



November 2008

Society of Broadcast Engineers
Newsletter
Chapter 24
Madison, Wisconsin

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 **Next Meeting**

Wednesday, Nov. 12

Charter

Communications Tour

This month, James Childs, of Charter Communications, will give us a tour of their Madison Master Head-end facility. We will have a chance to see their analog and digital equipment and any other areas of interest to us. The engineering staff of Charter Communications will be available to answer any questions you may have.

Dutch Treat Dinner, 5:30 p.m.

Picasso's Pizza
5266 Williamsburg Way, Fitchburg
(no reservation; just gather together)

Meeting & Program, 7 p.m.

Charter Communications Head End Facility
5151 Verona Road

Picasso's Pizza is directly across from Charter on the west side of Verona Road.

For directions, see page xx.

 **Coming Up**

Thursday, Dec. 12: Holiday Party at Fitzgerald's

Tuesday, Jan. 14: TBD

Wednesday, Feb. 18: TBD & Nominations

FCC Gets White Space Test Results

>>>By Tom Smith

In October 10, the FCC received the results of its testing of the devices for use in the proposed unlicensed TV white space from its Office of Engineering and Technology. The FCC released it to the public on October 15. With all of the appendixes, the report runs 400 pages. The FCC declared on the basis of its tests that the "proof of concept" had been proven. On the same date the report was released, FCC Chairman Kevin Martin placed the approval of unlicensed devices in the TV bands on the FCC's November 4 meeting agenda. According to a report by the Broadcast Engineering Web site, the devices that are proposed under the new rules would operate with 100 milliwatts on certain white space channels and 40 milliwatts on channels adjacent to DTV channels. The devices would have to include spectrum sensing and support for geo-location to access databases of spectrum usage that the device may operate on.

On October 17, the National Association of Broadcasters (NAB) and the Association of Maximum Service Telecasters (MSTV) filed an emergency request that the FCC hold a 70-day period for public comments. Other parties that filed with the NAB for the comment period included ABC, CBS, Fox and NBC, along with the Open Mobile Video Coalition. This was after the Commission said that

they would accept formal comments through October 27.. NAB and others also took issue with the Commission holding the vote on November 4, when most people will be focused on the Presidential election on that day.

The report starts with a six-page summary, which pretty much lists most of the results of the tests. Adaptrum, Infocomm Research (I2R), Microsoft, Motorola, Philips Electronics North



America submitted five devices for testing. Three different series of tests were conducted, spectrum sensing for TV broadcast signals, spectrum testing for wireless microphones and transmitter characterization and interference testing. None of the devices looked anything like what would be marketed to the public in either design or function. From the pictures of the devices in the report, they were mostly breadboarded or off-the-shelf devices modified to test the theory of the operation of their systems. All had a laptop or desktop computer connected to the devices for

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**Meeting Minutes**

October 2008

SBE Chapter 24 did not hold a formal meeting in October, but members of the chapter attended the SBE National meeting and awards dinner held during the Broadcasters Clinic. The National Meeting and Awards Dinner were held when the chapter would normally hold its meeting as part of the clinic. At the National meeting and dinner, Chapter 24 and the Wisconsin Broadcasters Association were recognized for their efforts in hosting the National meeting in conjunction with Broadcasters Clinic. SBE Chapter 24 member Leonard Charles was inducted as a Fellow of the SBE during the awards dinner.

Respectfully submitted by
Tom Smith, Secretary

**FCC Rulemakings**

compiled by Tom Smith

*MM Docket No. 99-325**Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcasting Service*

On October 23, the FCC released a Public Notice asking for comment on a petition by 18 broadcasters, which operate 1,200 commercial and non-commercial radio stations, along with the four largest manufacturers of transmission equipment. The petition asked the FCC to increase the maximum allowable power limit for digital transmissions on FM station to go from one percent (-20 db) of the stations analog power to a maximum of ten percent (-10 db) of the stations analog power output. The Commission is also asking for comment on a report submitted by iBiquity on the effects on the power increase and a report from National Public Radio outlining interference concerns.

Comments on the petition and the reports are due on November 28, 2008, with replies due on January 4, 2009.

From FCC Release (www.fcc.gov)

Green Bay Flight Service Station closed

The FAA has closed the Green Bay Flight Service Station, which was the FAA notification point for all tower light outages and restoration reports.

For all Wisconsin-based towers, the new reporting number for tower light outages now changes to 877-487-6867. Stations with current open notifications to the Green Bay FSS will need to call this new number when the notification can be cleared.

new number
877-487-6867

wireless mics >>> continued from cover

either logging proposes or control functions. All units were designed to receive and sense signal levels, with only the Adaptrum device being capable of transmitting.

All devices were subject to testing for spectrum sensing for TV broadcast signals. They were first tested in a closed (cabled) system for sensitivity. The devices detected low-level signals in the range of -116 to 126 dBm. The devices were then taken to a nine locations around Washington, D.C. The devices detected off-air DTV signals as low as -106 to 128 dBm, but the ability to detect signals "varied considerably among white space devices and with the characteristics of the different recorded signals" which included multi-path fading and "real-world distortions." The devices did not work well with moderate to strong adjacent signals present. The detection sensitivity was degraded as much as 60-70 dB with some of the devices. The report stated, "In some cases, the degradation was such that the detection threshold could not be measured. This could impact significantly the ability of the devices to reliably detect TV signals with stations' service areas". The devices were able to detect occupied stations within their service contours most of the time, but the Adaptrum, I2R and Motorola devices did report channels unoccupied in a few instances within a station's service contour. The devices were able to detect some channels as occupied beyond their service contours whether the station was viewable or not. The Philips device was shown as the most reliable according to the FCC summary using spectrum sensing, and the Motorola unit correctly reported all occupied channels when used in combination with both spectrum sensing and their geolocation/database feature. The devices took 0.1 to 185 seconds per channel when scanning for occupied channels. The Microsoft unit was only tested in the lab, so there were no results in the field-testing for it.

The wireless microphone test was conducted at two locations. FedEx Field outside of Washington, D.C. before a Washington Redskins game and in New York at a Broadway theater. For the wireless microphone test only, the I2R and Philips units were tested. At FedEx Field, the units

were placed on the side of the field, in the upper stands, in the press box and in the parking lot. The test wireless mikes were on the field. They also tested the units to see if they could sense the ESPN mics when they were turned on. At the theater in New York, the units were tested in the orchestra seats, in the mezzanine and on the street in front of the theater. The units were checked with microphones on predetermined channels. The devices were tested with the wireless microphone turned off first and then on to determine if the presence of wireless mics could be detected. The report said "at both sites and all test locations, the Philips device reported all the channels on which the microphones were designated to transmit as occupied whether the microphone was operating or not. The I2R device indicated several channels as available even when the microphones were on."

Tests to determine interference to a TV receiver from the Adaptrum device, as it was the only one with a working transmitter, were conducted in the lab and with limited field-testing. With an EIRP of +7 dBm, co-channel interference occurred to a DTV receiving a weak signal from an antenna mounted at 9.3 meters (30 ft) when the device was placed up to 360 meters (1380 feet) away. There was no interference to the DTV set when the Adaptrum device was operated on an adjacent channel even with the transmitter located near the receiver with a rooftop antenna. Tests were also conducted at two field sites to determine interference to set connected to cable TV. The test showed that the device would cause interference to the set when the device was placed near it. The amount of interference depended on how the set was connected to the cable and what components were used.

Following the release of the test results and the scheduling of the vote on the white space proposal, there was a deluge of comments to the FCC. It is hard to tell which side got the most comments when the cut-and-paste comments from a Web site is included, but the number of formal comments from broadcasters and the users of wireless mics outnumbered any from the white space proponents. A larger number of broadcasting groups, along with all of the sports leagues,



After Chairman Martin gave reports before both House and Senate Committees on the Wilmington DTV transition and was questioned specifically about the reception issues that arose there, placing white space devices on the agenda seems ill-timed.

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filed comments in opposition to the proposal. There were a large number of comments from the music industry along with actor unions; the convention and meeting venues and their service providers, churches, and theater and music tour sound companies. The National Telecommunication and Cable Association filed comments because of their concern about leakage into their systems from signals from unlicensed devices. A number of communication firms such as cellphone and other licensed consumer service providers filed comments asking that any use of the white spaces be licensed and possibly auctioned. Their concern is unfair competition from services using unlicensed spectrum after they paid large amounts of money for their spectrum. The wireless mic manufacturers all made comments and proposed solutions to possible interference from the unlicensed devices including blocking off channels from broadband devices.

The comments included many diverse persons, including Pastor Joel Osteen and Dolly Parton. One letter was signed by 40 artists and included Miley Cyrus, Guns n' Roses, the Eagle, Brooks and Dunn, Clay Aiken, Neil Diamond, the Dixie Chicks and Megadeath. Parton and Osteen each sent an individual letters, with Parton's letter running three pages and written in her own personal style. She asked the FCC to consider the valuable contribution to the cultural life that the entertainment industry provides and the industry relies on wireless microphones and that they would be "irreversibly devastated" by the proposal. She also questioned the lack of a comment period and the vote being held on Election Day given the impact of the proposal. Others in the music and sound industry that used a cut-and-paste form letter went one step further and place their name and address in the form letter. Most cut-and-paste letters are sent as an attachment with only the e-mail header, which only appears on the comment listing.

The Commissioners and other staff also received many ex parte visits and letters from those in both those for and against the proposal. The FCC also received letters from members of Congress, with some letters jointly signed and others by individual Congresspersons. Charles Ringle (D-NY) sent a letter opposing the vote due to concerns to the effect on the New York theater district and other entertainment productions, which has a significant impact on the New York economy. And the Chairman of the House Energy and Commerce Committee, John Dingell (D-Mich), who oversees the FCC,

wrote a letter asking if the tests were subject to peer review as required for "influential scientific information" and if not, why. He also asked how the Commission would deal with interference complaints to over-the-air TV signals from such devices, the process used for handling such interference complaints in other unlicensed band, how they would deal with modification to devices be the consumer that causes interference and how would the Commission remove these devices from the market if sold to the public. He asked what other spectrums bands that used spectrum sensing to avoid interference and how did the Commission handle interference issues in those bands. Finally, he asked why the Commission did not take a licensed approach to avoid accountability issues. The Commission did release a peer review on October 28 done by the FCC's Wireless Telecommunications Bureau and its Enforcement Bureau. The report said that the tests were appropriate; but did list of number of shortcomings due to equipment available including equipment that was being tested and suggest some other test methods that could have been done.

On October 29, the communication firms of FiberTower Crop, Sprint Nextel and the Rural Telecommunications Group, which asking the FCC for licensed use of the TV white spaces, filed joint comments. Their proposal is similar to a system used in Canada to provide broadband service to rural areas. The proposed system would operate with secondary status to all current and future TV stations; provide the same protections to TV stations as required under the current rules and look like a digital LPTV with the addition of return signals. The proposed broadband service would also have to coordinate with wireless microphone users. This proposal is similar to one allowed in 2001 and 2002 by the FCC under part 74.785 as created in FCC dockets 01-137 and 02-40 which allowed low power TV stations to participate in a digital data service pilot project.

On October 21, the New America Foundation, the leading public interest group promoting the unlicensed use of white spaces, and Google held a conference at Google's headquarters campus. At that conference Michael Calabrese, director of the New America Foundation's Wireless Future Program, stated in his comments "Take TV off the air in a few years to open all TV spectrum to wireless broadband, over-the-air broadcasts should be replaced entirely by cable, satellite and Internet viewing. All channels should be available

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December '08 newsletter

Copy deadline:
Sunday, Nov. 30

Folding party:
Thursday, Dec. 4

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Chapter 24 needs your creativity

From the Chair

Dennis Baldrige



SBE Chapter 24 needs your help! For the past several years, we have been served well by our present newsletter editor, John Salzwedel. We appreciate all that he has done for our local chapter. Presently, John needs to step down from this position due to a change in his work schedule. Therefore, we need someone to edit and prepare our Chapter 24 newsletter starting in December of this year.

This is an opportunity for you to exercise your creative skills by editing and preparing SBE Chapter 24's monthly newsletter. This is an unpaid position. However, volunteers are not paid – not because they are worthless, but because they are priceless. For many years now, Chapter 24 has demonstrated consistently its active interest in broadcasting by producing a quality and nationally recognized newsletter.

Winston Churchill said, "We make a living by what we do, but we make a life by what we give." We need someone to volunteer to take on the job of newsletter editor and continue this tradition of quality publications. Yes, it will involve an investment of your time, but as Norman Vincent Peale once said, "The more you lose yourself in something bigger than yourself, the more energy you will have."

In any organization, it is sometimes a challenge to get the needed helpers. This is nothing new. Julius Caesar said in 44 B.C. "It is easier to find men who will volunteer to die, than to find those who are willing to endure pain with patience."

Being newsletter editor for SBE Chapter 24 will be a rewarding opportunity; a chance for you to be creative and demonstrate your skills while benefiting the local and national broadcast community.

SBE Chapter 24 needs your help now! If you are interested or know of someone who might be able to help, please let me know soon.

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by broadband, with government possibly subsidizing cable and satellite providers to deliver Lifeline service." He also said that they were "gunning for wireless broadband access in underutilized government and even commercial bands."

Another speaker stated, "white spaces are going to be at the forefront of showing these technologies actually work." He listed several other bands as targets. These comments were published in Communications Daily and are from the New America Foundation Web site. New America Foundation may have a conflict of interest as a public interest group as the chairman of their board of directors is Eric Schmidt, CEO and one of the founders of Google, which is one of the leading companies promoting white space use.

One other participant at the conference, Shared Spectrum Company, showed results of tests that they had done with transmitter operating up to 10 watts in the TV white space.

After Chairman Martin gave reports before both House and Senate Committees on the Wilmington DTV transition and was questioned specifically about the reception issues that arose there, placing white space devices on the agenda seems ill-timed. And placing Distributive Transmission Systems for DTV as a proposed solution to reception problems on the same November 4 agenda is more puzzling. Because the new Congress does not take effect until January, if the Commission does enact the rules authorizing the use of TV white space for broadband use, the rules may not be in session to review the rules. Congress can repeal the action of a federal agency within a limited period. But unless Congress goes into special session, the FCC may avoid any review. We shall see what happens on November 4 and we can probably expect lawsuits and possible Congressional action to follow whatever happens.

From the following Web sites: FCC Releases and Comments, Broadcasting and Cable, Broadcast Engineering, Washington Post, Pro Sound News, Television Week

9 Tips for Wise Holiday Eating

1. Slow down for satisfaction.

Take small portions, eat slowly and savor every bite. Remember, it takes about 20 minutes for your brain to realize your stomach is full.

2. Plan to indulge.

Savor the special dishes instead of mindlessly popping cheddar cheese cubes into your mouth before the meal.

3. Don't starve yourself beforehand.

4. Be creative.

Practice saying "no" in case you get pressured by well-meaning relatives to eat something you haven't planned for or don't want to eat.

5. Drink moderately.

6. Bag it.

If you're hosting the meal, remember that there is always tomorrow — and leftovers.

7. Lighten it up.

Whether you are the host or just bringing a dish to someone else's home, lighten up favorite dishes.

8. Get moving.

There are more ways to spend time with family on Thanksgiving than just eating.

9. Control emotional eating.

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Post-transition antennas available

By Tom Smith

In an article in the July 9, 2008 issue of TV Technology, engineering consultant and SBE board member Dane Erickson wrote about returning to the use of over-the-air TV reception after 20 years of cable TV. In his article, Dane mentioned that there were no low-band VHF DTV assignments in the San Francisco area where he lives and that he was unable to find a combination hi-band/UHF-only antenna. He didn't want to deal with the greater element and boom length, so he stacked separate UHF and VHF high-band antennas. His article is available online at www.tvtechnology.com.

I was interested with the fact that if there were very few low-band DTV assignments in the whole country, would antenna manufacturers be producing combination high-band VHF/UHF antennas? In fact, I had been checking TV antenna manufacturer's Web sites the past few months to see if such antennas were available. About the time Dane's article came out, I discovered that both Antennacraft and Winegrad had started to produce combination high-band VHF/UHF antennas. Winegrad had come out with six models and Antennacraft had come out with one model when I first discovered them on their Web sites.

One of Winegrad's antennas is a two-bay UHF bowtie with extended elements added for high-band VHF reception. The other

five Winegrad models are the traditional UHF yagi corner reflector antennas with a VHF log periodic antenna mounted on the back half of the boom. Antennacraft used a similar design for its antenna. A few weeks later, Channel Master introduced a small yagi corner reflector UHF antenna with what looked like a set of rabbit ears attached behind the reflector. Recently, Antennacraft introduced shorter version of its antenna and Channel Master introduced its own two versions of a longer combination VHF/UHF antenna. Winegrad's two-bay bowtie and Channel Master's original UHF corner reflector with added rabbit ears are for local reception of up to 35 to 40 miles. The traditional UHF yagi corner reflector antennas with a VHF log periodic antennas by all three manufacturers are for local to fringe reception, depending on the size of antenna.

All antennas cover UHF channels 14-69, but gains are given to channel 51, as channels 52-69 will not be relevant after next February. Except for Winegrad's Model HD-1080, all of the antennas data is at their respective Web sites. Some information for the HD-1080 is at Winegrad's direct sale site. The manufacturers' Web sites are www.antennacraft.net, www.channelmaster.com and www.winegrad.com or www.winegraddirect.com.

Antenna Specifications

Brand	Model	VHF Gain Channels 7-12	UHF Gain Channels 14-51	Boom Length	Price
Antennacraft	HBU22	4.1 db	7.3 db	70"	\$121.13
	HBU44	8.2 db	8.2 db	116"	\$47.30
Channel Master	CM-2016	0-2 db	5.5 to 9.2 db	36.5"	\$49.95
	CM-2018	7.5 to 8 db	7.1 to 9.7 db	78"	N/A
	CM-2020	7.5 to 8.2 db	8.2 to 10.3 db	91"	N/A
Winegrad	HD-1080	-11 to 0 db	6 to 7.5 db	35.5"Wx18.25"H	\$69.99
	HD-7694	8.3 to 9.9 db	11.5 to 9.7 db	65"	\$89.99
	HD-7695	7.6 to 11 db	11.7 to 11 db	90.25"	\$107.99
	HD-7696	10 to 10.9 db	13 to 10.8 db	110.75"	\$116.99
	HD-7697	10.9 to 10.8 db	14.6 to 11.8 db	131.25"	\$134.99
	HD-7698	10.4 to 12 db	14.2 to 12.2 db	168.25"	\$166.99



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SBE Chapter of the Air

HamNet meets the second Sunday of each month at 0000 GMT on 14.205 MHz. Hal Hostetler WA7BGX is the Control Station. Any amateur operator is welcome and encouraged to participate.

Using the SBE logo

SBE chapters and members may use the SBE logo on business cards, letterhead and chapter newsletters. When referring to a chapter, it must be used with that chapter's name or number adjacent to the logo. Members must put "Member of" or "Certified by" adjacent to the logo.

The proper logo must be used in any case. The correct logo can be obtained only through the SBE National Office. Send your request to Holly Essex at hessex@sbe.org.

Certification Exam Session Dates

The SBE National Certification Committee has announced exam session dates. Check the list below for the exam period that is best for you. For more information about SBE Certification, see your Chapter Certification Chair or contact Megan Clappe, Certification Director at the SBE National Office at (317) 846-9000, or mclappe@sbe.org.

<u>Exam Dates</u>	<u>Location Application</u>	<u>Application Deadline</u>
February 6-16 , 2009	Local Chapters	December 31 , 2008
April 21, 2009	NAB	April 1, 2009
June 5-15, 2009	Local Chapters	April 17, 2009
August 7-17, 2009	Local Chapters	June 5, 2009
November 6-16, 2009	Local Chapters	September 18, 2009

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AUDIO VIDEO A/V LIGHTING

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Contributors this month: Tom Smith and Dennis Baldrige.
Thanks to Leonard Charles for his work on the Chapter 24 Web page.

FIRST CLASS MAIL




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