



October 2008

Society of Broadcast Engineers Newsletter Chapter 24 Madison, Wisconsin



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Next Meeting

Wednesday, Oct. 15 Broadcast Clinic & National SBE Meeting

This month's meeting will be held in conjunction with the Broadcasters Clinic, Wisconsin Broadcasters Association and Society of Broadcast Engineers National Meeting. All events held at the Marriott-West, Middleton. The Clinic runs Tuesday, Oct. 14 through Thursday, Oct. 16. Register by calling (608) 255-2600 or visit www.wi-broadcasters.org.

4 p.m.: National SBE Membership Meeting

This meeting is open to all SBE members and guests

5 p.m.: National SBE Awards Reception

6 p.m.: National SBE Awards Banquet (pre-paid dinner ticket required*)

* To order Awards Banquet tickets, contact Linda Baun, WBA office, (608) 255-2600
Tickets are \$14 per person.

Marriot-Madison West
1313 John Q. Hammons Drive, Middleton



Coming Up

Wednesday, Nov. 12: Charter Communications Tour

Thursday, Dec. 11: Holiday Party at Fitzgerald's

Fare Thee Well Analog

Chuck Pharis Q&A

>>>By Kevin Ruppert, WISC-DT

Most people will agree that it's always hard to end a long-term relationship. When you stop to think about it, next February our industry will be ending a relationship that we have had for over 50 years. Basically, broadcast television in this country has been using technology going back to the 1930s with just a few updates along the way, and now it is going away.

In order to remember where we came from, I thought it would be good to hear from someone who knows what the old broadcast technology was like. Someone who knows how to change a vacuum tube.

Chuck Pharis has many interests. One of them is collecting vintage broadcast gear. This is a pastime he has enjoyed for 43 years. Some of you may have

seen his exhibit of vintage gear at the NAB convention a few years ago. Chuck is passionate about restoring this legacy gear. In a way, he is like an electronics anthropologist, restoring life to the equipment which produced the magic of television in its early days.

The old gear seems to hold a certain fascination for many of us, including Chuck. Somehow this old stuff just seems warmer, in a literal fashion as well as figurative one. Even though modern broadcast equipment is really very complex, in a way it's easy to see how the new




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**Meeting Minutes**

September 2008

The Madison Chapter of The Society of Broadcast Engineers met on September 11, 2008 at the University of Wisconsin-Madison School of Engineering. There were nine members present, of which six were certified. There was one guest.

Vice Chair Clif Groth presided in place of Chair Dennis Baldrige. Minutes were approved for the August meeting as published in the September newsletter. Steve Paugh passed on the upcoming certification dates for Certification Chair Jim Hermanson. Clif reported the current checkbook balance for Treasurer Leslie Franzen. Mike Norton reported for sustaining membership Chair Fred Sperry that there were four recent renewals, Midwest Media Group, Full Compass, Madison Video Repair and Resonant Results. There are currently 21 sustaining members. Mike Norton also relayed a request from Vicki Kipp asking if we should have a separate booth at Broadcasters Clinic or share the SBE National's Booth.

Program Chair Steve Paugh reminded everyone the Broadcasters Clinic was next month and that the National Awards Dinner was to take place instead of the regular Chapter and regional SBE meeting normally held at the Clinic.

Clif brought up the possibility of ending the print edition of the chapter newsletter and doing the newsletter on the Web only. The newsletter would be in color on the Web. It currently costs the chapter 50 cents per copy for the print newsletter. There is also a need for more articles for the newsletter. Steve Paugh stated that we would need to send out postcard meeting notices and ballot information for chapter elections.

Frequency Coordinator Tom Smith gave the current status on the FCC rulemaking concerning wireless mics and the white space issue. He also reported that Token Creek Mobile Television had requested information on 5.8 GHz usage and that he had not received any coordination requests concerning Badger football games.

The meeting was adjourned and Paul Wilson, Associate Professor, UW-Madison presented a program on the future on nuclear energy.

*Respectfully submitted by
Tom Smith, Secretary*

**Amateur Radio News**

compiled by Tom Weeden, WJ9H

**2008: Blanket year
of the space age**

The sun remains quiet. The sunspot appearance reported the last week of September seems to follow the pattern emerging for most of 2008. A spot will appear for one or two days and then suddenly it is gone. The solar wind is also reported to be at an all-time low. Last week, NASA announced that so far, 2008 is the "blanket year of the space age," with more than 200 spotless days. The minimum following Solar Cycle 18 in 1954 had 241 days without sunspots, and it preceded the solar max in 1959 for Solar Cycle 19 that had the highest sunspot numbers on record.

While low sunspot activity is usually bad news for high-frequency operation, low frequencies benefit. Michael Reid, WE0H, of St Francis, Minn., reports on the WD2XSH/16 experimental operation on 600 meters (500 KHz). Mike said the low solar activity and quiet geomagnetic conditions make this part of the spectrum quite attractive for long-distance propagation. During mid-September, he and other FCC Part 5 experimental stations were beaconing and getting reports from all over, typically 1,000 miles distance.

*Excerpt from the American Radio Relay
League's Web site, arrl.org*

Pharis Q&A >>> continued from cover

gear performs a specific task. It has been programmed to do it! Now, figure out how to generate NTSC sync and burst using tube circuits and you have a real challenge!

I interviewed Chuck to find out more about this fascinating hobby.

Kevin Ruppert: *How long have you been collecting vintage broadcast gear?*

Chuck Pharis: 43 years. I started collecting in high school.

KR: *How big is your collection?*

CP: I have hundreds of vintage radio and television related items. I have over 100 vintage TV cameras, hundreds of pieces of TV and radio support equipment, over 12,000 vacuum tubes and a huge supply of replacement electronic parts I use for restoration.

KR: *How did you get started collecting?*

CP: When I was in high school, I was on a tour of a television station in San Francisco. I saw an old television camera in a dumpster. I asked if I could have it, and that was my first piece of equipment. I still have it today, and it still works after I restored it. Another story: I grew up in Detroit, Mich. I was in the Cub Scouts, and our troop was on a TV show at WXYZ TV. I was fascinated looking at all the TV equipment in the station. A cameraman held me up so I could look into a camera viewfinder. He also let me look at a 1948 TV truck they

had in the parking lot. Believe it or not, I now own that TV truck and am restoring it.

KR: *What are the unique challenges to collecting vintage gear?*

CP: Finding replacement parts.

KR: *Does the gear you are working on ever seem to come to life or take on its own personality?*

CP: Both. I love seeing a vintage TV camera or old radio come back to life after sitting in some storage room for 50-plus years. Every piece of equipment has its own personality. It's just that old "TV look." We can't do that today.

KR: *Do you have any gear that you have not been able to restore?*

CP: Yes, a lot. My collection is so large, I do not have the time to restore everything right now, and finding the replacement parts can be tough. The toughest item to find is a good working RCA 1954 15GP22 color TV CRT for a RCA CT-100 TV set. Also some transformers and filter chokes are almost impossible to find. Some can be re-wound but it gets expensive.

KR: *Do you ever feel like an anthropologist when working on old gear?*

CP: Sure! I love the hunt! When restoring vintage electronic equipment, I love to see how the gear was originally designed and hand wired.

KR: *Do you think that new digital*

equipment seems colder or less wonderful than the old analog gear?

CP: You just answered your own question! Digital equipment is made up with surface mount parts and circuit boards. When they break, we simply throw them away and plug in a new board. You have to be a micro-surgeon to replace a surface mount component! Each vintage piece of equipment was handmade. I love seeing how the assembler put these parts together. Restoring this stuff is so much fun!

KR: *Would you consider this to be a hobby?*

CP: Yes and no. I love what I do, and when I make money from a hobby it becomes a labor of love. I buy, sell and trade some of the equipment in my collection. I re-invest the money into other vintage equipment for my collection and business.

KR: *What are your future plans for restoring gear?*

CP: I am looking for a 1930s Iconoscope TV camera to restore. They are quite rare. I do not have one in my collection. Someday I will find one. Also I am currently restoring a 1950s RCA TK-41 color TV camera. As far as I know, there are no working TK-41 cameras anywhere in the world. I want to have the first and only working camera. I hope to display it someday at the NAB convention in Las Vegas. I also have to finish restoring my 1948 RCA TV truck that came from WXYZ TV in Detroit. I am years away, but will do it!

KR: *Do you have a lot of gear waiting to be restored?*

CP: Oh, yes. Buildings full. Now all I need is the time to do it!

You can see more of Chuck's vintage broadcast gear collection on his Web site, www.pharis-video.com.



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FCC Rulemakings

compiled by Tom Smith

Google wants action

By Tom Smith

PROPOSED RULEMAKINGS

MB Docket No. 08-172

Development of Devices Capable of Supporting Multiple Audio Entertainment Services

On August 22, the FCC issued a Notice of Inquiry concerning the possible requiring of various types of radio receiver to support more than one type of audio service. The inquiry is the result of the Sirius-XM satellite merger. As part of the merger settlement, Sirius-XM were required to allow manufacturers of radios to design and include reception of their satellite service in their units. This included radios with iBiquity's HD radio system and with iPod and MP3 players as well as internet based services. The Commission would like information on the question of requiring Sirius-XM radios to support HD radio and any of the other services and if HD Radios should be required to receive Sirius-XM service. The Commission asked for information on the effects on the radios with the combined reception capabilities would have on size, weight, power consumption and cost.

The notice was announced on August 25. There will be a 60-day comment period, followed by a 30-day reply period.

MM Docket No. 93-177

An Inquiry into the Commission's Policies and Rules Regarding AM Radio Service Directional Antenna Performance Verification

On September 24, 2008 the FCC released a Notice of Inquiry concerning the verification of AM directional antenna performance verification. This notice is the result of a number of petitions by consulting engineering firms and broadcast licensees to allow computer modeling of directional antennas and use those models to predict

performance. To use computer modeling, the licensee must install and operate a highly calibrated measurement system to measure current, phase and voltage at specific locations in the antenna system. The sampling system would have to be designed according to specific standards determined by FCC rules. The computer modeling would use the moment method of modeling in conjunction with a physical model of the system, represented by varying degrees of complexity, as a series of wires to compute how each element in the antenna system would react. This action follows an earlier action that allowed for simplified field measurements of AM directional antenna proof of performance. Systems using top-loaded, sectionalized or unipole antennas are excluded for using computer modeling for determining proof of performance.

The second part of this inquiry examines measuring the effects on nearby towers and their relationship in affecting an AM directional systems pattern. The Commission seeks to have towers from all services be required to have their effects on an AM directional system when construction is considered. The current rules require towers built for services under some parts of the FCC rules to be examined, when other towers for services under other parts of the FCC rules do not. The Commission also asks if computer modeling can be used to determine the effect of the placing of a new tower near an AM directional system and if some short towers can be excluded from having their effects on an AM direction system considered when being constructed.

The Notice of Inquiry was released on September 28, with comments due 30 days after the notice being published in the Federal Register and replies due 30 days later.

From FCC Notice (www.fcc.gov)

At a meeting before lawmakers on September 23, Google co-founder Larry Page, lobbying for action by the FCC to open up the so-called TV White Spaces, declared the tests that the FCC were rigged so that the devices being tested would fail. He claimed that the frequencies being used by wireless mics at FedEx Field before a Washington Redskins game were on local broadcast frequencies. David Donovon of the MSTV and Mark Brunner of Shure refuted the claim. Page also met with the FCC to urge them to grant the use of TV White Spaces before the November election fearing that the issue may be lost in a transition to a new administration. Google has also flooded the FCC comment Web site with 16,000 form letters sent through its site, FreeTheAirwaves.com.

ESPN sent a letter on September 26 to the FCC saying the tests at FedEx Field were not encouraging, while Google supporter, the Wireless Innovation Alliance, called the test a success. The National Cable and Telecommunications Association wrote a letter to the FCC on September 10 expressing its concerns about unlicensed devices in the TV white spaces. They were concerned about interference to cable headends and TV sets. The NCTA wants the FCC to restrict the use of VHF channels, particularly 3 and 4, limit power to 10 mw for consumer devices, limit higher-powered fixed devices to 400 feet from residential buildings, the use of the various channel sensing systems that have been proposed and require coordination near headends by licensed high power systems that have been proposed by FiberTower and the Rural Telecommunications Group, Inc. The Association of Maximum Service Telecasters met on September 22 and members voiced their concerns about the White Space issue; representatives of ESPN, the NCTA and broadcasters also expressed their concerns. There were also legal assistants to a number of the FCC Commissioners on a DTV panel and when questioned, they were not willing to give any information on when any action on the TV white space rulemaking may take place.

Google >>> continued on page 5

November '08 newsletter

Copy deadline:

Sunday, Nov. 2

Folding party:

Wednesday, Nov. 5

E-mail submissions to
John Salzwedel at
john@tokencreek.com.



Be not MEDIocre



Dennis Baldrige

One underlying principle in the SBE's Canon of Ethics is striving for a standard of excellence and shunning its opposite, mediocrity. Professional engineers want a legacy which reflects excellence in what they do and say. When one's work is mired in mediocrity, it usually means that their heart was not fully engaged in the project or activity in the first place; they were simply going through the motions. Mediocrity is not a good state for anyone.

What is mediocrity? Webster's dictionary defines it as "the quality or state of being mediocre; of moderate or low quality; ordinary." Fundamentally, mediocrity is the state of being average or ordinary. Is this what we want said about our work and attitudes?

Mediocrity is the absence of a drive for excellence. It is the result of not putting out the time, energy, passion or whatever it takes to accomplish the goal. Mediocrity becomes the default when there is no vision.

What exactly is excellence and how is it achieved? Excellence is not about being the best. Rather, it is about being and utilizing 100 percent of what God has given to you in terms of mental, physical, emotional and spiritual resources. How do we achieve excellence and avoid mediocrity? Og Mandino suggested how this might be accomplished. He said "Deliver more than you are getting paid to do. The victory of success will be half won when you learn the secret of putting out more than is expected in all that you do. Make yourself so valuable in your work that eventually you will become indispensable. Exercise your privilege to go the extra mile, and enjoy all the rewards you receive."

Let us all enthusiastically strive for excellence and avoid the easy, mediocre way by giving our best at all times!

There is a real magic
in enthusiasm. It
spells the difference
between mediocrity
and accomplishment.

—Norman Vincent Peale

Google >>> continued from page 4

For the answer the question on why Google is pushing so hard for the white space spectrum, one needs to look at a patent that Google applied for on March 19, 2007 for a wireless network system. The patent application was called "Flexible Communications System and Methods." The wireless network would support a multifunction device that would connect to a home router or WiFi or WiMax network, like the municipal network in downtown Madison or a traditional wireless network. One of the systems abilities would be to find the lowest cost commercial carrier or a free connection with a WiFi or WiMax system that could be able to provide service. This is one of the features of Google's proposed Android device.

Another test concerning the use of TV white space has surfaced. The Vermont Telecommunications Authority was granted an experimental license to operate a number of test transmitters in the UHF TV Band. The Vermont Telecommunications Authority is an agency of the State of Vermont that was created by Vermont in June of 2007 for the purpose of promoting access to broadband and mobile communication services in Vermont. The license is to run from November 15, 2008 to May 15, 2009. They will be able to transmit on 14 different channels in each of three cities: Stowe, Wolcott and South Burlington. The transmitters are authorized to operate with a radiated power of 4 watts. The operation of these transmitters is subject to coordination by the Society of Broadcast Engineers and the transmitters are to be shut down if they cause interference. The object of the experimental license is to demonstrate the efficient use of otherwise unused TV channels without causing harmful interference to licensed users.

From Broadcast Engineering, Sports Video Group, Wired, Washington Post and Unwired View.

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Wilmington shuts off analog service

At noon on September 8, FCC Chairman Kevin Martin, along with other dignitaries, threw a very large light switch marketed with the words analog at the lower end and digital at the top end. When the ceremonial switch was flipped up, one of the sets on display went to noise while other sets in the display with either digital tuners or converter boxes continued to display the Wilmington stations programming. After the ceremonial shutdown of analog television, the Wilmington stations continued to operate their analog transmitters, with slides explaining how the viewers can receive their digital signal. One station is airing a how-to video on hooking up a digital converter at regular intervals, but other than the local PBS station, no full-power station is airing any regular programming in analog. The other stations continued to operate their analog transmitters with the slides until the end of September.

Meanwhile, the FCC posted daily tallies of the phone calls to the FCC and local stations from September 8 through September 19. Appearing before the Senate Committee for Commerce, Science and Transportation on September 23, FCC Chairman Kevin Martin presented a breakdown of calls to the FCC DTV hotline. The FCC received 2,272 calls from September 8 through September 19. There were 1,828 calls in the first week following the Wilmington analog shutdown, and 444 calls in the second week.

The FCC broke down the calls:

- 100 callers: Unaware of the analog shutdown
- 186: Aware, but unprepared
- 641: Converter box or DTV set issues, in which 299 were resolved, usually by rescanning the converter box or DTV set
- 960: Reception issues related to WECT Channel 6. Their new digital channel is on channel 44 and does not replicate their analog channel 6 coverage. A coverage map presented to the Committee showed that WECT's DTV transmitter covered half the radius of the analog transmitter.
- 549: Other antenna and reception issues, in which 139 were resolved, with another 410 calls attributed to cliff effect issues.

The Chairman also gave a similar report to the House Subcommittee on Telecommunications and the Internet on September 18.

On September 12, FCC Commissioner Michael Copps sent a letter to Chairman Martin expressing concern about consumer education based on the calls to the FCC following the Wilmington shutoff. Commissioner Copps proposed a number of items for the Commission to do to facilitate the DTV transition. They include conducting additional field tests, sending special FCC teams to at-risk communities, prepare DTV contingency plans, create an online DTV consumer forum, educating consumers on DTV troubleshooting, including antenna issues and rescanning converter boxes and DTV sets. He also wanted the Commission to ensure that broadcasters meet their DTV deadlines, encourage rapid deployment of battery-operated digital TVs and find a way to broadcast an analog message following the transition. A bipartisan group of members of the House Commerce Committee wrote a letter to the FCC Chairman on September 28 in which they called for the FCC to expend antenna and reception information at their DTV Web site and call center, work with other industry and nonprofit groups to increase information about antenna and reception information, and encourage the purchase of converter boxes before the February 17, 2009 deadline.

Some programs that Commissioner Copps mentioned have been implemented as the Commission announced and started a program on August 18 that is sending members of the Commission to various cities around the country focusing on markets where 15 percent of the homes, or at least 100,000 homes in large markets, rely on over-the-air reception. That includes all Wisconsin TV markets. The Commissioners are currently on an 81-city tour and the Commissioners and FCC staff have attended 1,829 awareness sessions, 482 conferences, visited 7,854 other events and formed 514 partnerships with other organizations. The FCC has also started a DTV speaker's office and has had 51 requests for speakers. The FCC also has some technical information on its DTV Web site.

One U.S. Congressperson, Rep. Lois Capps (D-Calif.), is preparing a bill that

would require that one station in each market keep its analog transmitter on the air until March 3 to provide emergency and DTV transition information for those whom were not prepared. The NAB is looking into the proposal.

Concerning battery-operated digital TVs, Winegrad has announced a battery pack for its converter and another manufacturer has announced a battery-operated DTV set.

FCC Commissioner Jonathan Adelstein, speaking before a broadcast trade group last week, expressed his concerns about the transition. He expressed doubts the Wilmington shutoff was as successful as claimed. He said that the 2,272 calls in Wilmington could indicate that there could be as many as 2.2 million calls after the February shutdown date. He called the planning for the transition poor, noting that low-power TV and the fact that the transition would occur in the middle of winter when roofs were snow-covered, preventing access to roof top antennas was another concern. Commissioner Copps' letter and all the phone data from Wilmington are on the homepage of the FCC's Web site and could provide useful information to stations on how to handle viewer response to the transition. The FCC has the calls broken down in spreadsheet form and the appendices to Chairman Martin's written statements to the Congressional Committees has the information in graph form.

From FCC Releases (www.fcc.gov) and Broadcasting and Cable Online (www.broadcastingcable.com)



SBE Chapter of the Air

HamNet meets the second Sunday of each month at 0000 GMT on 14.205 MHz. Hal Hostetter 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.

Exam Dates	Location Application	Application Deadline
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

CHAPTER 24 SUSTAINING MEMBERS

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

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