DRT”) stations are just as likely to operate in the geographic gaps between full-power stations – and potentially block off the last remaining channel available for unlicensed use – OTI and PK urge the Commission to subject DRTs at all times to the vacant-channel demonstration condition.

As the *Vacant Channel NPRM* states, the *Incentive Auction Report and Order* “declined to extend repacking protection to the more than 5,500 licensed secondary LPTV and TV translator stations.”¹⁷ This total number does not include approximately 1,500 analog LPTV and translator stations that may never invest in making the digital transition.¹⁸ In addition there are approximately 1,660 outstanding construction permits for additional stations.¹⁹ OTI and PK agree, as the *Vacant Channel NPRM* acknowledges, that the most salient factor here is that because the coverage areas of LPTV and translator stations “are significantly smaller than a full power television station, these stations can engineer facilities” to operate in the spectrum between full power stations and, as a result, “are more likely than those of full power stations to eliminate vacant channels” that would otherwise be available to the general public for unlicensed use across the entire market area.²⁰ As a result, if the Commission does not adopt a bright-line rule that preserves a baseline amount of unlicensed UHF spectrum for white space devices and for wireless microphones, a single small-area translator or analog LPTV station in a single market could

¹⁶ *Vacant Channel NPRM* at ¶ 14.

¹⁷ *Id.* at ¶ 13; *Incentive Auction Report & Order* at ¶ 241.

¹⁸ FCC, LPTV LEARN Webinar (Feb. 2015), presentation available at www.lptvcoalition.com.

¹⁹ *Ibid.*

²⁰ *Vacant Channel NPRM* at ¶ 14.

effectively undermine the far greater public interest benefit of investment, innovation and deployment of unlicensed devices in the band nationwide. As described above, the availability of white space chips and devices for personal/portable use (e.g., 802.11af) and for many machine-to-machine applications (“Internet of Things”) will depend heavily on the ability to operate nationwide.

With respect to Class A television stations, OTI and PK agree with the Commission’s tentative conclusion that the vacant channel demonstration requirement should not apply to applications for license modifications filed during the 39-month Post-Auction Transition Period, but that it should apply to applications filed thereafter. At the same time, OTI and PK suggest that the Commission strictly enforce its policy to downgrade the status of Class A stations that fail to meet the eligibility requirements of the Community Broadcasters Protection Act of 1999 (CBPA).²¹ The *Incentive Auction NPRM* correctly observed that “Class A television stations must continue to meet the [CPBA’s] eligibility criteria in order to retain Class A status, or else they are subject to modification of their license to low power television status.”²² The Commission should continue to strictly enforce the CPBA to downgrade Class A stations as warranted.²³

With respect to full power stations, OTI and PK strongly support applying the approach proposed for Class A stations in the *Vacant Channel NPRM* equally to full power stations. The Commission should require both Class A and full power stations to make the vacant channel demonstration after the 39-month transition period ends. The Commission’s proposal for Class A stations strikes the right balance, since it allows auction-eligible stations to apply for a

²¹ See 47 U.S.C. § 336(f)(2)(A)(i). To qualify for Class A status, 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. See § 336(f)(2)(A)(i).

²² *Incentive Auction NPRM* at ¶ 75.

²³ See e.g., *Reclassification of License of Class A Television Station WBVT-CA Burlington, Vermont*, Order, 27 FCC Rcd 13550 (MB 2012); *Reclassification of License of Class A Television Station KGLR-LP Lubbock, Texas*, Order, 27 FCC Rcd 10917 (MB 2012).

different channel placement than the FCC initially assigns during the repack process. At the same time, if the Commission does not impose the vacant-channel demonstration requirement after a reasonable period (e.g., at the end of the 39-month transition), there will be no end to the uncertainty that has so far stymied investment in the IEEE's 802.11af standard, in other personal/portable device innovation, and in the tremendous potential to use unlicensed UHF spectrum for a wide variety of machine-to-machine applications.

IV. CONCLUSION

OTI and PK commend and strongly support the Commission's efforts to ensure that post-auction the public will continue to have access to a minimum of three TV band channels in *every* market nationwide, including any market where a TV station impairs unlicensed use of the Duplex Gap. The Commission's proposal to reserve one channel in every market (and, in some markets, possibly two channels) for unlicensed use is critical because falling below a threshold amount of unlicensed bandwidth in even a single major market (e.g., Los Angeles) is likely to negate the public interest benefits of the TV White Spaces allocation for consumers nationwide. Our groups look forward to working with the Commission to complete these rules quickly so that both the incentive auction and further investment in unlicensed devices and deployments can proceed without undue uncertainty or delay.

Respectfully Submitted,

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