

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

In the Matter of)	
)	
Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Digital Low Power Television and Television Translator Stations)	MB Docket No. 03-185
)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions)	GN Docket No. 12-268
)	
Amendment of Part 15 of the Commission’s Rules to Eliminate the Analog Tuner Requirement)	ET Docket No. 14-175
)	
To: The Commission		

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

The Open Technology Institute at New America Foundation (OTI) and Public Knowledge (PK) (collectively “OTI/PK”) submit these comments, pursuant to Sections 1.415 and 1.419 of the Commission’s Rules, on several issues raised in the Third Notice of Proposed Rulemaking (“*Third NPRM*”) in the above-captioned proceedings.¹ OTI and PK have filed extensive comments previously in the Incentive Auction proceeding, on behalf of the Public Interest Spectrum Coalition (PISC), concerning the critical need to balance the repacking and

¹ See *Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Digital Low Power Television and Television Translator Stations; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions; Amendment of Part 15 of the Commission’s Rules to Eliminate the Analog Tuner Requirement*, MB Docket No. 03-185, GN Docket No. 12-268 and ET Docket No. 14-175, Third Notice of Proposed Rulemaking, FCC 14-151 (rel. Oct. 10, 2014 (“*Third NPRM*”). The Media Bureau (“Bureau”) extended the Comment and Reply Comment deadlines to January 12, 2015 and January 26, 2015, respectively. See *Order*, DA 14-1727 (rel. Dec. 1, 2014).

post-auction channel assignments of secondary broadcast licensees with the reality that the enormous economic and social value of unlicensed spectrum access in the ongoing TV band will depend on nationwide and opportunistic access to the “white space” spectrum that is not actually in use and needed for licensed services.²

Background and Summary

Broadcast station repacking and relocation will have an enormous impact on the future of the unlicensed economy, since it will largely determine whether the Commission preserves sufficient access to unlicensed spectrum in every market nationwide. Optimizing the remaining unused TV spectrum is critical to facilitating both national markets for personal/portable unlicensed devices and the higher-power, fixed wireless broadband services that are so critical to rural and other underserved communities. The specific channels that the Commission assigns (or chooses not to assign) in the post-auction repacking and reassignment process will shape TV band spectrum efficiency and determine whether there is a robust future for unlicensed broadband in this uniquely valuable low-band spectrum. It is critical that the Commission not only finds workable channels for LPTV and translator stations that are actively broadcasting a service to their community, but also makes these channel reassignments in a way that maximizes the number of useable white space channels available for unlicensed use, with as many consecutive white space channels as possible to facilitate rural broadband (since fixed wireless services can operate only on the middle of three consecutive white space channels).

OTI/PK strongly support the Commission’s conclusion in the incentive auction *Report and Order* that it will “permit TVWS devices to operate on all other available channels in those

² Comments of Public Interest Spectrum Coalition, *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 (Jan. 25, 2013) (“*PISC Incentive Auction Comments*”), at 45-55.

portions of the UHF band that remain allocated and assigned only to broadcast services.”³

Secondary broadcast licensees (LPTV, translator and booster stations) that are not eligible to participate in the incentive auction serve many fewer people than do full power and Class A stations that are eligible, even though there are more than twice as many. And although they typically use only 1 or 2 MHz of actual capacity to broadcast a standard definition stream of content they will, under the current rules, continue to occupy a full 6 MHz channel of TV band spectrum. In many cases this will serve the public interest well since, as the *NPRM* correctly observed, low power television stations “are a source of diverse and local television programming, and television translator stations are an important free, over-the-air resource in rural and remote locations.”⁴

At the same time, there are more than 1,700 LPTV operators occupying channels with Construction Permits that may never provide a substantial free over-the-air broadcast service to their communities;⁵ and there are LPTV licensees still broadcasting in analog format that will not in the end make the digital TV transition, or which are occupying far more spectrum capacity than they actually need to fulfill their mission – and, cumulatively, blocking access to fallow spectrum that could be accessible to *everyone* in these same communities for unlicensed use. OTI/PK therefore finds it disappointing that the Commission has no explicit discussion or proposal in this *Third NPRM* intended to ensure that fallow spectrum blocked off by secondary broadcast licensees will be made available for unlicensed use on a contingent, day-to-day basis by the FCC-authorized TV Bands Databases until such time as licensees are actively broadcasting a service to their community.

³ *Report and Order, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268 (May 15, 2014) (hereinafter *Report and Order*), at ¶ 265.

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 (rel. Oct. 2, 2012), at ¶ 358.

⁵ See *Third NPRM* at ¶ 12.

In sum, OTI/PK urge the Commission to achieve a more balanced and spectrum efficient outcome by adopting three policies as part of this rulemaking and the related Incentive Auction NPRM concerning Part 15 operations:

First, OTI/PK urge the Commission, wherever feasible, to optimize the repacking and channel relocation process – particularly with respect to the reassignment of LPTV and TV translator stations – to create a contiguous block of white space spectrum that facilitate higher-power fixed use for rural broadband and other purposes that serve the public interest.

Second, OTI/PK urge the Commission to ensure that a channel occupied by a non-operational LPTV or TV translator station (licensees and construction permits) will be made available for unlicensed use through the FCC-authorized TV Bands Database system. As part of this Order, the Commission should obligate secondary broadcast operators to affirmatively report timely updates on their actual operations – either to the Commission or directly to a TVDB – so that unused spectrum is made available for public use in a timely manner.

Third, OTI/PK strongly support channel sharing, but believe it need not always be voluntary. Where fallow capacity can be freed up – or where an operational LPTV station can be accommodated rather than left off the air – mandatory channel sharing, or at least strong incentives for channel sharing, should be an option. This should be particularly true for unbuilt stations (CPs) that can far more easily arrange their construction on a shared basis – and quite possibly save operating expense in addition to saving the public lost low-band communications capacity.

Argument

I. THE COMMISSION SHOULD REPACK LPTV AND TV TRANSLATOR STATIONS WITH AN EMPHASIS ON EFFICIENT SPECTRUM USE, INCLUDING UNLICENSED ACCESS FOR RURAL BROADBAND

The original *Incentive Auction NPRM* made a number of proposals designed “to best preserve and improve the use of the unused spectrum in the broadcast television bands for unlicensed operations.”⁶ The *Incentive Auction Report and Order* made good on this public interest objective in many respects, particularly by adopting a band plan that is likely to ensure a sufficient amount of unlicensed capacity in every market nationwide, as well as by permitting authorizing continued use of non-operational 600 MHz spectrum post-auction, until mobile broadband licensees actually commence service. In light of this commitment to a balanced and spectrum efficient policy, it is troubling that the *Third NPRM* does not explicitly anticipate and request comment on how best to mitigate potential trade-offs between accommodating LPTV and TV translator operations while still “preserv[ing] and improv[ing] the use of unused spectrum in the broadcast television bands for unlicensed operations.”⁷

In our original Incentive Auction comments for PISC, we asked the Commission to anticipate and to plan to mitigate the impact of the repacking and relocation process on the utility of the remaining TV White Space spectrum for rural broadband and other unlicensed uses.⁸ We suggested that wherever possible, LPTV and TV translators should be relocated below channel 21, since the viability of both fixed and personal/portable unlicensed broadband devices and services will depend on the number of available channels above 20 (partly due to propagation, but mostly due to the fact the current rules prohibit personal/portable devices operating below

⁶ *Incentive Auction NPRM*, at ¶ 227.

⁷ *Ibid.*

⁸ See *PISC Incentive Auction Comments* at 48.

channel 21). More critically, the number of consecutive white space channels in a market will determine the utility of the unlicensed spectrum for fixed wireless services, including rural broadband and remote monitoring of infrastructure and agriculture.

If the repacking process results in vacant channels arranged in a spectrally inefficient way, unlicensed use will be significantly curtailed. Under existing Part 15 rules, the higher-power fixed white space operations so critical to rural and other underserved areas must avoid transmitting co-channel to TV stations. In practice, this constraint requires three contiguous vacant channels for fixed wireless, even in the most rural markets. In addition, Sections 15.711 and 15.712 establish distance separation, antenna height and other interference avoidance and protection requirements.⁹ If the Commission's repacking and channel reassignment process fails to take these constraints into account, the TV white space channels available for fixed use following the repacking and displacement processes could be unusable (and certainly far less useful for rural broadband, remote monitoring and other operations than is necessary).

OTI/PK urge the Commission, wherever feasible, to optimize the relocation process – particularly with respect to the reassignment of LPTV and TV translator stations – to create a contiguous block of white space spectrum that facilitate higher-power fixed use for rural broadband and other purposes that serve the public interest. Through a combination of channel sharing and clustering of LPTV and translator stations in one part of the TV band (a spectrum “neighborhood”), the Commission will in many markets be able to create a contiguous block of unlicensed spectrum and better optimize the TV band for higher-power fixed unlicensed use.

⁹ The Commission is proposing extensive and generally very positive changes to the TV White Space rules in the *Part 15 NPRM*, including relaxing the adjacent-channel rules, allowing increased antenna heights and permitting increased power.

II. THE COMMISSION SHOULD CLARIFY THAT NON-OPERATING BROADCAST CHANNELS ARE ‘WHITE SPACE’ AVAILABLE FOR UNLICENSED USE AND REQUIRE BROADCASTERS TO REPORT THEIR STATUS TO THE COMMISSION AND/OR TV BANDS DATABASE

Secondary broadcast channels reserved with Construction Permits, as well as any other broadcast channel not currently in use to “transmit at least one over-the-air video broadcast signal provided at no direct charge to viewers,”¹⁰ should be available on at least a temporary basis for unlicensed use. The TV Bands Database (TVDB) system authorized by the Commission can govern access to any TV Band spectrum when it is not in use, just as the *Report and Order* determined that the TVDBs can manage contingent access to 600 MHz spectrum post-auction until such time as mobile carrier licensees commence service.¹¹ OTI/PK therefore urge the Commission to clarify when and how a channel occupied by a non-operational LPTV or translator station operator (licensees and CPs) can be made available for unlicensed use through the FCC-authorized TV Bands Database system. The Commission should obligate secondary broadcasters to affirmatively report timely updates on their actual operations – either to the Commission or directly to a TVDB – so that unused spectrum is made available for public use.

The New York City market provides an example of the potential severe impact on the viability of unlicensed use, particularly in a big coastal city, if access to even one or two channels is restricted due to non-operational secondary broadcast spectrum. Google’s TV Bands Database (TVDB) reports that not a single channel in midtown Manhattan is available for even

¹⁰ See 47 C.F.R. § 74.790(g)(3).

¹¹ “We will allow TVWS devices to continue to operate in those portions of the UHF band that will be repurposed for the 600 MHz Band until a 600 MHz Band licensee commences operations.” *Report and Order*, *supra* note 2, at ¶ 268.

low-power unlicensed use of portable devices.¹² In New York City, 12 channels between 2 and 51 are not available for unlicensed use at 45 Rockefeller Plaza due to the presence of LPTVs.¹³ (See Table 1). The stations listed in the results from the TVDB search are licensed, according to the Media Bureau’s licensing database.¹⁴ However, it is not possible to tell from the TVDB or the Media Bureau’s database whether, and to what extent, a licensed LPTV station is actually broadcasting. Additional searching by individual call sign indicates that most stations are broadcasting video content on a regular basis, but that some may not be, or are even off the air.¹⁵

Table 1: LPTV Licenses preventing use of TVWS unlicensed devices in Manhattan

Trasmit Channel	Call sign	Licensee	Station	Status
2	WKOB	Nave Communications	LPTV	Licensed
6	WNYZ	Island Broadcasting	Translator	Licensed
12	WPXU	Ion Media	LPTV	Licensed
25	WASA	KRCA License LLC	LPTV	Licensed
26	WYXN	New York Spectrum Holding Company	LPTV	Licensed
32	WXNY	New York Spectrum Holding Company	LPTV	Licensed
34	WPXO	America-CT Station Group	LPTV	Licensed
35	WNYX	New York Spectrum Holding Company	LPTV	Licensed
39	WNYN	TVC NY License LLC	LPTV	Licensed
41	W41DO	Ventana Television, Inc	LPTV	Licensed
43	WNYX	New York Spectrum Holding Company	LPTV	Licensed
50	WBQM	BuenaVision TV Network NY, LLC	LPTV	Licensed

Sources: Google Spectrum Database, available at: <https://www.google.com/get/spectrumdatabase/channel/>
 FCC, “TV Query Broadcast Station Search,” available at <https://www.fcc.gov/encyclopedia/tv-query-broadcast-station-search>.

¹² Using Google’s Spectrum Database (available at <https://www.google.com/get/spectrumdatabase/channel/>) and searching for spectrum available to portable devices using the address 45 Rockefeller Plaza, New York, NY 10111.

¹³ This number decreases slightly to 9 stations occupied by LPTVs for those stations above channel 21 currently authorized for use by portable devices.

¹⁴ FCC, “TV Query Broadcast Station Search,” available at <https://www.fcc.gov/encyclopedia/tv-query-broadcast-station-search>.

¹⁵ The Wikipedia page associated with the LPTV station WNYX reports that it is currently off the air and has been since September 2013. See <https://en.wikipedia.org/wiki/WNYX-LD>

Under the Commission’s Part 15 rules governing unlicensed access to white space, the TV Bands Database must block access to channels based on “only TV station information from station license or license application records.” However, the static “license applications records” in the Media Bureau’s current filing and database system were intended for a different purpose and typically are neither sufficiently current nor granular enough to adequately inform a dynamic spectrum access system governed by the TV Bands Database. This makes it critical that broadcast licensees provide accurate and updated information on their *actual* operations, including any periods of time the station will not be broadcasting (whether particular days, or hours during each day) so that the TVDB can fully reflect the availability of fallow spectrum that can be used by unlicensed devices (and/or licensed microphone operators) without causing harmful interference to actual broadcast operations. Since broadcast licensees occupy the public spectrum at no cost, a requirement that they report changes in their operational status from time to time would present a trivial and appropriate obligation.

In our original Incentive Auction comments for PISC, OTI and PK recommended that the Commission require secondary broadcasters to report any failure to operate for a period of 30 days or more to the Commission and/or to a TV Bands Database administrator so that the currently unused channel can be made available for unlicensed use until such time as the licensee can report its immediate intention to commence (or restore) substantial service on a specified date.¹⁶ Section 74.763(c) of the Commission rules already provides that the “[f]ailure of a low power TV, TV translator, or TV booster station to operate for a period of 30 days or more . . . ***shall be deemed evidence of discontinuation of operation*** and the license . . . may be cancelled

¹⁶ See *PISC Incentive Auction Comments* at 50-52.

at the discretion of the FCC” (*emphasis added*).¹⁷ Since going “dark” for 30 days is deemed evidence of discontinuation of operation – and a possible basis for license cancellation – PISC recommended that the Commission adopt a policy that requires stations to report going “dark” and lose protection in the TV Bands Database until such time as substantial service resumes.¹⁸

Since unlicensed white space devices must renew their authorization to use a particular channel at least once every 24 hours (by rechecking the TV Bands Database), unlicensed access based on updated reporting requirements would have no negative impact on the ability of a LPTV station to commence (or restart) its broadcast service without fear of harmful interference. In this respect, an affirmative reporting obligation – requiring secondary broadcasters to report and immediately update any changes in their operational status – would be no more or less burdensome than the no-cost TVDB registration requirement the Commission has imposed upon Part 74 wireless microphone operators, which need to report their planned operations to secure exclusive use of an otherwise vacant TV channel.

III. THE COMMISSION SHOULD BOTH ALLOW VOLUNTARY CHANNEL SHARING AMONG SECONDARY BROADCAST LICENSEES AND REQUIRE IT WHERE FEASIBLE TO PROMOTE SPECTRUM EFFICIENCY

The Commission tentatively concludes that it should permit channel sharing among LPTV and TV translator stations on a strictly voluntary basis.¹⁹ OTI/PK strongly supports channel

¹⁷ Although Section 74.763(c) also provides that a station’s license “will expire as a matter of law. . . if the station fails to transmit broadcast signals for any consecutive 12-month period,” the spectrum occupied by a station that goes “dark” remains unavailable through the TV Bands Database during those 12 months – and possibly longer – if the Commission does not exercise its discretion to cancel the license. The Commission may act on a “dark” station at its discretion once the station has failed to operate for 30 days, but it is not apparent that the Commission receives timely notice or immediately informs the TVBDs that a previously occupied channel is available for public use.

¹⁸ Section 74.763(b) already requires similar notification in the event that causes beyond the control of the licensee make operation impossible to operate for a period of 30 days. *See* 47 C.F.R. § 74.763(b).

¹⁹ *Third NPRM* at ¶ 13.

sharing both to facilitate overall spectrum efficiency and because of the potential cost-saving benefits to local broadcast stations.

However, merely allowing voluntary channel sharing does not go far enough considering the value and current waste of broadcast spectrum capacity. In its original Incentive Auction comments, PISC proposed that as part of the channel repacking and relocation process, the Commission require secondary broadcast licensees to co-locate and share a single 6 MHz channel where that is feasible without reducing their broadcast service to the community.²⁰ OTI/PK again suggest that the Commission should analyze the feasibility of such a requirement in the 30 largest DMAs and, if it appears technically feasible for a substantial number of stations and markets, we recommend that the Commission seek further comment on the nature of such a requirement, its potential impact, and the least burdensome means of implementing it.

OTI/PK acknowledge that any involuntary channel sharing obligation “would run counter to more than 30 years of licensing policies with respect to LPTV and TV translator stations.”²¹ However, the value, need and availability of low-band spectrum has changed considerably since the 1982 Report and Order the Commission cites for that hallowed sentiment. Although LPTV stations serve fewer people over-the-air relative to full-power stations – and in most cases use only 1 or 2 MHz of actual capacity to broadcast a standard definition stream of content – they will under the current rules continue to occupy a full 6 MHz channel of TV band spectrum. In many cases this will be unavoidable and serve the public interest. However, where fallow capacity can be freed up – or where an operational LPTV station can be accommodated rather than left off the air – mandatory channel sharing, or at least strong incentives for channel sharing,

²⁰ See *PISC Incentive Auction Comments* at 53-55.

²¹ *Third NPRM* at ¶ 46, citing *Inquiry into the Future Role of Low-Power Television Broadcasting and TV Translators*, BC Docket No. 78-253, Report and Order (1982), at 490-91 (concluding LPTV applicants should be free to choose their proposed channels subject to the technical rules).

should be an option. OTI/PK believes this should be particularly true for unbuilt stations (CPs) that can far more easily arrange their construction on a shared basis – and quite possibly save operating expense in addition to saving the public lost low-band communications capacity.

At a minimum, OTI/PK urge the Commission to add the availability of useable unlicensed spectrum – particularly for fixed wireless broadband in rural areas – to the repacking and optimization software analysis the Commission proposes in the *Third NPRM*.²² OTI/PK agree that “the Media Bureau could use the [optimization] software to identify possible arrangements [station channel assignments] based on other objectives, such as maximizing the number of stations assigned or minimizing the interference that stations might experience . . .”²³ We agree this analysis would “reduce the possibility of mutually exclusive applications”²⁴ and provide valuable assistance to struggling stations that may not have the expertise or resources to replicate such sophisticated analysis.

At the same time, however, OTI/PK urge the Commission to include the availability of unlicensed spectrum among the “other objectives” that factor into this optimization analysis. In particular, we urge the Commission to use its repacking and optimization software analysis throughout the entire process to at least recommend (if not require) channel relocation assignments that optimize the remaining unoccupied channels for fixed wireless broadband service, which currently require three consecutive channels. Since the Commission anticipates a considerable number of TVWS channels will continue to be available in rural and small town media markets post-repack, the use of the optimization software and channel assignment recommendations could determine if the remaining unlicensed spectrum is useable for WISPs,

²² See *Third NPRM* at ¶ 45.

²³ *Ibid.*

²⁴ *Id.* at ¶ 46.

community networks and other efforts to extend broadband to rural and remote unserved and under-served areas.

Conclusion

Broadcast station repacking and channel reassignment will have an enormous impact on the future of the unlicensed economy, as will the availability of any spectrum occupied by non-operational LPTV or TV translator stations. OTI and PK urge the Commission to carefully balance the repacking and post-auction channel assignments of secondary broadcast licensees with the reality that the enormous economic and social value of unlicensed spectrum access in the ongoing TV band. A thriving market for low-band unlicensed devices, rural broadband offerings by WISPs, and other unlicensed innovation will depend on nationwide and opportunistic access to useable “white space” spectrum that is not actually in use and needed for licensed services.

Respectfully Submitted,

**Open Technology Institute at the New America Foundation
Public Knowledge**

/s/ Harold Feld
Harold Feld
Executive Vice President
Public Knowledge
1818 N Street, NW
Washington, DC 20036

/s/ Michael Calabrese
Michael Calabrese
Patrick Lucey
Wireless Future Project/
Open Technology Institute
1899 L Street, NW– 4th Floor
Washington, DC 20036

January 12, 2015