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## White Space Debate

Unlicensed use of soon-to-be vacated analog frequencies could interfere with licensed secondary uses, such as wireless microphones.

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By Thom Mullins

MY ANXIETY CLOSET WOKE ME UP AGAIN LAST NIGHT. The kerfuffle inside was so loud that I had to open the door and ask for some peace and quiet. Instead, out rolled the FCC, Congress, The White Space Coalition, Shure, PAMA, and a few others, all clamoring to be heard. I realized I would not make it back to bed for some time.

As almost everyone is aware, the move to digital transmission will be fait accompli in a year. Not only will all analog broadcast signals go away, but there will be some large “empty” spaces left behind. For those still watching over-the-air television (as opposed to cable or satellite) this will be quite a boon.

However, what is disturbing my sleep is the fight over the empty space — more commonly called “white spaces,” though it isn’t so empty or devoid of color; it’s more of a dark gray, according to Mark Dennis, an audio engineer with Cirque du Soleil in Las Vegas. Historically, the spaces between the current analog broadcast channels have been available for licensed secondary uses — including wireless microphones, personal monitors, intercoms, and interruptible foldback (IFB) devices.

### **FREQUENCY ACCESS**

The White Space Coalition (WSC) — which includes Intel, Hewlett-Packard, Dell, Google, Microsoft, and Philips — is pushing to allow for unlicensed use of those frequencies for devices such as wireless broadband services and wireless multi-media systems. The WSC has been pressing for quick rulings by the FCC to open up these frequencies for use by unlicensed devices. Sens. John Kerry, D-Mass., and John Sununu, R-N.H., have put forward legislation in the Senate that would force the FCC to act in this manner. Reps. Jay Inslee, D-Wash., and Nathan Deal, R-Ga., have sponsored similar legislation in the House that would expand the use of wireless broadband services to rural areas using these frequencies.

These moves are not an attempt to take away the frequencies and licenses already set aside for the wireless microphone industry, a secondary licensed use that has been deployed for decades. However, unlicensed long-range broadband use and unlicensed personal communications devices use in these frequencies has a high potential for interfering with licensed secondary uses.

This was recognized as an issue, and last year, Microsoft and Philips asked the FCC's Office of Engineering and Technology to evaluate spectrum-sensing devices that would sense the presence of existing wireless microphone systems and "safeguard" those frequencies. The devices failed at detecting wireless microphone operations as well as DTV channels. Microsoft asked for an extension of the evaluation deadline, which was granted, and submitted an updated version of their spectrum-sensing device for evaluation. The extension raises some additional issues.

An alliance headed by Shure, the Grand Ole Opry, the Professional Audio Manufacturer's Alliance (PAMA), the Sports Video Group (SVG), Springboard Productions, and Sound Associates, among others, has spearheaded the efforts to ensure that unlicensed uses do not interfere with licensed uses of this spectrum. Their lobbying and demonstrations have been crucial in convincing Congress and the FCC to examine the issues closely and to present a solution based on solid engineering. The result has been legislation sponsored by Rep. Bobby Rush, D-Ill., that would protect these licensed uses from interference.

## **AV INDUSTRY IMPLICATIONS**

So, why is my anxiety closet so crowded and noisy? There are a number of reasons.

Unfortunately, the evaluation extension pushes the pro audio manufacturers into a very tight corner. Because the date for implementing DTV broadcasting cannot change, there is much less time available for the manufacturers to develop and deploy new systems. This will have a direct impact on the equipment we specify and install.

I am now working on projects that will go to bid or be in construction this time next year. If we don't have solutions in hand, this will increase the costs of those installations and could unnecessarily extend project schedules. It's not a situation any consultant or contractor relishes the thought of.

As an industry, we have been dealing with Blackberry interference issues in our installations. Pro audio manufacturers have been at the forefront of bringing solutions to this problem to market. Regrettably, the blame for this issue has been laid at our feet instead of the feet of the personal communications device manufacturers. I foresee similar issues arising if the white space issue is not addressed at this time.

Our industry should not take the heat for the inability of others to provide effective technology that will resolve the issues before they become problems with our clients. While it may be acceptable to release bug fixes in the software industry, it isn't acceptable to do so in our industry. The expectation of system performance is too high. Bug fixes are typically free to the consumer; new hardware isn't.

While spectrum-sensing technology might work on systems that are currently active, it will not detect transmissions that are intermittent from systems that are not used all the time. This could result in some users finding they have lost the channels they once used without any problems.

Shure has done a tremendous job demonstrating to Congress and the FCC the impact these issues will have on the broadcast, entertainment, houses of worship, and convention fields of our industry. However, I think the reach of these systems extends much further.

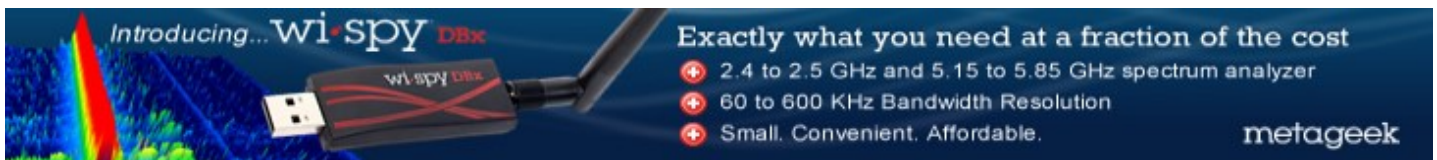
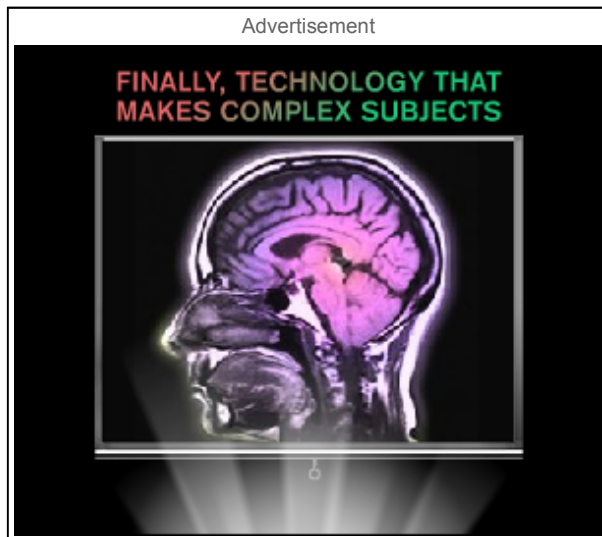
There isn't a elementary, middle, or high school that does not use multiple wireless microphone systems on a daily basis; nor is there a higher education project in which wireless microphones aren't deployed. Wireless systems are used in small- and medium-sized performance and sports venues.

We need to make this point clear to our elected representatives. Shure's Web site has links to representatives' Web sites. Sennheiser USA's Web site has a sample letter that you can download and personalize with specific examples and comments. I intend to support Rush's House Bill 1320, and to let my representatives and senators know that they should, too.

Besides, I would sure like those guys currently occupying my anxiety closet to vacate. I'm sure some new occupants will be along shortly. Space is tight — white and otherwise.

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