Measuring the TV "White Space" Available for Unlicensed Wireless Broadband

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The transition to digital television offers a new and important opportunity to take advantage of an underutilized but valuable public resource — the empty broadcast TV channels known as "white spaces" — to foster universal, affordable broadband Internet services. When the DTV transition ends in early 2009, every one of the nation's 210 TV markets will have 15 to 40 unassigned and vacant channels reserved for broadcasting, but not in use. Below is a summary of our analysis for a sampling of media markets across the country.

Vacant TV channels are perfectly suited for WiFi and other unlicensed wireless Internet services. Access to vacant TV channels would facilitate a market for low-cost, high-capacity, mobile wireless broadband networks. Using these white spaces, the wireless broadband industry could deliver Internet access to every American household for as little as $10 a month, by some estimates.

Summary Analysis – White Space in Sample of U.S. Media Markets

(The full analysis of each market with channel data is available at www.spectrumpolicy.org.)

Market	No. of Vacant Channels Between Chs. 2-51 After DTV Transition	Percent of TV Band Spectrum Vacant After DTV Transition
Juneau, Alaska	37	74%
Honolulu, Hawaii	31	62%
Phoenix, Arizona	22	44%
Charleston, West Virginia	36	72%
Helena, Montana	31	62%
Boston, Massachusetts	19	38%
Jackson, Mississippi	30	60%
Fargo, North Dakota	41	82%
Dallas-Ft. Worth, Texas	20	40%
San Francisco, California	19	37%
Portland, Maine	33	66%
Tallahassee, Florida	31	62%
Portland, Oregon	29	58%
Seattle, Washington	26	52%
Las Vegas, Nevada	26	52%
Trenton, New Jersey	15	30%
Richmond, Virginia	32	64%
Omaha, Nebraska	26	52%
Manchester, New Hampshire	23	46%
Little Rock, Arkansas	30	60%
Columbia, South Carolina	35	70%
Baton Rouge, Louisiana	22	44%

At a time when more than 60 percent of the country does not subscribe to broadband either because it is unavailable or unaffordable, this would represent an enormous social benefit and a catalyzing economic engine, particularly in rural areas. Rural areas are most lacking in broadband access and the most likely to have greater amounts of available white space – in some cases more vacant than occupied spectrum. For example, in Juneau, Alaska, as much as 74 percent of the broadcast spectrum will be empty. Yet a significant amount of this valuable resource will also remain dormant in urban areas. Even in the relatively congested Dallas-Ft. Worth market, for example, 40 percent of the broadcast spectrum will be vacant.

For each city, our analysis includes every licensed broadcast station (high power, low power, Class A, and translators) as well as out-of-market signals that might be available to local consumers and low power outlets that may not be broadcasting today but are licensed to do so. Every channel with FCC interference protection is scrupulously excluded from the white space calculation. Channels allocated for public safety, medical telemetry, and radio astronomy are also excluded. These estimates are, if anything, *under-estimates* of white space. (More specific information on sources and methodology is included below, and in the report for each city.)

In May 2004, the Federal Communications Commission, in the matter of *Unlicensed Operation in the TV Broadcast Bands (ET Docket No. 04-186),* proposed to allow a new generation of wireless devices to utilize the white spaces, subject to strict protections against interference for DTV viewers. Despite a flood of support from industry groups, engineers and the public interest community, this FCC proceeding has stalled since the departure of Chairman Michael Powell.

Congress must act now. The DTV transition legislation originally marked up by the House Commerce Committee during the 2005 budget reconciliation process included a provision, proposed by Rep. Jay Inslee (D-Wash.), directing the FCC to issue a final order in the proceeding. However, just before the final bill came up for a vote in the entire House on December 19, 2005, this provision was stripped from the bill on procedural grounds. Separate legislation to deal with non-budget-related issues associated with the DTV transition is expected to be introduced in early 2006 in both the House and Senate.

In light of these analyses, both houses should direct the FCC to complete this proceeding, allowing cities across the country to use their dormant public spectrum to stimulate local economic development and create opportunities for entrepreneurs.

Sincerely,

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Note on Methodology

TV channel assignments were compiled using a variety of data sources to ensure accuracy. The preliminary channel line-up was taken from the Consumer Electronics Association's "Antenna Web" online resource (www.antennaweb.org), which lists all available signals from a given zip code. The base zip code used was the downtown area. CEA's listing was then expanded with data from the Center for Public Integrity's Media Tracker Database (www.publicintegrity.org/telecom/) and the television license query engine at REC Networks (www.recnet.com/cdbs/fmq.php). All of these databases consist of information taken from the FCC. A final check was performed using the FCC's TV TVQ Database Query (http://www.fcc.gov/fcc-bin/audio/tvq.html). FCC databases were also searched to determine if any public safety organizations operated in the TV band.

This combined station listing was cross-checked with multiple local television guides to determine which channels are available over the air. All stations broadcasting in or near the city that can be viewed over-the-air in the area were included. The full list of stations was then searched in the FCC's CBDS database to determine station class and DTV channel selection. In all cases, it was presumed that currently broadcasting channels would remain broadcasting in digital. Channel 37, which is reserved for radio telescopes, was assumed to remain off limits for all other transmitters. Spectrum occupied for producer multimedia use or for other industrial purposes was not included in the white space analysis. All of these pre-existing low-power devices could co-exist without interference in an unlicensed band. Because broadcast transmitters are located at various distances from different parts of any city (and therefore have signals that reach different parts of the area), it is likely that the white spaces available in the city are greater than this estimate.