



October 2011

# Society of Broadcast Engineers Chapter 24 Newsletter Madison, Wisconsin

## Next Meeting

**Wednesday, October 12**

### UPPER MIDWEST REGIONAL SOCIETY OF BROADCAST ENGINEERS MEETING



SPECIAL GUEST  
SPEAKER  
DR. BARRY ORTON

Dr. Barry Orton is Professor of Telecommunications in the Department of Professional Development and Applied Studies, Division of Continuing Studies, University of Wisconsin—Madison. For over thirty years his primary duty at the UW-Madison has been to assist Wisconsin municipalities with broadband issues. His thought-provoking presentation will be titled: “How Government Schizophrenia Has Both Promoted and Impaired Broadband Development in the US.”

5:30 PM - Dinner  
(included with Wednesday registration)

Meeting and Program at 7:00PM

Madison Marriott- West  
1313 John Q. Hammons Drive  
Middleton, WI

Visitors and guests are welcome!

## Coming Up

Thurs., Nov. 17 Is Stereo Relevant in a  
5.1 World?- Full Compass  
Wed., Dec. 14 Chapter 24 Holiday party  
at Fitzgerald's-Middleton

## From the Chair...

>>> by Bill Hamilton, Chapter Chair

I would like to start out this month with a bit of old business. As noted in an earlier newsletter, Chapter 24 was the recipient of three national SBE awards: Best Website, Best Newsletter and Best Regional Convention. The awards were given out at the SBE National Convention in Columbus, Ohio on Wednesday September 28th. Rich Wood of Resonant Results was on hand to represent Chapter 24 and receive our awards.

Now on to the new business, it's shaping up to be a busy October. First and foremost we have the Broadcasters Clinic. The award winning regional convention put on by the Wisconsin Broadcasters Association and the SBE chapters of the upper Midwest. This is always a good chance to catch up on new technology, see informative presentations, along with a chance to catch up with colleagues.

Thanks are in order for all of the hard work by Linda Baun, Leonard Charles and the Clinic Planning Committee for another great Clinic. Linda says the exhibit floor is sold out and the Marriott is sold out of rooms as well. We can look forward to a large turnout, a lot of exhibits and another great line up of presenters.

Speaking of the exhibit floor, the SBE has a booth again this year and I am still looking for volunteers to help man the booth. Please email me <bill.hamilton@wiseye.org> if you can help out and what times you are available.

If you haven't signed up to attend the Clinic there is still time, see this link for more information: <http://www.wi-broadcasters.org/wba/index.php/events/broadcasters-clinic/>

**Chair** >>> continued on page 5

## The Farnsworth Invention is Theater for the Broadcast Engineer

>>> by Vicki W. Kipp

Mark your calendar to attend a theater performance in November! If ever there were a Broadway play that would interest a broadcast engineer, this is it. *The Farnsworth Invention* will be performed in Madison at the Overture Center's Playhouse Theater.

With a cast of 16 actors playing more than 70 roles, *The Farnsworth Invention* is presented by the Forward Theater Company in collaboration with the UW-Madison Department of Theatre and Drama/University Theatre.

*The Farnsworth Invention* tells the dramatic story of the development of television and the bitter legal struggle over patent rights between Iowa farm boy Philo T. Farnsworth and RCA head executive David Sarnoff. The performance is from a screenplay adapted by Aaron Sorkin.

Aaron Sorkin is best known for creating Academy Award-winning movies such as *The Social Network*, *The American President*, and *A Few Good Men*. He was the Emmy award-winning creator of hit television drama, *The West Wing*, and also created *Sports Night* and *Studio 60 on the Sunset Strip*.

Some critics of *The Farnsworth Invention* complain that the ending is not historically accurate. The

## The Farnsworth Invention

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# Meeting Minutes

from the September 2011 Business Meeting

Chapter 24 of the Society of Broadcast Engineers held their monthly meeting on September 13, 2011 at WISC-TV in Madison. There were 15 members present, 10 who were certified, and one guest.

The meeting was called to order at 7:00pm by Chair Bill Hamilton. After brief introductions, the August meeting minutes as published in the September *Newsletter* were approved on a motion by Steve Paugh and a second by Fred Sperry.

A report from Treasurer Matt Glissendorf stated that the bank balance continued to be positive following recent deposits and payments. There was no membership report, and no newsletter report presented.

The Sustaining Membership update from Fred Sperry listed recent renewals by Midwest Media Group and Resonant Results, and indicated a total of 22 sustaining members. There was no certification and education report. Frequency Coordinator Tom Smith mentioned that there were no coordination requests for the first two UW Badger football games (ESPN/ABC coverage).

For the National Liaison report, Leonard Charles noted two items: The new National officers and board member election results were announced; the terms for the newly elected begin at the national meeting on September 28th in Columbus, Ohio. There is a new course available on SBE University titled Television Video and Audio – A Ready Reference for Engineers; this and other online courses are available at [www.sbe.org](http://www.sbe.org).

In Old Business Steve Paugh made a motion that the Chapter send \$200 to the Overture Foundation, in appreciation for the extensive technical tour that the group received of the Capital Theater at the Overture Center in August. The motion was seconded by Garrett Marshall, with no objections. There was no new business brought up.

Steve Paugh mentioned that the next meeting and program would be held in conjunction with the Broadcasters Clinic on Wednesday, October 12th. A presentation by guest speaker Dr. Barry Orton will be titled “How Government has Promoted and Impaired Broadband.”

For professional announcements, Tom Weeden mentioned that WNWC will be looking for a part-time engineer for transmitter maintenance. Rich Wood noted that he will be attending the SBE National meeting and would be able to accept the three national awards presented to Chapter 24.

The meeting adjourned at 7:07pm, and Steve Paugh began his presentation on “10 Steps to Fearless AutoCAD.”

*Submitted by Mike Norton, Secretary*



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## The Farnsworth Invention

>>> continued from page 1

play ends with Farnsworth being soundly defeated by Sarnoff and living a life of obscurity. In reality Farnsworth won the lawsuit, received \$1 million from RCA for his patents, and went on to enjoy a successful career as a researcher. But Sorkin defends his ending, suggesting that for the sake of clarity he conflated many years of lawsuits, appeals and counter-suits, which ultimately led Farnsworth to die “drunk, broke and in obscurity,” into a single lawsuit that produced the same final result.

*The Farnsworth Invention* will be performed on Thursday, Friday, Saturday nights at 7:30pm, and Sunday afternoons at 2:00pm in November beginning on November 3rd and ending on November 20th. Ticket prices range from \$20 - \$37 and can be obtained by calling the Overture Center Ticket Office at (608) 258-4141 or by going to [www.overture.com](http://www.overture.com). Pre-show talks about television history will be given beginning one hour before show time for the Thursday night and Sunday afternoon shows. Thursday night pre-show talk begins at 6:30pm and the Sunday night pre-show talk begins at 1:00pm.

If there was ever a theater performance to appeal to a broadcast engineer, then this is it. It's a rare chance to see the history of our profession take center stage – particularly when the talents of an exceptional screenwriter (Aaron Sorkin) tells the fascinating story of Farnsworth v. Sarnoff in a play originally performed on Broadway.

### Sources:

- “The Farnsworth Invention” at <http://www.overturecenter.com/production/the-farnsworth-invention>
- “The Farnsworth Invention” at [http://en.wikipedia.org/wiki/The\\_Farnsworth\\_Invention](http://en.wikipedia.org/wiki/The_Farnsworth_Invention)
- “The Playhouse” at <http://www.overturecenter.com/about/venues/the-playhouse>

Many of our members got to take an insider tour of the Overture Center for our August 2011 chapter meeting. There were many remarkable details shared during this technical tour. As you may recall, the Playhouse has a thrust stage that brings the audience very close to the actors. Decorated in rich purple and red hues, the Playhouse is the theater that often hosts chamber music groups, children's performing companies, and professional theater troupes. It has a maximum capacity of 347 audience members.

## CAP Deadline Delayed

>>> by Tom Smith

On September 15th, the FCC issued a Report and Order ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0916/FCC-11-136A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0916/FCC-11-136A1.pdf)) delaying the deadline for broadcasters, cable systems and others such as cell phone providers for having to install and have equipment operational for the reception and transmitting the new CAP system of emergency information. The FCC had received numerous comments from a previous notice issued on May 25, 2011 which asked if a further delay was needed from the September 30, 2011 deadline. Most commenters stated that a delay was needed as there were some issues with the rules that need to be resolved and to a lack of time to get all equipment certified. The Commission also issued a caution concerning intermediary decoding equipment and the ability of such equipment to meet the requirements for transmitting all of the CAP information. The FCC has yet to certify such equipment and will issue a rulemaking on such equipment in the future.

## FCC Asks for Comments on Internet Captions

>>> by Tom Smith

On September 19th, the FCC issued a notice of rulemaking ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0919/FCC-11-138A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0919/FCC-11-138A1.pdf)) on captioning for video delivered by the Internet. The rulemaking is in response to a 2010 law called the Twenty First Communications and Video Accessibility Act of 2010. This law requires video produced for the Internet to be closed captioned, much as the same as broadcast and cable TV. Many of the proposed rules are similar to TV, including things such as how the captions look on the screen. Other rules pertain to the conversion of captions from conventional video to Internet compatible formats and how they are to be displayed on various devices from computers to tablets to smartphones. The FCC must issue the rules by January 12, 2012.

Within 6 months of the publication of the rules in the Federal Register, prerecorded and unedited material must be captioned, with live material captioned at the end of a year and all material after 18 months. There are a great many issues that are subject to this rulemaking concerning the mechanics for captioning for all of these new devices and broadcasters need to be aware of them since most TV broadcasters post video material to their websites.

The Docket is MB Docket No. 11-154 with comments ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0928/DA-11-1639A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0928/DA-11-1639A1.pdf)) due on October 18th and replies due on October 28th.



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# Amateur Radio News

compiled by Tom Weeden, WJ9H

• Each year more than 500,000 Scouts in more than 100 countries take to the airwaves on the third full weekend in October, and this year will be no different. The Jamboree On The Air (JOTA) is an annual Scouting and Amateur Radio event sponsored by the World Scout Bureau of the World Organization of the Scout Movement (WOSM).

JOTA is an annual event where Boy Scouts, Girl Scouts and Girl Guides from all over the world speak to each other

via Amateur Radio. Since 1958 — when the first Jamboree on the Air was held — millions of Scouts have met through this event. The radio stations are operated by radio amateurs; many Scouts and leaders hold licenses and have their own stations. The majority of JOTA Scouts participate through stations operated by local radio clubs and individual hams.

Scouts of any age can participate, from Brownies to Ambassadors, from Cub Scouts to Boy Scouts and Venturers. Once at the ham radio station, the communication typically requires the scouts speaking into a microphone and listening on the station speakers. But many forms of specialized communication can also take place, such as video, digital communication using typed words on the computer screen transmitted by radio, or communication through a satellite relay or an earth-based repeater. The exchanges include such information as name, location, Scout rank, age and hobbies. The World Scout Bureau reported that the 2010 JOTA had more than 700,000 Scout participants from nearly 6000 Amateur Radio stations.

The 54th Jamboree on the Air is



October 15–16, 2011 from 0000 local time Saturday, October 15 through 2359 local time Sunday, October 16. <<http://www.arrl.org/jamboree-on-the-air-jota>>

• It doesn't take a major disaster for Amateur Radio to step in and save the day. Around 9 PM on September 5, a cable cut completely isolated the Johnson

County 911 Center in Warrensburg, Missouri, impacting landline, Internet and cellular service. Johnson County — home to Whiteman Air Force Base — is located just east of the Kansas City metro area.

Johnson County's emergency plan called for

the telephone company to transfer all 911 calls to the Henry County 911 facility in Clinton, Missouri, the next county south. But an equipment problem at Henry County's center prevented the transfer from completing successfully. Calls were then routed to the west, to the Benton County 911 Center in Warsaw, Missouri. This transfer was successful and calls started coming in to Warsaw. Unfortunately, Warsaw is more than 40 miles from Warrensburg, and the two centers were unable to establish communication using the county VHF radio facilities.

It was then that radio amateurs were brought in to provide communications support. The Johnson County Amateur Radio Emergency Service (ARES) and the Benton County ARES groups were activated with Amateur Radio operators from both groups reporting to their respective Emergency Operations Centers. Hams using the VHF repeater facility

operated by the Warrensburg Area Amateur Radio Club quickly established reliable communications. They relayed the 911 calls between the two centers,

with the hams in Benton County handing the calls off to Warrensburg officials for dispatch.

According to Johnson County Emergency Management Director Gloria Michalski, KC0TPB, radio amateurs remained at both sites until the local telephone company fixed the problem at 9:30 AM the next day. While only about 15 calls were transferred, she said that amateurs handled at least one life-critical call.

Calling Amateur Radio operators "awesome!" she said that the service that both ARES groups provided during the 911 outage was "invaluable. I assure you that this office has a healthy working relationship with our ARES group. They are always there for us and the community. I use every opportunity to promote the group publicly and support their Amateur Radio classes."

(Excerpts from the American Radio Relay League's <[arrl.org](http://arrl.org)> web site)



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## FCC Schedules FM Auction

>>> by Tom Smith

On September 12th, the FCC released a notice for comments ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0912/DA-11-1513A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0912/DA-11-1513A1.pdf)) on the procedures for conducting an auction of 123 FM construction permits of which 17 had been previously placed for auction in FM Auction 91 but were unsold. The FCC asks for comments on the procedures for conducting each auction that they conduct. They may make some changes to the action rules to correct for some issues they had in a previous auction. This is mainly a formality for most auctions. In each auction they issue a list of allocated frequencies that they wish to auction and request those interested to file an application. If more than one application is filed for an allotted frequency, the FCC will require the applicants to bid for the permit to construct the station. Comments on the procedures for this auction are due on October 7th with replies due on October 17th.

There are two FM permits scheduled to be auctioned in Wisconsin. They are for Crandon and Rhinelander. The Crandon permit is on channel 276 (103.1 MHz) and is a class C3 (25 kw at 100m). The Rhinelander permit is for channel 243 (96.5 MHz) and is also a class C3. The Rhinelander permit was auctioned previously in auction 91 and had no applicants.

On September 9th, the FCC announced ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0909/DA-11-1523A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0909/DA-11-1523A1.pdf)) that it was deleting 20 allocations that had been unsold in previous auctions. They included three allocations in Wisconsin. There are in Boscobel, channel 244C3 (96.7 MHz), Owen, channel 242C3 (96.3 MHz) and Tigerton, channel 295A (106/9 MHz at 6 kw at 100m). They are asking for

comments from interested parties that may wish to apply for the construction permits requesting that they should not be deleted and why they may not have previously applied. Comments are due on October 30th and replies on November 13th.

The FCC states the reason for the deletion of the allocation is so that they may be used in some other communities. This may or may not be possible due to the crowding in the FM band, which makes it very difficult to move most allocations any distance.

**Chair >>>** continued from page 1

Other events of note this month include: The National SBE is hosting an online interactive RF Safety course on Tuesday October 18th from 1:30-4:45 Central Time. The cost per member is \$85. The class provides an overview of RF radiation issues and practices for broadcasters, including transmitter sites, ENG and SNG trucks, remote operations, RF hazard protection equipment, biological effects of RF radiation and more. The course is led by Richard Strickland, a renowned expert in this subject area. See this link for more information: <http://www.sbe.org/sections/SBERFSafetyCourse.php>

Finally, Tektronix along with Roscor is hosting a Video Insight Seminar on Tuesday, October 25th in Milwaukee at WITI-TV. This day-long event features demonstrations and presentations on 3D production and transmission, the CALM Act and audio loudness issues, Ancillary Data Testing and Analysis and MPEG and video quality. This is at no cost and lunch will be provided. See: <http://tek.gcsevents.com/videoinsight/event/?evd=263&s=>

As you can see, there is no shortage of things to do this month.

Hope to see all of you at the Clinic.

November 2011 Chapter 24  
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Wednesday, November 2  
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## FCC OK's AM Transmitter Power Saving Technologies

>>> by Tom Smith

The FCC announced on September 13th ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0913/DA-11-1535A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0913/DA-11-1535A1.pdf)) that the Media Bureau will permit AM stations to use transmitter technologies that reduce power consumption while maintaining audio quality and licensed coverage areas. The technologies are called by a number of trade names under a common technology called Modulation Dependent Carrier Level (MDCL). This technology is currently available from Harris, Nautel and others. The technology has been used by international broadcasters in many other countries and also by some AM broadcasters. The technology has been around since the 1980's and can decrease power consumption by 20-40%. There was a paper presented at the 1994 SBE Convention on the subject.

In AM broadcasting, output power increases by 50% at 100% modulation. For a 1000-watt transmitter at 100% modulation, the carrier remains at 1000 watts and the sidebands contain 500 watts of power. It is the two sidebands that contain the information that is demodulated. The carrier mainly needs to exist to aid reception in a simple envelope detector receiver. A long used method of reducing transmitter power usage is single sideband transmission, which has been used by the military and ham radio operators for decades. In single sideband transmission, the carrier is inserted in the receiver and only the sidebands' carrying the information is transmitted. Another type of sideband transmission is used for creating both the NTSC color and FM stereo subcarriers.

In the MDCL systems, the carrier

level is reduced with increased modulation. In some systems, the carrier may be decreased during silent periods. The carrier power may be reduced as much as 6 DB during high modulation periods.

To use MDCL, a station must file for a waiver of Section 73-1560 which sets the upper and lower power limits for operation or if doing experimental testing a waiver on Section 1510. They must disable the MDCL system when doing field strength measurements, reach 100% carrier power at some audio input level or with the MDCL system disabled and maintain the spectral mask when transmitting an IBOC signal.

Stations may start to request waivers by filing a letter in PDF form with the Media Bureau.

## Tips on Disaster Communications

>>> by Tom Smith

FEMA and the FCC have issued a two-page sheet ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0921/DOC-309723A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0921/DOC-309723A1.pdf)) to the public on communications during an emergency. This primer was issued after the earthquake and hurricane that disrupted the East Coast. The list of do's and don'ts included the suggestion the public have battery operated radios or TVs with fresh batteries, text when using cell phones or make brief calls, and not use their smart phones for downloading from the Internet or for playing games. During the recent disasters, the head of FEMA issued statements for the public to use broadcast TV and radio for information and to restrict the use of cellphones due to congestion of the system.

The FCC also released a paper ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/)

db0922/DOC-309742A1.pdf) on possible systems to be used for the recovery of communications after a disaster. Some of the proposals include the use of flying repeater transmitters taken aloft by weather balloons, hand launched planes much like the surveillance drones used by the military and more conventional systems such as small portable repeaters in small suitcase-sized packages along with the traditional temporary towers setup by the cellular phone providers.



[http://www.sbe.org/sections/cert\\_index.php](http://www.sbe.org/sections/cert_index.php)



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**Rick Thompson**  
Central Regional Manager

### FCC Announces White Space Data Test

>>> by Tom Smith

On September 14th, the FCC announced ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0914/DA-11-1534A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0914/DA-11-1534A1.pdf)) the Spectrum Bridge Inc.'s TV Band Database system was ready to commence trial. The tests commenced on September 19th and will run until November 2nd. All databases for TV white space spectrum management must go through a 45-day test period. The database test site can be found at <http://whitespaces.spectrumbridge.com/Trial.aspx>. The site has a channel availability calculator, a wireless microphone registration utility, cable headend and broadcast auxiliary temporary receive site registration utilities and a response facility to report problems.



<http://www.sbe.org/sections/SBEUniversity.php>




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Thanks to Leonard Charles for maintaining the Chapter 24 web site and to Steve Paugh for mailing the meeting reminder postcards.

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### CHAPTER 24 SUSTAINING MEMBERS

#### Recent Renewals

Belden, Inc.  
Canon U.S.A., Inc.

#### Thanks to all our Sustaining Members

- Alpha Video
- Clark Wire and Cable
- Full Compass Systems
- GEPCO International, Inc.
- Heartland Video Systems
- Joseph Electronics
- JVC Professional Products Company
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- Midwest Media Group
- Resonant Results, Ltd.
- Roscor Wisconsin
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- Scharch Electronics
- Sound Devices, LLC
- Token Creek Productions
- WISC-TV 3
- WMTV-TV 15
- WKOW-TV 27
- WMSN-TV 47
- Wisconsin Public Television

## Certification Exam Session Dates

For more information about SBE Certification, contact Jim Hermanson, [services@jimhermanson.com](mailto:services@jimhermanson.com), Chapter 24 Certification Chair, or contact Megan Clappe, Certification Director at the SBE National Office at (317) 846-9000, or [mclappe@sbe.org](mailto:mclappe@sbe.org).

EXAM DATES	LOCATION	APPLICATION DEADLINE
February 3-13, 2012	Local Chapters	December 31, 2011
April 17, 2012	NAB convention	March 23, 2012
June 1-11, 2012	Local Chapters	April 13, 2012