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

In the Matter of	)	
	)	
Innovation in the Broadcast Television Bands:	)	ET Docket No. 10-235
Allocations, Channel Sharing and	)	
Improvements to VHF	)	

To: The Commission

COMMENTS OF THE ASSOCIATION OF PUBLIC TELEVISION STATIONS, NATIONAL PUBLIC RADIO, THE PUBLIC BROADCASTING SERVICE AND THE CORPORATION FOR PUBLIC BROADCASTING

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SUMMARY

Public TV stations have been good stewards of their licensed spectrum and are making full and robust use of their DTV channels. The typical public TV station fully uses its broadcast spectrum bandwidth for HD programming, SD multicast streams, educational datacasting, public safety, mobile DTV or various other services.

Public Broadcasting is supportive of certain goals expressed by the Commission in this proceeding (including maximizing the efficient use of spectrum through VHF improvement and close consideration of market-based solutions), but is concerned with the potential ramifications of a number of the proposals contained in the NPRM.

Public Broadcasting is concerned that the actual impact of changes to the U.S. Table of Frequency Allocations to add fixed and mobile services allocations to the U/V Bands is unclear. If the Commission were proposing to license wireless services in the bands at this time, there has been no technical showing that such band sharing can be successfully implemented. If allocation changes do not themselves lead to wireless licensing in the bands, they are not yet necessary and therefore premature.

Public Broadcasting believes that rule changes relating to channel sharing may also be premature, and may in any event have limited applicability to public TV stations, given the full and robust utilization by public stations of their channels. However, Public Broadcasting would support the concept of channel sharing as applied to public TV stations in certain circumstances.

Public Broadcasting also believes that VHF improvement proposals in the NPRM may in some cases help individual public TV stations and, other than proposals to expand operations on DTV channel 6 spectrum, would support them to that extent. However, these changes offer only minimal prospects of improving the usefulness and value of the VHF band generally, and they

certainly would not serve as a basis for any later effort by the Commission to move additional stations into the VHF band. The proposed VHF improvement measures do not relieve the Commission of the need to deal with the various DTV technical issues in connection with any plans to restructure the U/V Bands.

Finally, Public Broadcasting supports the consideration of market-based solutions by the Commission, such as spectrum leasing, as a potentially faster and more reliable method of satisfying the posited need for additional spectrum for broadband.

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The Association of Public Television Stations ("APTS"),[1] National Public Radio ("NPR"),[2] the Public Broadcasting Service ("PBS")[3] and the Corporation for Public Broadcasting ("CPB"),[4] collectively representing the country's system of public television and radio ("Public Broadcasting"), submit these comments in response to the Commission's Notice of Proposed Rulemaking in ET Docket No. 10-235 (FCC 10-196, released November 30, 2010)

[1] APTS is a non-profit organization whose membership comprises the licensees of nearly all the nation's CPB-qualified noncommercial educational television stations. The APTS mission is to support the continued growth and development of a strong and financially sound noncommercial television service for the American public.

[2] NPR is a non-profit membership corporation that produces and distributes noncommercial educational ("NCE") radio programs through more than 900 NCE radio stations nationwide. In addition to broadcasting award-winning NPR programming, including *All Things Considered*®, *Morning Edition*®, and *Talk of the Nation*®, NPR's member stations are significant producers of local, regional, and national news, information and cultural programming. NPR also operates the Public Radio Satellite Interconnection System and provides representation and other services to its member station licensees.

[3] PBS, with its nearly 360 member stations, offers all Americans — from every walk of life — the opportunity to explore new ideas and new worlds through television and online content. Each month, PBS reaches 117 million people through television and 20 million people online, inviting them to experience the worlds of science, history, nature, and public affairs; to hear diverse viewpoints; and to take front row seats to world-class drama and performances. PBS' broad array of programs has been consistently honored by the industry's most coveted award competitions. Teachers of children from pre-K through 12th grade turn to PBS for digital content and services that help bring classroom lessons to life.

[4] CPB is a private, non-profit corporation created and authorized by the Public Broadcasting Act of 1967 to facilitate and promote a national system of public telecommunications. Pursuant to its authority, CPB has provided millions of dollars in grant monies for support and development of public broadcasting stations and programming.

("NPRM"), proposing certain preliminary steps to enable the repurposing of a portion of the TV frequency bands for wireless broadband.

I. Introduction

In the NPRM, the Commission seeks to initiate a process that will make a significant amount of new spectrum available for wireless broadband, with the goal of addressing the country's growing demand for wireless broadband services. The NPRM proposes several preliminary steps to enable the "repurposing" of a portion of the UHF and VHF frequency bands (the "U/V Bands") and make them available in rule making proceedings yet to come, with the overall goal to repurpose 120 MHz of spectrum from broadcast television to wireless broadband. Specifically, the NPRM proposes to add new allocations for fixed and mobile services in the U/V Bands to be co-primary with the existing broadcast allocation in those bands, to establish a framework that would permit two or more television stations to share a single 6 MHz channel, and to adopt rules that aim to improve VHF television reception in certain areas.

As shown below, since their inception, public TV stations have been good stewards of their licensed spectrum constantly innovating to elevate the services they offer and maximize use of the spectrum. Public Broadcasting has long been and continues to be a driving force in technological and programming innovation. PBS and public TV stations were first or among the first in pioneering a wide variety of innovations, including closed captioning, the satellite interconnection system, stereo sound, descriptive video services, network and station web sites, all-digital TV broadcast facilities, national network HD programming, file-based digital content distribution, and online video players that offer full-length programs free of charge. During the digital television transition, public TV stations were early adopters of the technology and often the first to make DTV signals available in their markets.

Public Broadcasting has considered the Commission's proposals with care. As reflected in these comments, Public Broadcasting is supportive of certain goals expressed by the Commission in this proceeding (including maximizing the efficient use of spectrum through VHF improvement and close consideration of market-based solutions), but Public Broadcasting is concerned with the potential ramifications of a number of the proposals contained in the NPRM.

In particular, Public Broadcasting is concerned that the actual impact of changes to the U.S. Table of Frequency Allocations to add fixed and mobile services allocations to the U/V Bands is unclear. If the Commission were proposing to license wireless services in the bands at this time, there has been no technical showing that such band sharing can be successfully implemented. If allocation changes do not themselves lead to wireless licensing in the bands, they are not yet necessary and therefore premature.

Public Broadcasting believes that rule changes relating to channel sharing may also be premature, and may in any event have limited applicability to public TV stations, given the full and robust utilization by public stations of their channels. However, Public Broadcasting would support the concept of channel sharing as applied to public TV stations in certain circumstances as reflected below.

Public Broadcasting also believes that VHF improvement proposals in the NPRM may in some cases help individual public TV stations and, other than proposals to expand operations on DTV channel 6 spectrum, would support them to that extent. However, these changes offer only minimal prospects of improving the usefulness and value of the VHF band generally, and they certainly would not serve as a basis for any later effort by the Commission to move additional stations into the VHF band. Relocating stations from the UHF band to the VHF band would

significantly impair station coverage, which is essential both to public service and generating financial support, and could eliminate the ability of stations to offer mobile DTV services in the future. Stations cannot operate in the VHF band for the same reason wireless broadband cannot operate there – interference levels are too high. Over-the-air service to the millions of Americans who rely on public TV as their primary source of information would be dealt a serious blow if relocated to the VHF band. The proposed VHF improvement measures do not relieve the Commission of the need to deal with the various DTV technical issues in connection with any plans to restructure the U/V Bands.

Finally, Public Broadcasting supports the consideration of market-based solutions by the Commission, such as spectrum leasing, as a potentially faster and more reliable method of satisfying the posited need for additional spectrum for broadband.

II. Public TV Stations are Fully and Robustly Using their Spectrum and Continue to Need that Spectrum to Serve their Essential Mission

As detailed in the Public Broadcasting comments during the development of the National Broadband Plan, public TV stations are making full and robust use of the spectrum licensed to them.[5] The typical public TV station fully uses its broadcast spectrum bandwidth for HD programming, SD multicast streams, educational datacasting, public safety, mobile DTV, or various other services (many of which are only being offered by the lone locally owned and operated media enterprise in their community, *i.e.*, the noncommercial public broadcasting station). Data collected by PBS shows that, as of December 2009, approximately 85% of public

[5] *See* Comments of APTS, CPB, and PBS – NBP Public Notice #26, GN Docket Nos. 09-47, 09-51, and 09-137 (filed Dec. 21, 2009), *at* http://fjallfoss.fcc.gov/ecfs/document/view?id=7020354050; *see also* Comments of APTS, CPB, and PBS – NBP Public Notice #6, GN Docket Nos. 09-47, 09-51, and 09-137 (filed Oct. 23, 2009), *at* http://fjallfoss.fcc.gov/ecfs/document/view?id=7020143193.

TV stations broadcast an HD signal to their viewers, with 73% of PBS member stations transmitting a 24-hour-per-day HD stream and another 12% delivering a partial-day HD service.

Public TV stations are also leading the broadcast industry in taking advantage of the capability of DTV stations to transmit numerous SD program services. Public TV stations' multicast channels provide high-quality, substantive programming, including services dedicated to state or local public affairs programming and programming designed for underserved audiences, including network services V-me,[6] Create TV,[7] PBS World[8] and a variety of locally produced services such as coverage of local government proceedings and children's programming. PBS has found that 82% of public TV stations broadcast at least two SD channels and twenty-five public TV stations broadcast at least *four* SD channels. Each SD channel occupies between 1.5 and 3 Mbps of the station's 19.4 Mbps bitstream, over half of which is generally devoted to the station's HD program stream.[9]

Many public TV stations are also taking advantage of the inherent flexibility of DTV's ability to deliver data at extraordinary speeds by dedicating a portion of their digital bandwidth to provide educational data services and ancillary and supplementary data services. In addition,

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[6] V-me is a 24 hour Spanish-language educational and informational service developed by Thirteen/WNET and designed to meet the unique needs of the Hispanic community. V-me is the fastest-growing Hispanic television network in U.S. history. It offers drama, music, sports, current affairs, food, lifestyle and nature programming, along with more than 40 hours per week of children's educational programming.

[7] Developed by American Public Television, WNET and WGBH Boston with the support of CPB, Create TV features lifestyle and how-to programs drawn from the genres of cooking, travel, arts and crafts, gardening, home improvement and other lifestyle interests.

[8] PBS World is a 24/7 programming service featuring documentary, public affairs and news programming from public TV's award-winning signature series and acclaimed independent filmmakers. PBS World is produced and distributed by PBS, WGBH Boston and Thirteen/WNET, in association with American Public Television and the National Educational Telecommunications Association.

[9] The precise amount of bandwidth devoted to an HD programming stream varies from station to station, but in PBS's experience, if at least 11 Mbps of the 19.4 Mbps bitstream is not devoted to the HD stream, then viewers will receive sub-standard picture and sound.

public TV and the Department of Homeland Security are working to deploy an enhanced emergency alert and warning system that will rely on the digital bandwidth of public TV stations as an integral part of its infrastructure. The current innovations in use of public TV spectrum for emergency alert purposes follow from the Warning, Alert, and Response Network Act ("WARN Act"), which was enacted in 2006. The WARN Act provides a major role for public TV stations in the Commercial Mobile Alert System, which is the service by which participating wireless carriers can send national, state, and local emergency alerts to their subscribers. Under the WARN Act and implementing regulations of the Commission, all public TV stations must install equipment and technologies that enable the distribution of geographically targeted alerts. Public TV stations are actively working to fulfill this responsibility and play this vital role in protecting public safety.

Finally, public TV is on the vanguard of the development of mobile television technologies and content. Portable receivers are only now about to become available, but WGBH in Boston, for example, is already transmitting a mobile television signal that simulcasts its primary DTV program service and includes its children's channel. In Washington, WHUT and MHz Networks participated in the mobile television showcase, and public TV stations in Washington have continued to broadcast mobile DTV. Additional public TV stations across the country are preparing to begin mobile television transmissions as well. PBS is one of the few national television organizations working to add return-channel interactivity to mobile television, a critical element to enable mobile broadcast technologies to offer the same kinds of capabilities that mobile telephony can offer to potential users. As a result, mobile DTV will be able to combine the spectral efficiency of broadcasting with the benefits of personalized products and experiences.

This extensive use of DTV bandwidth occurs because Public Broadcasting and public TV stations are mission-driven. Public Broadcasting's mission is to respond to the interests of both large and small audiences, promote diversity and excellence in noncommercial programming, and provide service to all citizens of the United States. Public Broadcasting, in pursuit of this mission and in response to station demand, seeks to provide more services, not fewer, using greater bandwidth, not less.

III. Changes to the Table of Allocations are Unclear in Effect, Unsupported and Premature

In the NPRM, the Commission proposes changes to the U.S. Table of Frequency Allocations in Section 2.106 of the rules that would allow it to make a significant portion of the spectrum currently used for broadcast television available for "flexible" use, including fixed and mobile wireless broadband services. This would be accomplished by adding allocations for fixed and mobile services in the U/V Bands for non-Federal use, to be co-primary with broadcast services. The Commission states that these new allocations would allow it to consider the entire range of the U/V Bands in selecting the specific frequencies to be designated for new licensed and/or unlicensed services.

The NPRM is silent on the actual impact of changes to the Table at this time. Public Broadcasting submits that, to the extent that the new allocations would actually permit the Commission to move forward directly with authorizing new, co-primary wireless services in the U/V Band, there is no technical basis at this time to suggest that the band can be shared to support both broadcast and wireless operations. The NPRM addresses this proposal in a mere two paragraphs, with no discussion of when and how the Commission might ultimately authorize wireless services in the U/V Bands and no consideration of issues of interference in the context of possibly shared channels or band structures (including guard bands) that would permit

broadcasting to continue in portions of the band while wireless broadband systems are operating in other portions of the band.

To the extent that the Commission's intention is to lay the groundwork for future proceedings that would authorize wireless operations and restructure the band, the proposal here is unnecessary, premature and overbroad. It is unnecessary and premature because the U.S. Table of Allocations can be modified just as easily, and far more appropriately, if and when the Commission actually adopts a plan for authorizing wireless services in the band. It is overbroad because the proposal here is to put wireless designations throughout the *entire* UHF and VHF bands, when even the Commission's own aspiration is to make only a portion of the UHF band (as much as 120 MHz) available for wireless services. It is generally understood that the VHF band, by virtue of its technical characteristics, is not an appropriate band for mobile services, including both wireless broadband and mobile DTV.

Public Broadcasting does not see any imperative at this time to change the Table of Allocations. Appropriately tailored changes in the Table can be made if and when the Commission decides, after thoroughly considering technical and policy issues, to move forward to license wireless service in specific portions of the UHF Band.

IV. Channel Sharing Might Be Appropriate for Public TV in Certain Circumstances

The NPRM follows up on the suggestion in the National Broadband Plan that, in order to facilitate the recovery of spectrum, the Commission establish a licensing framework to permit two or more stations to share a six-megahertz channel. The Commission envisions that two stations could generally broadcast one primary HD video stream over each shared channel,[10] or

[10] Public Broadcasting shares the concerns expressed at the Broadcast Engineering Forum (held on June 25, 2010 by the Commission's Office of Engineering and Technology) that sharing a single channel would not provide sufficient

more than two stations broadcasting in SD could share a channel. The only requirement would be that all stations sharing a channel be required to retain at least enough capacity to operate one SD channel. The Commission also envisions that each station would continue to be licensed and operated separately, have its own call sign, be separately subject to all the Commission's obligations¸ rules and policies and be responsible for its own programming. Channel sharing would apparently take place by the sharing of a single six-megahertz channel operating over a single transmission facility, and not by splitting six-megahertz channels into smaller, independently transmitted blocks of spectrum, which would likely result in less efficient use of the spectrum.

Public Broadcasting is concerned that the proposal to channel share may also be premature, given that the predicate for stations actually seeking to channel share (such as incentive auctions or other processes allowing a station to monetize its spectrum usage rights and share proceeds with a sharing partner) does not exist. Without knowing whether there will be incentive auctions or other such processes, and the rules under which they would operate in the context of public TV channels, it is impossible to determine whether channel sharing makes sense for public TV. Among other important considerations, incentive auctions must be entirely voluntary. As they have been since their inception, public TV stations need to be entrusted with the right and responsibility to determine how best to serve the public interest in their communities.

In any related repacking of the UHF band, direct and indirect costs incurred by the remaining stations (including capital costs and other out-of-pocket costs, of course, but also impaired fundraising due to channel changes and the value of permanently lost coverage) should

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transmission capacity for two stations to each offer a high quality HD signal. In addition to more modeling of channel sharing scenarios, there has to be actual testing in advance of any adoption by the Commission.

be covered by the government or private parties, such that stations compelled to change channels or facilities do not incur out-of-pocket expenditures that they would be unable to bear. It is critical that funding cover as well the costs of consumer education and outreach relating to repacking. In addition, proceeds realized from public TV spectrum reallocation should remain with the local stations, but if any proceeds are to be distributed in any other manner, those funds should be used for public broadcasting and distributed by CPB, along the lines suggested in Recommendation 15.6 of the National Broadband Plan, in which the Commission proposes favorable treatment of public television licensees.[11]

Even if appropriate rules for an incentive auction or other such processes are adopted, given the robust use by public TV stations of their spectrum, it is unclear whether and how many public TV stations might ultimately pursue channel sharing arrangements. Public TV stations recognize that channel sharing would dramatically limit HD and multicast capabilities, potentially shrink coverage areas, and restrict the option of deploying new services (such as mobile DTV) that public TV stations believe are of vital importance to their local communities.

In addition, sharing of NCE channels may only be viable in a relatively few number of markets where there are multiple overlapping public TV stations, depending on how Section 399B of the Communications Act (which prohibits public broadcast stations from making their facilities available for the broadcast of advertisements) is interpreted with respect to a commercial television station sharing a "reserved" NCE channel, and given the mission of public TV stations and the substantial services now being provided on their channels.[12]

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[11] Federal Communications Commission, *Connecting America: The National Broadband Plan*, (rel. Mar. 16, 2010) (National Broadband Plan or NBP), at 304 (NBP Recommendation 15.6), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf (last visited March 10, 2011).

[12] Public Broadcasting recognizes that different views may exist among the national organizations and the hundreds of member stations about whether and in what context channel sharing may be appropriate for public TV stations. However, in its consultations with the stations, Public Broadcasting has observed a strong commitment to the public

Paragraph 24 of the NPRM specifically seeks comment on whether commercial and NCE stations should be permitted to share a single channel. Citing Section 399B, the Commission states that NCE stations "operate on special reserved channels and are prohibited from airing commercial material."[13] Certain DTV channels are of course reserved for NCE use, as designated by an asterisk on such channels in the DTV Table of Allotments in Section 73.622 of the FCC's Rules, which states that reserved channels are to be "assigned for use by non-commercial educational broadcast stations only." Thus, in order for a reserved channel to be shared with a commercial station, the Commission would need to modify Section 73.622, either by changing the restrictions that apply to a reserved channel in a shared license context or by changing the reservation so that it applies only to that portion of the shared reserved channel that is licensed to an NCE station.

The reservation of spectrum exclusively for noncommercial and educational use, which dates back to the earliest days of FM and television regulation, serves a vital public interest and has been critical to the growth of public broadcasting. Any de-reservation of TV channels would be an extraordinary step that must be carefully evaluated. Any rule changes that would permit a reserved channel to be shared with a commercial station must ensure that certain essential safeguards remain in place. Specifically, channel sharing should: (i) take place on an entirely voluntary basis; (ii) not result in the loss of universal public TV service; (iii) permit the public TV station to continue to support its local public service mission; (iv) ensure that at least one of the stations licensed to share a reserved channel is an NCE station that would operate consistent with Section 73.621 of the Commission's Rules; and (v) guarantee that, at all times, there will be a continuing place on the reserved channel for NCE service.

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interest and a willingness to have an open dialogue about the best ways to pursue their mission to serve the public interest.

[13] NPRM at ¶¶ 24.

Section 399B of the Act, adopted by the Public Broadcasting Amendments Act of 1981, states among other things, that "[n]o public broadcast station may make its facilities available to any person for the broadcasting of any advertisement." Section 399B may not bar sharing arrangements that result in commercial programming being transmitted by a licensed commercial station on a portion of a reserved channel, depending on the interpretation of that provision, including what is meant by a public TV station making “its facilities available” for such purpose. Since this issue has not been squarely addressed previously, Public Broadcasting believes that the issue warrants further study.

All that said, any sharing of public TV channels must take into consideration and preserve the important national purposes underlying public broadcasting, including universal service (in terms of continuing over the air coverage of public TV, virtually universal reach of signal, and access to the wide array of transmitted services now and in the future). Critical to public TV’s universal service mission are the must-carry rules, and they must remain in place for sharing stations as if such stations were still operating on separate channels.

The NPRM states the Commission’s intent to adopt a sharing framework that will neither increase nor decrease the carriage rights of any broadcaster on any multichannel system. This point is critical to Public Broadcasting’s endorsement of sharing in the public TV context. However, Public Broadcasting has concerns about legal difficulties in achieving or guaranteeing that result in the face of possible legal or constitutional challenges. In addition, public TV stations have to take into account how regulatory changes in the sharing context might affect their existing and future private carriage arrangements (such as those that APTS and PBS have negotiated with NCTA, certain cable MSOs and with DirecTV), which have typically resulted in carriage of multicast services more expansive than carriage rights found in the regulations. This

may make truly preserving the status quo on carriage rights more challenging than contemplated by the Commission in the NPRM. At the very least, if a sharing station reduces its HD and/or multicast services transmitted via its over the air signal, it risks losing carriage of those services pursuant to those private carriage arrangements.

V. Public Broadcasting Would Welcome Improvement in VHF Reception but the NPRM Proposals Will Likely Accomplish Little

The NPRM recognizes that broadcasters have had difficulty in ensuring consistent reception of VHF signals and seeks solutions that would mitigate or overcome these challenges. Among those possible solutions are improving the performance of indoor receiving antennas and an increase in effective radiated power ("ERP") for certain VHF stations. In particular, the Commission proposes adopting standards for indoor antennas and raising the nominal maximum allowed ERP for low-VHF stations in Zone I to 40 kW and for high-VHF stations in Zone I to 120 Kw (in effect accomplishing a 6 dB increase in maximum power), subject to affording protection to other full power TV stations from new interference.

A. The Proposed Improvements to VHF Reception are Unlikely to Produce Significant Improvement

Public Broadcasting supports the Commission's efforts to improve reception of DTV stations operating on VHF channels whose coverage and reception have been compromised by the unique characteristics of that spectrum. As a general matter, to the extent that any stations can take advantage of the VHF power limit increase proposed by the Commission, without causing new interference to other stations, those power increases would have Public Broadcasting's full support. Unfortunately, however, there may be few cases among public TV stations where power increases will produce any material improvement in coverage or reception as a result of the proposed increase in maximum power levels.

At best, the changes proposed here are of exceptionally limited impact and usefulness, and they reflect the very limited options and tools available to the Commission to improve the usefulness of the VHF band for DTV. Although the lower VHF channels were originally thought to offer desirable propagation characteristics,[14] the higher ambient noise in these bands, coupled with the practical limitations on the size and efficiency of transmit and receive antennas, generally render these channels undesirable for over-the-air television broadcast use and particularly undesirable for mobile DTV use.[15]

Importantly, Public Broadcasting does not believe that the modest and limited power increases proposed here would provide any basis for an effort to move UHF stations into the VHF band as part of any repacking scheme. This view is reinforced by the fact that the VHF band is ill-suited for indoor reception generally, which is important to urban and suburban service, as well as service to hand held devices, which is anticipated to be an important element of future over-the-air TV service, including for public service oriented mobile TV services offered by public TV stations.[16]

Finally, in all actions in support of technical changes to the TV bands, the Commission should give further consideration to the legitimate concerns expressed by technical experts participating in the OET Broadcast Engineering Forum on June 25, 2010, including concerns about the technical limitations on services that can be provided on channels occupied by sharing

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[14] *See In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order*, 13 FCC Rcd. 7418, 7433 (1998) ("*Sixth Report and Order Reconsideration*")

[15] As a result, VHF television station licensees have been increasingly moving to UHF channels since the DTV transition concluded, notwithstanding the considerable financial cost of doing so. *See* Doug Lung, More Stations Moving to UHF Channels, TVTechnology, http://www.tvtechnology.com/article/113976.

[16] Of the stations that have launched mobile handheld DTV, only one, WBRA-TV, Roanoke, VA, operates on a low VHF channel. http://www.rabbitears.info/market.php?request=atscmph.

stations, the difficulty of improvement in VHF reception, and the challenges inherent in repacking TV channels into a smaller TV band.

B. Increasing the Authorized ERP of DTV Channel 6 Stations Poses Real Interference Concerns for Public Radio and Other Noncommercial Radio Stations Operating on the Reserved Portion of the FM Band

In addition to questions about its efficacy, increasing ERP poses a real threat of increased interference to the reception of public radio and other noncommercial educational radio stations operating on the reserved portion of the FM band, immediately adjacent to the current DTV channel 6 spectrum. While the Commission recognized the potential harm to reserved FM-band NCE radio reception from DTV channel 6 stations when it allocated the DTV channels,[17] the NPRM only acknowledges the potential for increased DTV power to cause interference to other DTV stations.[18] Given the Commission's previous regulatory concern for DTV channel 6 interference to reserved NCE FM stations,[19] the Commission should take into account the potential adverse consequences of authorizing DTV channel 6 stations to operate with substantially increased power.

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[17] *See In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, Second Memorandum Opinion and Order on Reconsideration of the Fifth and Sixth Report and Order*, 14 FCC Rcd. 1348, 1373-74 (1998) ("*Fifth and Sixth Report and Order Reconsideration*"); *Sixth Report and Order Reconsideration*, 13 FCC Rcd. at 7437.

[18] *See* NPRM at ¶¶ 49 & 52-53.

[19] In deciding to include the television channel 6 spectrum in the final core of DTV allotments, the Commission conceded that some interference to adjacent NCE FM service may occur and specified that the DTV licensee causing the interference would bear the responsibility for eliminating it in the first instance under the Commission's longstanding policy regarding new stations. *Sixth Report and Order Reconsideration*, 13 FCC Rcd. at 1437. *See also Fifth and Sixth Report and Order Reconsideration*, 14 FCC Rcd. at 1374 (codifying the obligation of new DTV channel 6 applicants to demonstrate the absence of interference to adjacent NCE FM stations). Significantly, the Commission authorized the use of the television channel 6 spectrum in the final DTV core specifically because of the "substantially lower power levels" at which DTV channel 6 stations would be operating. *Sixth Report and Order Reconsideration*, 13 FCC Rcd. at 1437.

In the interest of informing the record of this proceeding on that matter, NPR Labs conducted a laboratory analysis of the potential consequences of a DTV channel 6 ERP increase for reserved FM NCE radio stations.[20] Consistent with the Commission's prior findings, that analysis predicts increased interference to NCE radio service if the proposed power increase is adopted.

The NPR Labs study examined the 9 full-service DTV stations currently operating on DTV channel 6[21] and the potential impact of the proposed power increase for all 1,735 licensed NCE-FM stations operating in the reserved portion of the FM band as of February 2011. Based on the 9 existing DTV channel 6 stations operating at current power limits, 19 NCE-FM stations suffer interference to up to 2.5 % of the population within their protected service areas; 9 stations suffer interference to between 2.5% and 5% of their protected service population; and 17 stations suffer interference to more than 5% of their protected service population, with 7 stations experiencing interference to more than 40% of the population within their protected service contour.

With the proposed power increase and assuming the 9 DTV channel 6 stations operate at maximum ERP for their height, these figures would increase to 31 suffering interference of up to 2.5% of their protected service population, 12 stations suffering interference to between 2.5% and 5% of their protected service population, and 21 stations suffering interference to more than

[20] Engineering Report Regarding a Study of the Impact of Increased Transmission Power as Proposed for Channel 6 DTV Stations on Noncommercial Educational FM Station Reception (Feb. 25, 2011). http://www.nprlabs.org/publications-20110318.html.

[21] Though three of the stations operate in TV Zone 1, for which the Commission proposes to authorize increased power, four of the six stations operating in Zones II and III operate at less than maximum facilities. For purposes of the analysis, it is assumed that all stations would employ the maximum ERP for their present height. Earlier this week, the Chief of the Media Bureau's Video Division approved Connecticut Public Broadcasting's request to substitute channel 41 for channel 6 authorized to WEDY, New Haven, CT. *In the Matter of Amendment of Section 73.622(i), Final DTV Table of Allotments, Television Broadcast Stations (New Haven, Connecticut),* MB Docket No. 09-123, RM-11546, rel. Mar. 16, 2011.

5% of their protected service population. Since 1,735 NCE-FM stations operate on channels that are particularly vulnerable to DTV channel 6 interference, authorizing increased DTV ERP could affect many more stations and listeners if DTV channel 6 becomes more commonly used.

Illustrating the interference concern, WVCR-FM, Ch. 202B1, Loudonville, New York would see a 6% increase in population suffering DTV interference from an increase in the maximum Zone 1 ERP. Currently, WVCR-FM serves a population of 708,111 within its protected service contour, with 180,184 of those receiving interference from WRGB-TV, Schenectady, NY, amounting to 26% of WVCR's population. With the proposed power increase, the population receiving DTV interference would increase by 42,396 people to 229,270 or 32% of WVCR's protected service area population.

Although reception might not suffer as much for the majority of NCE FM stations, an increased ERP poses a clear threat to NCE radio reception without offering clear benefits to DTV reception. Public Broadcasting therefore discourages the Commission from authorizing increased ERP for DTV channel 6 stations or permitting any additional DTV stations to operate on DTV channel 6.

VI. Market Based Solutions Deserve A Closer Look

Public Broadcasting supports close consideration by the Commission of alternative approaches to highly regulatory, disruptive and expensive spectrum repurposing options such as the incentive auctions, channel sharing and band repacking contemplated in the NPRM. If we are serious about making spectrum available for wireless services on an efficient and timely basis, market-based alternatives deserve a thorough evaluation.

Among those alternatives might be allowing TV stations, including public TV stations, to "lease" excess digital capacity on their stations pursuant to the Commission's established

Secondary Market leasing rules. As Public Broadcasting suggested in the Future of Media proceeding, the Commission should consider permitting public TV stations to lease such excess digital capacity in circumstances such as: (1) where there are stations with overlapping service contours so that leasing capacity on one station does not deprive any viewer of the ability to receive service; and (2) where a single station is able to maintain a minimum level of over-the-air service while also leasing excess bandwidth or digital throughput.[22] Public Broadcasting is not suggesting at this time that public TV licensees be permitted to lease 100% of their channel capacity, but greater regulatory flexibility combined with private sector creativity and technical and financial resources could go a long way towards helping relieve the perceived spectrum crisis.

VII. Conclusion

Public Broadcasting urges the Commission to defer a decision to add fixed and mobile services allocations to the U/V Bands. If and when the Commission is prepared to license mobile services in the UHF Band, it can then make new allocations specifically tailored to the plan for those services. Public Broadcasting supports the concept of channel sharing as applied to public TV stations in certain circumstances, although it is not clear how many public TV stations might be interested in sharing. Public Broadcasting also supports the Commission's VHF improvement proposals to the extent they may assist individual public TV stations in improving reception without causing new interference, including to NCE-FM stations. Moreover, minor improvements do not relieve the Commission of the need to address other DTV technical issues in connection with any plans to restructure the U/V Bands, as they offer only

[22] *See* Comments of APTS, CPB, NPR, and PBS – The Future of Media and Information Needs of Communities in a Digital Age, GN Docket Nos. 10-25 (filed May 7, 2010), *at* http://fjallfoss.fcc.gov/ecfs/document/view?id=7020449711.

minimal prospects of improving the usefulness and value of the VHF band. These changes also should not serve as a basis for relocating additional stations into the VHF band. Finally, Public Broadcasting supports the Commission in closely considering market-based solutions to the need for additional spectrum for mobile broadband, including the possibility of leasing any excess DTV station capacity.

Respectfully submitted,

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