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

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| In the Matter of | ) | |
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| Wireless Broadband Access Task Force Seeks | ) | |
| Comment on Issues Related to Commission's | ) | GN Docket No. 04-163 |
| Wireless Broadband Policies | ) | |
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# COMMENTS OF THE ASSOCIATION OF PUBLIC TELEVISION STATIONS

The Association of Public Television Stations ("APTS")[1] hereby submits comments in the above-captioned proceeding. Public Television is filing these comments to bring to the Commission's attention the flexibility of digital television in affording public stations an opportunity to provide wireless broadband-like services to all Americans. Public television stations are now using their licensed digital television operations to provide their communities with digital wireless broadband-like delivery mechanisms that deliver educational and public safety services. In addition, public television stations are also exploring the possibility of vacating their analog spectrum early in exchange for certain policy changes to ensure the universal distribution of a viable digital noncommercial educational broadcast service. Once this occurs, additional

[1] APTS is a nonprofit organization whose members comprise the licensees of nearly all of the nation's 356 CPB-qualified noncommercial educational television stations. APTS represents public television stations in legislative and policy matters before the Commission, Congress, and the Executive Branch and engages in planning and research activities on behalf of its members.

spectrum could be opened up for innovative wireless broadband users in nearly every part of the country.

## I. The Flexibility of Digital Television Affords an Opportunity to Provide Wireless Broadband-Like Services to All Americans

With the transition to digital operations, public television are playing a pivotal, spectrum-efficient and cost-effective role in providing educational broadband access to all Americans. Public television transmitters, including noncommercial educational translators and developing on-channel repeaters, have the potential to provide localized noncommercial educational and public safety services over a broadband-like digital infrastructure to all Americans. The inherent flexibility of digital broadcast technology can allow for the delivery of data at extraordinary speeds in conjunction with a multicast television experience. This extraordinary data delivery mechanism, in conjunction with other technologies designed to provide a return path capability, can facilitate the delivery of high-quality noncommercial educational and public safety services through a broadband-like pipe.

***Broadband for Education***. In this regard, public television stations have dedicated a portion of their digital bandwidth to providing access for all Americans to educational services. Public television stations have committed 4.5 megabits per second of their DTV bitstream (one-quarter of their digital channel capacity on average) to the delivery of formal educational services. This level of digital capacity will deliver data at rates 80 times faster than 56K dial-up modems and 15 times faster than digital subscriber line (DSL) connections. When fully converted, public television stations' transmitters and translators can provide digital video, audio, and data services over-the-air to 99

percent of American households at the rate of 19.4 megabits per second. Thus, using a fully converted digital system, public television will be able to provide powerful and cost-effective nearly universal "last mile" services to meet the public's needs.

For example, Wisconsin Public Television and the New Jersey Network are already demonstrating the power of this kind of data service for education.

- The Wisconsin Educational Communications Board has used DTV technology to deliver educational data overnight to local schools with computers equipped with DTV tuner cards. In two Madison elementary schools, fourth-graders are now able to view video segments of downloaded material as many times as they wish and can explore additional resources such as graphics, written materials, and audio recordings. The enhanced resources include video segments, maps, photographs, historical documents, tours designed to help guide student learning, and audio segments of actual diaries. For teachers, there is an integrated teacher guide, teaching tips, and a list of related Wisconsin Model Academic Standards.

- New Jersey Network has produced original video content, which it datacasts to a media server located in Columbus Elementary School in Trenton, the pilot site. Teachers may then download from the server "on-demand" course supplements and NJN's customized, modular video segments to enhance the content in the lesson plan.

- Through its *New Jersey Workplace Literacy Program*, New Jersey Network has also been helping to address adult literacy through a groundbreaking partnership with the New Jersey Department of Labor in which it uses a variety of technologies, including its digital television signal, to deliver work force training materials to welfare recipients, dislocated workers and other job seekers to designated sites in New Jersey. NJN's first digital series, called JOBCAST, is broadcast on NJN's digital channel. NJN is now expanding this initiative to adopt in-school programs for teenagers, with private sector support.

***Broadband for Public Safety***. In addition, a fully digitized public television system could offer significant new public safety advantages. For example, on November 15, 2001, Kentucky Educational Television (KET), in partnership with the local branch

of the National Oceanic and Atmospheric Administration (NOAA), debuted a new service to representatives from the state police, emergency management agency and weather service. KET commissioned the development of software that allows it to use its digital broadcast capacity to immediately send emergency storm alerts, weather information, criminal profiles and updates, and other time-sensitive materials instantaneously to computers around the state. Transmission of this data over the digital broadcast signal decreases alert time and information lags from minutes to seconds. Use of the digital broadcast infrastructure can also bypass the congestion of wireline and cellular networks that can plague communications in emergency situations, as was the case on September 11, 2001. And because public television transmitters and translators together reach nearly all American television households, such public safety services could be distributed on a universal basis to all Americans.

Other examples of public television stations using their digital facilities to enhance homeland security include the following.

- In partnership with the University of Texas Medical Branch-Galveston, public television station KERA is using digital broadcast facilities to deliver crisis communications to discrete recipients or the public at large.

- The New Jersey Network has become the first in the nation to use public digital television to enhance emergency preparedness for nuclear power plants through the power and flexibility of datacasting. As New Jersey Governor James E. McGreevey observed, "Communications via NJN's digital television system is yet another tool with great potential to add to New Jersey's homeland security preparedness efforts and protect citizens in times of an emergency."

- Thirteen/WNET in New York, with funding from the National Imagery and Mapping Agency, has developed a prototype emergency alert system that will make use of its ITFS spectrum to distribute emergency alerts, emergency response information and command and control information to the public, first responders and homeland security personnel. The ultimate goal will be to create a hybrid system in which both the ITFS and the DTV

> spectrum bands are used to provide two-way communications with first-responders. For example, the DTV channel could be used to broadcast traditional emergency alerts to the public, as well as supplemental public data concerning evacuation routes or emergency treatment center locations. At the same time, the ITFS channel could be used to disseminate encrypted data (such as building blueprints, procedures for handling dangerous materials and other sensitive information) to targeted emergency responders.

## II. Public Television's Proposal to Migrate to Digital-Only Operation Could Open Up Additional Spectrum for Innovative Wireless Broadband Uses

Public television stations are also exploring the possibility of vacating their analog spectrum early in exchange for certain policy changes to ensure the universal distribution of a viable digital noncommercial educational broadcast service. Once this occurs, additional spectrum could be opened up for innovative wireless broadband users in nearly every part of the country.

Public television stations currently occupy approximately 80 MHz, or 20 percent, of the spectrum devoted to television broadcasting in the United States. However, public stations recognize that the analog allotments are not theirs to keep, but rather are held in trust for the benefit of all Americans. Many public television stations are anxious to return this spectrum to the government for a number of reasons. First, doing so would save the public television systems approximately $36 million per year in electricity costs attributable to the dual operation of analog and digital stations during the transition to digital-only broadcasting. Second, returning analog spectrum early would avoid the substantial cost of replacing analog equipment for the duration of the transition, and it would focus the public broadcasting system's priorities, energy and resources on the digital future rather than on the analog infrastructure. In this regard, 81 percent of APTS

members recently surveyed stated that if three conditions were satisfied, they would consider ending analog transmission and becoming digital-only broadcast stations by the end of 2007.

First, cable and satellite subscribers must have guaranteed access to all of public television's digital services. To accomplish this, the FCC must reverse its 2001 ruling that digital-only stations are guaranteed only partial carriage of their digital signals.[2] Similarly, the Commission should initiate mandated digital carriage on satellite systems pursuant to the carry-one-carry-all provisions of the Satellite Home Viewer Improvement Act.[3]

Second, public television stations must preserve access to the numerous households that rely on over-the-air reception. Although it is believed that such households comprise on average approximately 15 percent of all television households

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[2] Carriage of Digital Television Broadcast Signals; Amendments to Part 76 of the Commission's Rules; Implementation of the Satellite Home Viewer Improvement Act of 1999; Local Broadcast Signal Carriage Issues; Application of Network Non-Duplication Syndicated Exclusivity and Sports Blackout Rules to Satellite Retransmission of Broadcast Signals, First Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 2598, (rel. January 23, 2001).

[3] If this is not feasible immediately for legal or political reasons, the Commission may consider a phased-in approach to digital carriage as it did with the DTV tuner mandate, digital television infrastructure build-out and closed captioning requirements, among others. Alternatively, the Commission may mandate as an interim measure that all satellite set-top boxes come equipped with integrated digital off-air tuners until the end of the DTV transition, after which full digital carriage would be required on all satellite systems providing local service. This approach would impose little or no burden on satellite carriers themselves, as all three DBS services – DIRECTV, EchoStar and Cablevision's Voom satellite service—are already providing this technology to their HD customers. A Commission rule in this regard would therefore ensure the continuation of this laudable – but voluntary – industry practice. It is also fully within the Commission's authority, as a further alternative measure, to allow television broadcast stations that have returned their analog channel licenses to the Commission to substitute their digital signal (or an equivalent) under SHVIA.

nationally,[4] this figure varies considerably from market to market. In some markets this figure approaches 40 percent, while in others it is as low as 6 percent.[5] In general, over-the-air reliance can be divided into five separate constituencies that must be accommodated if analog service were to cease. In addition to the average of 15 percent of households that rely exclusively on over-the-air reception (i.e. do not subscribe to a multichannel video programming distributor), the following also rely on over-the-air reception to an important degree.

- Consumers who subscribe to a digital multichannel television service but who possess additional television sets that are not connected (approximately 34.5 million sets);[6]

- Consumers who subscribe to analog cable service where the cable system simply retransmits the over-the-air signal from its headend;[7]

- Consumers who subscribe to a local-into-local service via satellite, which relies on the uplink of local analog stations pursuant to the Satellite Home Viewer Improvement Act;[8] and

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[4] Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Tenth Annual Report, FCC 04-5, ¶ 7 (Rel. Jan. 28, 2004) (85.25% of all TV households subscribe to a multichannel video programming distributor; by implication 14.75% do not). This average figure has not substantially declined over the past year. See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Ninth Annual Report, FCC 02-338, Table B-1 (Dec. 31, 2002) (figures as of June, 2002).

[5] For instance, even in the largest DMA's over-the-air reception approaches 21% of TV Households in the Los Angeles and Chicago DMAs; 10% in New York; and 12% in Washington, DC. Among the smallest DMA's, a similar variation exists, with 12% over-the-air reception in North Platte, NE (DMA 209); 6% in Clarksburg-Weston, WV (DMA 165); and 34% in Fairbanks (DMA 203) and 40% in Harlington, TX (DMA 97).

[6] Comment of the National Association of Broadcasters, *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket 01-129 (Aug. 3, 2001). See also Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, Second Report and Order and Second Memorandum Opinion and Order, FCC 02-230, 17 FCC Rcd 15978, ¶ 33 (Aug. 9 2002).

[7] Analog-only cable subscribers comprise approximately 70 percent of all cable subscribers. National Cable and Telecommunications Association, www.ncta.com. In addition, this category would include all subscribers rural cable systems that are fed local programming by analog transmitters.

[8] This figure is 11,632,140 subscribers, or approximately 54 percent of all satellite subscribers. www.skyreport.com.

- Consumers who subscribe to satellite service only for national programming but who receive local channels via over-the-air.[9]

A wide range of means can be used to address this issue, including a limited subsidy for indigent households, tax credits, or other means to encourage the one-time purchase of digital-to-analog set-top boxes.[10]

Third, public television stations would consider an early return of analog spectrum only if a stable, sustainable and politically independent means of funding public broadcasting were to be created from the economic dividends that an early return of spectrum would create. In particular, public television stations seek the establishment of a trust fund, supported in part from the auction proceeds derived from the returned spectrum. Importantly, this trust fund would be designed to supplement – not replace— current federal funding to the Corporation for Public Broadcasting. Further details concerning the early return of spectrum can be found in the media briefing paper attached at Appendix A.

As public television stations return their loaned spectrum, valuable "beach-front" spectrum could be opened up for wireless broadband uses throughout the country in rural and urban areas alike. This in turn could generate substantial economic activity that would benefit the federal treasury and ordinary Americans.

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[9] By process of elimination, this would be 21,541,000 subscribers, less the 11,642,140 subscribers who take local-into-local, or 9,898,860 households.

[10] See, Andrew D. Cotlar, *Digital-Only Broadcasting: A Roadmap for Early Return of Public Television's Analog Spectrum* (March, 2004), contained within Comments of the Association of Public Television Stations, National Telecommunications and Information Agency, United States Spectrum Management Policy for the 21st Century, Docket No. 040127027-4027-01, Appendix A (March 18, 2004), available at: http://www.ntia.doc.gov/osmhome/spectrumreform/responses/index.htm

## Conclusion

As the Commission considers the technologies—both current and developing – that could deliver broadband services to end-users, it should be aware of the exciting capability that the DTV data transmission holds for the delivery of educational and public safety services over a broadband-like infrastructure. In addition, significant opportunities for wireless broadband uses will be presented when – subject to certain conditions—public television stations return their analog spectrum to the government.

Respectfully Submitted,

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# APPENDIX A

**For Immediate Release,**

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## MEDIA BRIEFING PAPER

# DIGITAL-ONLY BROADCASTING: ENSURING "NO VIEWER LEFT BEHIND"

*Public Television Stations are Exploring the Circumstances for Embracing a "Hard Date" for the Early Return of Analog Spectrum*

Recently, there has been a great deal of debate about the initiative recently launched by the Association of Public Television Stations (APTS) surrounding the concept of Digital-Only Broadcasting (DOB). The Balanced Budget Act of 1997 (BBA) requires public television licensees – as well as commercial licensees – to broadcast in digital-only after December 31, 2006. The BBA provides that the Federal Communications Commission (FCC) may extend this deadline if digital television reception, either over-the-air or via cable or satellite, is not widely available to at least 85 percent of households in a given market. The FCC must make this determination, and grant any extension, on a market-by-market basis. When a licensee begins broadcasting in digital-only, all of that broadcasters' analog spectrum must be returned to the federal government for reallocation through auctions. The current debate on DOB exists within this reality.

Public television stations understand that the analog spectrum is not ours to keep – that we hold it in trust to benefit all of the American people. In the end, the government will reclaim it and auction it off for other uses. However, because of our unique position at this point in time, public television stations want to exercise greater influence over the circumstances under which our analog spectrum is returned. Therefore, the question is simple: can public television stations formulate a plan to give the analog spectrum back to the government in a way that is strategic – in a way that helps the society as a whole *and* provides specific benefits to public television? If so, what is the quid pro quo that public television stations need from the federal government to make the transition happen sooner, rather than later?

**The Case for Supporting a Hard Date**

There are major advantages for public television stations to embrace a date certain for converting to digital transmission only. DOB would save public television stations $36 million a year in the electricity costs currently incurred on analog transmission. This figure represents almost 20 percent of the total amount of money the Corporation for Public Broadcasting (CPB) distributed to public television stations in 2003 as CSGs. Switching to DOB would also help public television stations avoid the cost of maintaining and replacing analog equipment. Simply put, it

would allow public television stations to focus all of their energy and resources on the future, not on a dying distribution system.

On the political level, supporting DOB could help public television stations raise the political capital necessary to achieve some of our long-standing policy goals. Positioning ourselves as an industry that wants to work with the government to accomplish a goal, rather than opposing change that is inevitable, could reap tremendous benefits. For example, supporting a hard date could give public television stations crucial leverage in efforts to establish a long-desired trust fund to supplement annual CPB appropriations. In addition, the increased political capital may be useful in enabling public television stations to secure a legislative guarantee of post-transition digital carriage on cable and satellite systems. The benefits of a hard date are numerous, and public television stations should be in the lead among American broadcasters in finding ways to begin to reap real economic benefits from the digital transition. There are also many challenges to weigh before proceeding.

**Policy Goals Needed to Support Digital-Only Broadcasting: No Viewer Left Behind**

*Cable and Satellite Carriage*

Chief among the issues forestalling the completion of the digital conversion is the question of whether cable and satellite systems will be required to carry all of a public television station's multicast digital program streams within a digital channel. Cable and satellite providers reach approximately 86 percent of American households, and therefore no conversion to digital-only would be possible without guaranteed cable carriage. Public television has argued vigorously that carriage of all mission-related content is essential for the digital conversion to succeed—and to ensure that stations can fulfill their mission to their local communities.

*Over-the-Air Viewers*

Public television stations operate under a federal mission to provide a free, noncommercial educational television service to all Americans. This mission may be compromised if the free, over-the-air analog service is replaced with a digital service that requires either a substantially prohibitive investment by consumers in reception technology or a prohibitively expensive subscription to a digital pay service. During a February 2004 consultation, APTS asked participants to assume that they are guaranteed full carriage of their digital signals by cable and satellite. Given that assumption, APTS asked the stations what was the most important barrier to DOB that would remain for their station. Sixty-eight percent of respondents identified the "need for remaining over-the-air viewers to get digital receivers" as the most important barrier. Therefore, if analog over-the-air service were to be shut-down and replaced with its digital counterpart, some mechanism, or combination of mechanisms, must be in place, as a matter of political expediency and fundamental fairness, to ensure the continuity of universal service.

*Public Television Trust Fund*

Since its inception, public television stations have sought a stable, sustainable and politically independent funding mechanism. With public television stations in the unique position of holding a very valuable asset, there may be a window of opportunity to leverage the good will on the tremendous revenue the government would generate from the early return of its analog spectrum. The government benefits from having some, or all of the analog spectrum returned in two ways. First, the government receives the direct benefit from the revenue it receives from the auction of the analog spectrum. Nextel and Verizon Wireless are currently debating the value of 10

megahertz of nationwide spectrum in the 1.9 gigahertz band, suggesting it is worth anywhere between $3.5 and $7.2 billion.. Public television stations control about 80 MHz of analog television spectrum. To get a more accurate assessment of the value of this spectrum, APTS hopes to commission an independent study in the near future.

In addition to auction proceeds, the government would see increased tax revenue as a result of the increased economic activity that would flow from new entrepreneurial applications when this spectrum is made available for private uses. Because the government has such a huge economic incentive for public television stations to return this spectrum, APTS believes we can encourage Congress to create a trust fund, in addition to annual appropriations for CPB, based upon the increased tax revenue and direct proceeds the government collects from the auction of analog spectrum. In fact, the possibility of establishing a trust fund motivates a lot of the interest public television stations have in DOB. During the February 2004 consultation, 76 percent of respondents indicated that, all other factors being equal, the establishment of a public television trust fund was a prerequisite for their support for accepting a hard date.

*Summary of Policy Needs*

APTS member stations provided extensive and valuable guidance on the three policy issues discussed above. The favorable resolution of these policy issues has a demonstrable impact on the viability of DOB within the next few years. Specifically, during the February 2004 consultation, stations were asked to assume: that cable and satellite would carry your digital signals when you switch off analog; that low cost digital-to-analog set-top boxes were available to over-the-air consumers; and that Congress would establish a trust fund tied to the return of public television stations' analog spectrum. Given these assumptions, 81 percent of participants indicated that they would be willing to begin broadcasting in digital-only by the end of 2007.

Public television stations understand that digital is the next evolutionary development in broadcasting, and the time is ripe to leverage the early return of our analog spectrum to the government while it still carries a high value. APTS welcomes and encourages a dialogue as we chart the path to DOB.

**Developing the Consumer Proposition**

One issue that is central to any plan to move forward with DOB is the need to develop the consumer proposition to increase demand for digital services. As stated above, public television stations view the need to continue to fulfill their universal service obligations in a post-transition word as critical. To begin to answer this question, APTS focused its attention on two specific areas: the need for broadcasters to provide compelling digital content; and finding a means of making digital reception equipment more affordable.

*Business Models for Digital Programming*

The transition to digital broadcasting is unique in America for the simple reason that it was compelled by the federal government, rather than being the result of economic demands. In other words, stations are making the transition before Americans consumers have expressed a desire to receive digital services. As such, broadcasters must develop sustainable business models to stimulate consumer demand for digital programming and services. In Europe, where the conversion to digital was mandated in certain areas, lessons derived from their successes and failures may prove to be instructive here. For example, in early February APTS held an online briefing for members to explore *Freeview*, a free, over-to-air digital broadcasting service that was

successfully released in the United Kingdom - resulting in robust consumer adoption. APTS invited Michael Schueppert, the lead executive at Crown Castle, Ltd who played a major role in creating Freeview, to help us examine Freeview for similarities and differences with the U.S. market and discuss a range of policy and business options for public television stations. Moving forward, public television stations will have to work with many partners to cultivate consumer demand for digital programming and services.

*Making Digital Reception More Affordable*

If we are successful in developing business models that stimulate consumer demand for digital services, then we can expect a significant fall in prices as economies of scale reduce the cost of manufacturing digital tuners and set-top-boxes. For example, in Berlin-Brandenburg, an area with high cable and satellite penetration, the government mandated digital-only broadcasting on August 4, 2003. As a result of the mandated conversion, competition among manufacturers increased considerably – resulting in a clear drop in prices for receivers. While falling prices may play a large part in making digital receivers more affordable, it is probable that the federal government would have to play a role to ensure that public television stations would be able to fulfill their *universal* service missions. APTS is exploring a variety of tax proposals – such as an income-triggered subsidy or tax credit for either the one-time purchase of digital over-the-air set-top boxes, or to offset the costs of digital cable or satellite subscriptions for a limited period of time. In any event, APTS will be guided by the goal of ensuring the continuation of universal service for those individuals who may be harmed by the conversion to digital-only broadcasting.

**A Simple Case for Action**

While there are great challenges to address, public television must work to proactively maximize the opportunity we currently have. America's public television stations control 21 percent of the analog television spectrum in the richest, most technologically advanced society on the face of the planet – a society that craves bandwidth for ever faster and more ubiquitous connectivity. This spectrum is so valuable it's called "beachfront property." Putting it into the private market can unlock its true economic potential. And that is just what the federal government, as required by current law, intends to do. The questions are when . . . and under whose terms.