

August 2016

Society of Broadcast Engineers Chapter 24 Newsletter Madison, Wisconsin

Next Meeting

Wednesday, August 24

REMEMBERING the Hi-Fi FAD

The years 1955 to 1985 were a period of great innovation in home Hi-Fi development. Post-war pent-up consumer demand, returning GI's with technical training and large quantities of surplus electronic parts set the stage for the Hi-Fi revolution.

We'll examine the rise and fall of home Hi-Fi looking at the technology and the pioneers who drove the public's interest in the technology.

Program Chair Steve Paugh and Kevin Peckham of Full Compass Systems will take us down memory lane, a topic that surely all of you remember!

Dutch Treat Dinner at 5:30pm
Rocky Rococo
Tree Lane (Mineral Point at Beltline)
(near Brothers Main Appliance store)
Madison, WI



Meeting and Program at 7:00pm
Full Compass Systems
9770 Silicon Prairie Parkway
(use main entrance)
Madison, WI

The Broadcasters Clinic

>>> from Leonard Charles, Chairman

There is a chair at the Madison Marriott West with your name on it ready for the 2016 Broadcasters Clinic October 11th thru 13th. Please see the Early Bird session agenda included in this newsletter and mark your calendar to save the dates. You simply cannot find a broadcast engineering conference more pointed at the technology of our industry unless you buy a plane ticket and head for Vegas in April. Our exhibit floor is booking fast as the excitement over our agenda grows. Don't miss it. We look forward to seeing you there.

On line registration is open now at <<http://www.wi-broadcasters.org/events/broadcasters-clinic/>>.

Don Borchert Broadcasters Clinic Fellowship

Applications are now being accepted for the 2016 Don Borchert Broadcasters Clinic Fellowship. This Fellowship honors the founder of the conference and will provide all expenses to attend the Clinic in Madison October 11th thru 13th. The program is possible through the financial support of all four Wisconsin SBE Chapters, and the WBA.

If you are interested please go to <<http://www.sbe24.org>> and click on the "Broadcast Clinic" button to find an application.

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Awards Announced

>>> excerpts from SBE-news

On July 28, the Society of Broadcast Engineers announced the recipients of the 2016 SBE National Awards, including Chapter Awards for:

Best Chapter Communication
Chapter 24 of Madison, WI

This new award recognizes two local chapters that produce the best locally-published newsletter, website and/or social media site in its Class, providing up-to-date and relevant information about the industry and chapter including officers and meetings; making effective and creative use of graphics; providing links to the SBE National website (where appropriate); and effectively representing the chapter and the SBE.

The Wisconsin Chapters and the 2015 *Broadcasters Clinic* also won for *Best Chapter or Educational Regional Event*, which is also a new award for this year.

All the awards will be presented during the SBE National Awards Dinner on October 27, at the SBE National Meeting in Columbus, OH. The National Meeting is being held in conjunction with the Ohio Broadcast Engineering Conference, which is presented by the Ohio Association of Broadcasters, the Ohio chapters of the Society of Broadcast Engineers, and the Ohio section of SMPTE.

Coming Up

Thur., Sept. 22	Bob Orban on Audio Processing
Wed., Oct. 12	Broadcasters Clinic – "How To Take Off From A 24/7 Career"
Wed., Nov. 16	WMTV New Facility Tour



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program committee!*

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Meeting Minutes

from the July 2016 Business Meeting

Chapter 24 of the Society of Broadcast Engineers held their monthly meeting on Tuesday, July 19, 2016. The meeting was held at the studio of WVMO-LP/Monona, located in the Monona City Hall building. There were 14 members present, 12 who were certified, and 8 guests.

The meeting was called to order at 7:03pm by chapter chair Kevin Ruppert. He asked everyone present to briefly introduce themselves and then proceeded with the meeting. The secretary's report of the last meeting minutes were then approved as published in the July *Newsletter*.

With the treasurer's report, Leonard Charles stated that recent expenses for meeting notices and postage were paid and the account maintains a healthy balance.

Sustaining Membership chair Fred Sperry noted that Chapter 24 held steady with 16 companies that are sustaining members.

Program Committee chair Steve Paugh reminded everyone of the upcoming August 24 program at Full Compass Systems on 'Remembering The Hi-Fi Fad,' as well as the September program by Bob Orban on audio processing. He also announced the topic for the October program to be presented by Jeff Welton of Nautel, which will be 'How To Take Time Off From a 24/7 Career.'

Certification chair Jim Hermanson mentioned the next exam session window opens November 4, with September 30 as the deadline to submit an application to the SBE National office. The following exam opportunity will be next February.

Frequency Coordinator Tom Smith mentioned he received a request for available frequencies, associated with the PGA Champions Tour event which was held at University Ridge Golf Course in June.

For the SBE National report, Leonard Charles announced the new SBE Compensation Survey results were just released, and can be viewed by following a link in the email announcement or by going to the SBE web site. He also noted the upcoming SBE National election opens on July 25 and reminded everyone to vote.

There was no old business to review, but Kevin Ruppert brought new business concerning a rebate check received from the SBE National. After some discussion a voice vote was taken to return the funds to the National office, to be applied to the SBE Ennes Educational Foundation Trust.

There were a few professional announcements made. New member Al Ritchie from ECB was welcomed. Roy Henn, the new chief engineer at WBUW was welcomed. It was also noted that Jim Klas from ECB would be taking a job with the Wisconsin Department of Justice. Additionally, SBE Board of Directors member Mike Hendrickson traveled from Minnesota to attend our meeting, and was also welcomed.

In general announcements, Steve Paugh asked a question regarding the annual December holiday party location, which has been held at Fitzgerald's in Middleton. There was some brief discussion about possibly moving the party to a different day or date, to help avoid scheduling conflicts during that busy season.

The meeting adjourned at 7:16pm. Steve Paugh turned the floor over to WVMO's Lindsay Wood Davis and Will Nimmow. After a brief overview, the group split up to tour the WVMO-LP studio and equipment room, then gathered outside to view the antenna location on top of the Monona fire department hose drying tower. Everyone reconvened in the conference room for a presentation on low power FM.

Submitted by Mike Norton, Secretary



Amateur Radio News

compiled by Tom Weeden, WJ9H

• Milwaukee-based Amateur Electronic Supply (AES) has closed its doors at the end of July after 59 years in business. Ham Radio Outlet (HRO) has announced plans to hire an unspecified number of AES employees following AES's shut down of its four locations. In addition, the current AES Headquarters store in Milwaukee will become HRO's newest location later this summer, following renovation. On July 1, AES announced that it was going out of business and ending retail operations at its Milwaukee, Las Vegas, Cleveland, and Orlando locations. With the approval of AES management, HRO senior managers visited each AES location to interview staffers in hopes of "acquiring some of the Amateur Radio retail employee talent in each of the current AES locations," an HRO news release said.

"Together with this interview process, HRO examined what it would take to perhaps acquire one or more of the AES store locations. At the time of these interviews, many opportunities were explored with current AES senior management," the release continued. "We are very excited to announce that HRO was successful in providing offers of employment to a number of soon-to-be former AES employees, and that to some, we have offered positions that involve HRO-sponsored and funded relocation."

HRO announced that once AES shuttered its Milwaukee location at 5710 W Good Hope Road on July 28, Ham Radio Outlet would undertake an extensive remodeling project to create a new HRO Milwaukee store at the same site, which will open at the end of August.

"It is with great pleasure that we are able to continue Terry Sterman's and Phil Majerus' legacy of providing a fantastic Amateur Radio store in Milwaukee, Wisconsin," said HRO President Robert Ferrero, W6KR. "It is our immediate goal to have the largest, most well-stocked Amateur Radio retail store in North America and perhaps even the world."

After AES closed on July 28, all former AES locations' direct and toll-

free telephone numbers were redirected to the closest HRO location, and the AES website was directed to HRO's website <<http://www.hamradio.com>>.

A family-owned business, HRO is the world's largest Amateur Radio dealership, with locations from New England to the West Coast.

• Yet-to-be-developed Federal Aviation Administration (FAA) rules stemming from the recent passage in Congress of H.R. 636, the FAA Reauthorization Act, could pose additional marking requirements for a small number of Amateur Radio towers. The bill instructs the FAA to enact rules similar to state-level statutes now in place that are aimed at improving aircraft safety in the vicinity of meteorological evaluation towers (METs) set up in rural areas. In the wake of fatal crop dusting aircraft collisions with METs, often erected on short notice, the National Transportation Safety Board (NTSB) recommended in 2013 that states enact laws — sometimes called "crop duster" statutes — requiring marking and registration of METs. While some state crop duster laws exempt ham radio towers, the federal legislation does not. ARRL General Counsel Chris Imlay, W3KD, said, however, that the list of exemptions in the federal legislation restricts application of the new rules to a very small subset of Amateur Radio towers.

"The FAA Reauthorization Act has very little application to Amateur Radio antennas. We will have a good opportunity to address the final FAA rules through the normal rulemaking process," Imlay said. "We'll be meeting soon with FAA officials to learn their intentions as well as to advance our own concerns to the agency. Uniform federal regulation is beneficial to hams, because it eliminates a patchwork of state statutes that can impose significant constraints on ham antennas in rural and agricultural areas."

The FAA Reauthorization Act gives the FAA 1 year to issue regulations requiring the marking of towers covered by the new

legislation. Marking of towers covered by the legislation will be in the form of painting and lighting in accordance with current FAA guidelines.

The law covers towers that are "self-standing or supported by guy wires and ground anchors;" are 10 feet or less in diameter at the above-ground base, excluding concrete footings; are between 50 feet above ground level at the highest point and not more than 200 feet above ground level; have accessory facilities on which an antenna, sensor, camera, meteorological instrument, or other equipment is mounted, and are located outside the boundaries of an incorporated city or town or on land that is undeveloped or used for agricultural purposes.

Imlay said the law excludes towers erected adjacent to a house, barn, electric utility station, or other building, or within the curtilage (enclosed area occupied by a dwelling, grounds, and outbuildings) of a farmstead, among other exclusions.

"We do not anticipate that a significant number of Amateur Radio antennas will be subject to these rules," Imlay said, "but we need to monitor the FAA rulemaking process carefully to head off requirements that could put the cost of installing and maintaining affected structures out of any reasonable reach."

Excerpts from the American Radio Relay League's <arrl.org> website)



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IP Network Security Webinar

On August, 23, the SBE will present a live webinar, **IP Network Security - Part 1**, from 1 to 2:30 p.m. CT. Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, is the instructor.

As broadcast station IP networks have grown and become an integral part of the broadcast technical plant, so has the security threats grown such that network security is an ongoing essential task for the broadcast engineer with IT responsibilities. This webinar series will provide an understanding of IP network security terminology, security plan principals, best practices and proactive implementation techniques. Practical implementation examples utilizing popular network infrastructure equipment will be provided.

At the conclusion of this webinar series, you should have a fundamental understanding of IP network security principals, an understanding of developing a network security plan for your organization and best practice implementation approaches.

Webinar Outline:

- * Introduction to IP Network Security & Threats
- * Brief Review of IP Network Basics
- * Structured Implementation by Following the OSI Model
- * Physical Security
- * Link-Layer Security (Ethernet switch port security focused)
- * Network Layer Security (firewall focused)
- * Reference Resources
- * Conclusion, Part 2 Preview & Questions

Wayne Pecena is assistant director of educational broadcast services in the Office of Information Technology at Texas A&M University. Pecena has more than 35 years of broadcast telecommunications experience and holds BS and MS degrees from Texas A&M University.

Register online at the SBE website. The discounted registration fee for SBE members is \$55. Non-member fee is \$85. Completion of this webinar qualifies for one credit, identified under Category I of the Recertification Schedule for SBE Certifications.

Society of Broadcast Engineers



The Association for Broadcast and Multimedia Technology Professionals

September 2016 Chapter 24 Newsletter Deadline:
Saturday, September 3, midnight
pgstoffel@gmail.com
edited using Adobe InDesign CC

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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SBE Chapter 24 Certification News

2016 - 2017 Exam Schedule:

<u>Exam Dates</u>	<u>Location</u>	<u>Application Deadline</u> (to SBE National Office)
November 4-20, 2016	Local Chapters (Madison Area)	Sept. 30, 2016
February 3-13, 2017	Local Chapters (Madison Area)	December 31, 2016
April 25, 2017	NAB Show (Las Vegas)	March 17, 2017
June 2-12, 2017	Local Chapters (Madison Area)	April 21, 2017
August 4-14, 2017	Local Chapters (Madison Area)	June 5, 2017
November 3-13, 2017	Local Chapters (Madison Area)	September 25, 2017

When you are ready to take an SBE exam, please fill out the appropriate application and send it into the SBE National office (see address below). You will be notified once your application has been approved. Approximately 3 weeks before the exam time, your local certification chairman will receive a list of applicants in his/her area. He/she will then contact those applicants to schedule a date, time and place for the exams. The exams will be mailed back to the National office for grading. The pass/fail grades will then be mailed directly to the applicants.

You may mail, email or fax your applications to:

Megan E. Clappe, Certification Director
 9102 N. Meridian St. Suite 150
 Indianapolis, IN 46260
 317-846-9120 Fax
 mclappe@sbe.org



CHAPTER 24 SUSTAINING MEMBERS

Thanks to all our Sustaining Members:

- Alpha Video
- AVI Systems
- Belden, Inc.
- Clark Wire and Cable
- Full Compass Systems
- GEPSCO International, Inc.
- Heartland Video Systems
- Joseph Electronics
- Resonant Results, Ltd.
- Ross Video
- Sound Devices, LLC
- Token Creek Productions
- WISC-TV 3
- WMTV-TV 15
- WKOW-TV 27
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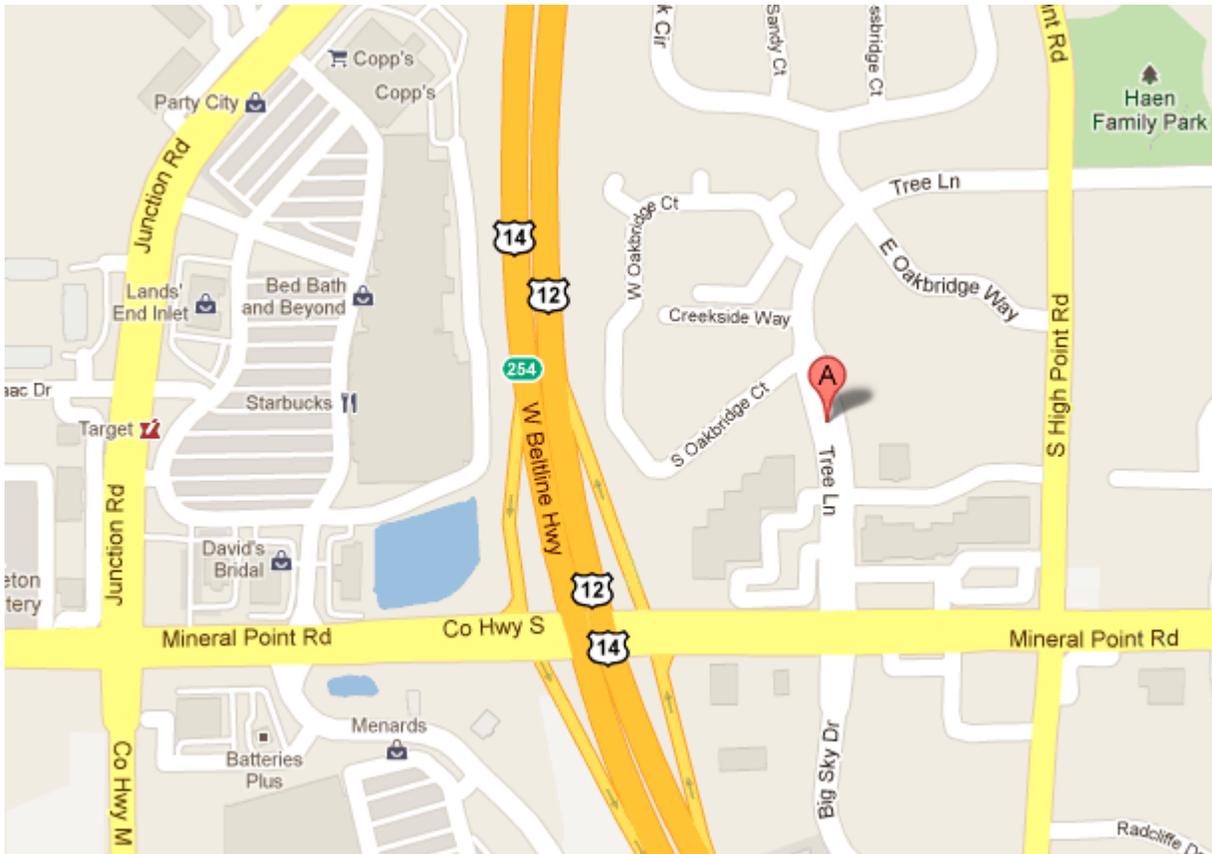
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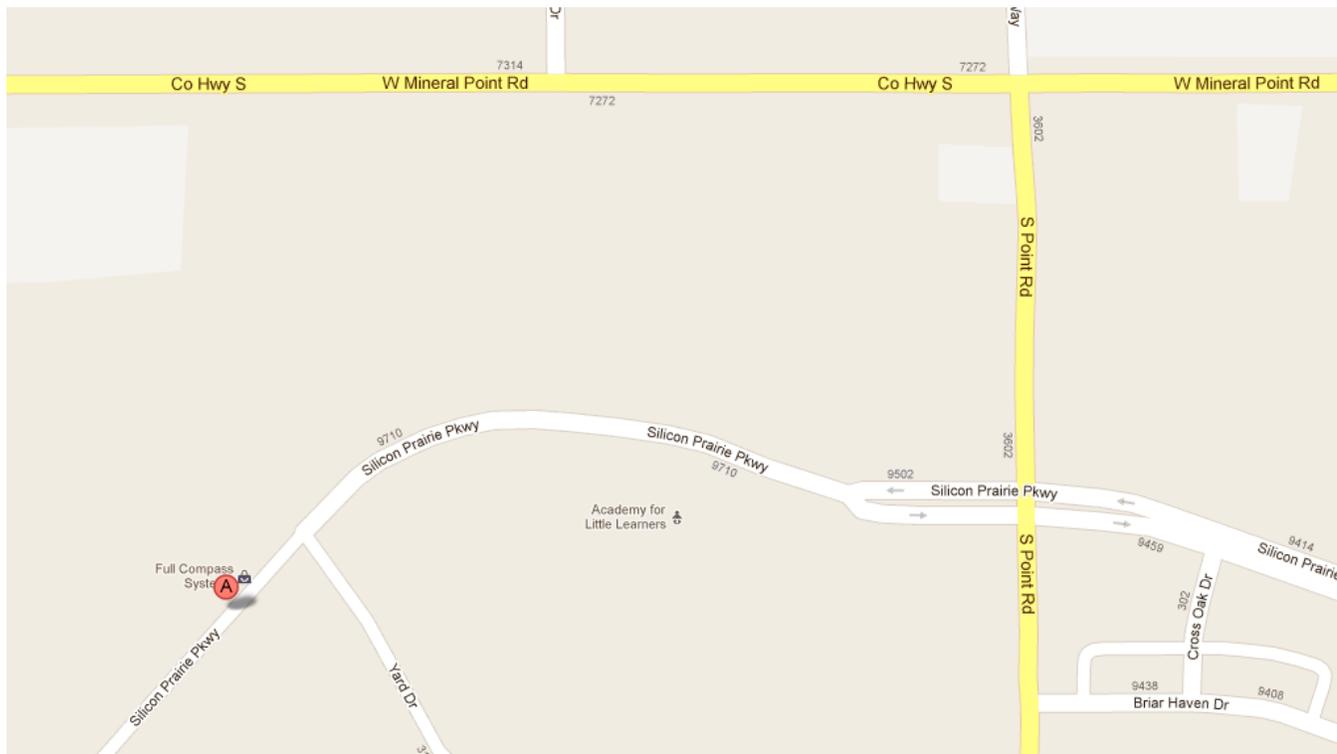
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August Dinner and Meeting Locations



Rocky Rococo Party Pizzeria West 7952 Tree Lane, Madison



Full Compass Systems 9770 Silicon Prairie Parkway, Madison

JOIN US FOR THE 60th Anniversary of the Broadcasters Clinic

October 11-13, 2016

Madison Marriott West
1313 John Q Hammons Drive/Middleton WI



TUESDAY, OCTOBER 11

7:45 AM: Registration & Continental Breakfast Location: Superior Room

8:50 AM: Opening Remarks Location: Superior Room

9:15 AM: Session Location: Superior Room

Benefits of Liquid Cooling for High Power FM Digital Transmitters

By Timothy Anderson, CPBE, GatesAir

Synopsis: This session will discuss the advances in RF power systems and modern liquid cooling techniques that are being employed to reduce both operational cost and the carbon footprint of high-power FM digital transmitters.

10:00 AM: Session Location: Superior Room

µMPX: Network FM-Stereo Composite Connectivity

By Frank Foti, Telos Alliance

Synopsis: This presentation will offer an explanation of µMPX, which is an innovative method where the MPX signal can be carried over a data link of 320KB/s.

10:45 AM: Break

11:00 AM: Session Location: Superior Room

The FCC's AM Rejuvenation; Can Reduced Protection be a Good Thing?

By Doug Vernier, V-Soft

Synopsis: Would the proposed reductions in protection result in greater flexibility for AM stations to improve their signals, or would they merely increase inter-station interference? Would the net effect be beneficial or harmful to AM broadcasters and listeners?

11:45 AM - 1:00 PM: Lunch

1:00 PM: Session Location: Superior Room

Why 0.01% Distortion Sometimes Matters, and 30% Sometimes Doesn't

By Steve Dove, Wheatstone

Synopsis: A lighthearted romp through why some things sound the way they do, deflating some conventional wisdoms, and highlighting some surprising insights.

1:45 PM: Session Location: Superior Room

Optimizing Combined AM Antenna Systems

By Kurt Gorman, Phasetek Inc.

Synopsis: With the increase in AM radio stations sharing antenna sites, filtering circuitry can be used in conjunction with new/existing phasing circuitry to increase both pattern and impedance bandwidth. Older systems can be improved also with these techniques.

2:30 PM: Break

2:45 PM: Session Location: Superior Room

Adaptive Multi-Rate Audio Streaming

By Kirk Harnack, Telos Alliance

Synopsis: What problems does Adaptive Streaming solve for us and for listeners? How does Adaptive Streaming work? How does one configure an Adaptive Streaming encoder? What other infrastructure is needed to support Adaptive Streaming?

3:30 PM: Session Location: Superior Room

Building The Ultimate Ip Audio Network

By Tony Peterle, Worldcast Systems

Synopsis: Redundant Streaming for reliable transport of content, distributed Intelligence for monitoring, backup and on-demand connections, packet forwarding for backup audio sources and subnet distribution. The components can be used in combination or selected a la carte to create the audio cloud suited to the broadcast application, budget, and IP network availability.

4:15 PM - 7:00 PM: Exhibits Open - Exhibitors Reception Location: Wisconsin/Michigan Rooms

7:00 PM: Nuts & Bolts Session Location: Superior Room

An Evening with Sparks and Wires by Richard Sparks

If you aren't laughing check your pulse.

Fifty Years in Audio and Video by Steve Lampen

What more can we say, it's Steve Lampen!

WEDNESDAY, OCTOBER 12

7:00 AM: Registration & Continental Breakfast Location: Lobby

8:30 AM: Session Location: Superior Room

Television Spectrum Repack – A Radio Perspective

By Richard Redmond, GatesAir

Synopsis: While much focus has been placed on what the spectrum repack means to TV broadcasters there has been little discussion about the potential impact to the operations of potentially thousands of FM radio broadcasters who will also be affected. This session will look at that.

9:15 AM: Session Location: Superior Room

Today's Remote Control and SNMP

By Tom Bosscher, Cornerstone University Radio WCSG

Synopsis: While "Simple Network Monitoring Protocol" has been around in the IT field for a long time, it has just recently found its way into today's broadcast remote controls. This session is a case study of one broadcaster's implementation of SNMP for remote control.

10:00 AM: Exclusive Exhibit Time Location: Wisconsin/Michigan Rooms

11:00 AM: Lunch on Exhibit Floor Location: Wisconsin/Michigan Rooms

1:30 PM: Session Location: Superior Room

Engineering Microwave Links

By Jeremy Ruck & Associates, Inc.

Synopsis: This presentation will delve into the last mile problem from an RF perspective. We will look at the engineering behind microwave links for television and radio. As part of this we will also perform a review of the pertaining rules.

2:15 PM: Session Location: Superior Room

FCC Technical Regulatory Update and Cyber Security for Broadcasters

By Kelly Williams, NAB

Synopsis: There's more than the Spectrum Auction to pay attention to. This session will look at recent and proposed changes in FCC regulations as well as explore the results of their Cyber Security effort.

3:00 PM: Break

3:15 PM: Session Location: Superior Room

Advantages of Aluminum Transmission Line

By Manuel Sone, Electronics Research Inc.

Synopsis: The performance of coaxial four inch aluminum transmission lines with an aluminum outer conductor and a copper inner conductor will be investigated. A comparison to an all copper transmission line will be presented as well as the historical use of aluminum RF components.

4:00 PM: Session Location: Superior Room

Adventures in 4K

By Steve Lampen, Belden

Synopsis: Everyone knows 4K is coming, but how will you integrate it into your facility? Also there is talk about coming technologies that would revolutionize not just broadcasting, but all communications. It's just that they don't exist yet and you can't buy them. Steve will explain.

5:30 PM: Dinner Location: Superior Room

6:00 PM: SBE All Chapter Meeting and Program, Location: Superior Room

How to Take Time Off from a 24/7 Career

By Jeff Welton, Nautel

Synopsis: With today's engineering staffing levels it's difficult to break away and take a break. This session will explore that challenge and suggest ways to make it possible.

THURSDAY, OCTOBER 13

7:45 AM: Registration & Continental Breakfast Location: Superior Room

8:30 AM: Session Location: Superior Room

ATSC 3.0 In The Real World

By Michael Guthrie, Harmonic

Synopsis: ATSC 3.0 offers a new set of compelling features that bring TV broadcasting into the 21st century with an increase in bitrate and/or with the robustness for mobile and portable reception. HEVC encoding will support UHD, HDR, and/or higher program counts. Transition models from ATSC 1.0 will also be discussed.

9:15 AM: Session Location: Superior Room

ATSC 3.0 and Future Antenna Technologies

By John Schadler, Dielectric

Synopsis: As the ATSC 3.0 standard and SFNs are developed it is important to keep in mind how the technical components of broadcasting could change. Each new system will require overlapping coverage areas within the original contour of a station. This paper will address the criteria and design techniques required to support ATSC 3.0 and SFNs as the next generation of the broadcast industry.

10:00 AM: Break

10:15 AM: Session Location: Superior Room

The Spectrum Repack, Is There a Move to VHF in Your Future?

By William Ammons, Micronetixx Communications

Synopsis: The spectrum repack may find many stations looking at the possibility of moving to high band VHF, or even low band VHF. This presentation will discuss what worked back in the analog days and what is needed to succeed in the digital era, including with ATSC 3.0.

11:00 AM: Session Location: Superior Room

Television Spectrum Auction and Repack Update

By Jay Adrick, GatesAir

Synopsis: This presentation will include a detailed review of the current auction and repacking timeline and look at the status of efforts to optimize the repacking process given the constrained resources and extremely short implementation time.

12:00 PM: Lunch

1:00 PM: Session Location: Superior Room

Status of ATSC 3.0

By Jerry Whitaker, ATSC Committee

Synopsis: The next-generation digital television system promises to provide broadcasters with new features and services and consumers with robust mobile, immersive audio, UHD TV images, and personalized interactive services. This presentation will review the status of work within ATSC and provide some thoughts on implementation considerations for broadcasters.

1:45 PM: Session Location: Superior Room

High Efficiency in Modern Solid State UHF/VHF TV Transmitters

By Walt Gumbert, Rohde & Schwarz

Synopsis: Solid State transmitters have historically been inefficient. This session will look at various methods of improving their efficiency with Doherty including case studies showing the energy savings realized with the technology.

2:30 PM: Session Location: Superior Room

Demystifying Video Over IP

By Evertz

Synopsis: This session will compare SMPTE 2022-6, ASPEN, and TR-03 as well as highlight the benefits and challenges of each format. In addition we will investigate how each format handles Ultra HD and the available tools to help maintain and manage your facility with each format.