2012

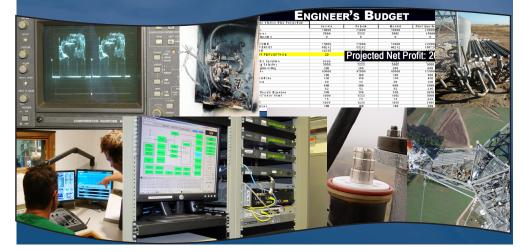
ON AIR

SBE.

Broadeasters elinie

Upper Midwest SBE Begional Meeting

October 9-11, 2012 Madison Marriott West Hotel • Middleton, WI





SBE.

7:45 AM: Registration & Continental Breakfast 9:00 AM: SPURS (Inter-modulation products) Your fault or not!

If you are told by your owner that he has just purchased one or more stations in the area and wants them all consolidated onto one site. What do you do besides run! This session will go through some basic concepts of putting a multi-station transmitter site together with respect to intermodulation products. Surette will talk about how much filter you need for what type of antenna system you are going to use. He will discuss how intermodulation products are formed, how to measure them, how to mitigate them and finally, what to do about 'RITOIE'.





Speaker Bob Surette Shively Labs

Moderator Leonard Charles Television Wisconsin Inc.

9:45 AM: Migrating Radio Call-in Shows to Wideband Audio

As the title implies, Comrex has been working on new methods to improve the on-air call quality and listener experience of call-in talk shows. With the advent of VoIP technology, smart phones and Skype[™], we are no longer limited by traditional POTS lines and the thin, grating narrow bandwidth audio that those circuits produce. We'll discuss the ways that broadcasters can now put callers on the air that are full bandwidth, wideband voice calls that sound more natural, are easier to understand and less fatiguing to listen to. Use of smart phone apps, HD Voice and Comrex' new STAC VIP Call Management system are overviewed.



Speaker Chris Crump Comrex

Madanta

Moderator Gordon Carter Professional Audio Services

10:30 AM: Break Sponsored By: RCS

10:45 AM: Radio Automation Evolved: Create your very own "cloud"

For 20 years the basic footprint of a radio automation system has remained largely the same: workstations, sound cards, relay peripherals, KVM systems, lots and lots of wiring, etc. This presentation focuses on applying virtual workspace techniques commonly available in other IT sectors to radio automation systems. How much time, money, maintenance, wiring, etc. would you save if you could replace five, 10 or 20 workstations with just two servers? And how much more flexible would your environment be if functionality wasn't tied to one workstation, one studio or even one physical plant? The answers to these questions are here along with other benefits that you gain such as more robust redundancy and fail over models.





Speaker Patrick Campion ENCO

Moderator Keith Kintner UW-Oshkosh

11:30 AM: The Benefits and Pitfalls of Social Media

Have you noticed that the more involved in social media your station becomes, the further your listeners get pushed away from your station's site? Once listeners leave the station's website for Facebook, Twitter or another social network, they're probably not coming back soon. And once they get in the habit of interacting with your station through other portals. they may never return to your site. In this presentation, Jim Roberts will discuss why the dependence upon social media is both beneficial and dangerous to radio. He'll also look at how you can effectively engage your listeners through social media, but still maintain control over the listener experience with ways to keep social content on the station's website or mobile app. He will outline how to interact with listeners across all social media channels and mobile devices and give examples of stations that are hosting their own social media activities on the station domain. He will provide practical tips for managing and moderating social media for promotional gain, and wrap up the discussion with insights on how to successfully leverage social media for your advertisers.



Speaker Jim Roberts Broadcast Electronics



Moderator Greg Dahl Second Opinion Comm.

12:15 PM: Lunch

Sponsored By: Nautel 1:15 PM: FM Stereo Transmission using Single Sideband Suppressed Carrier (SSBSC) Modulation

The biggest technical annoyance to FM radio listening is multipath. There are many variables that generate and affect multipath. One of them is the manner in which FM-Stereo content is transmitted using double sideband suppressed Carrier (DSBSC). This paper will express, in detail, a method utilizing single sideband suppressed carrier (SS- BSC) modulation of the stereophonic subcarrier within the FM multiplex baseband signal, which reduces the sensitivity to multipath. This technique is compatible with existing radio receivers. There are multiple overall benefits to the broadcast signal, which are perceivable to the listener. These are: a reduction in multipath induced distortion, additional protection to the spectrum used for RDS, SCA signals, and HD-Radio content - thereby improving data robustness in the receiver. Also, there is a separate benefit in the receiver, as it is possible to improve the signal-tonoise floor when SSBSC is transmitted, and the receiver is designed to only decode the SSBSC spectrum.

The FM-Stereo transmission system employed in worldwide broadcasting has been in place since 1961. The rules governing stereophonic performance have not been altered since the mid 1980's (in the USA) when they were modified to allow an additional 0.5% total modulation (maximum of 110% total), for every 1% of SCA modulation, when an SCA was utilized. The rules governing the requirements of the FM-Stereo baseband signal are quite explicit, and leave little - if any – room for improvement of the stereo transmission system.

The method has been deployed, under experimental authorization from the FCC, it is presently being tested in the lab, and in the field. The presentation will provide technical and aural findings of this ongoing work.





Speaker Frank Foti Omnia/Telos/Axia Systems

Moderator Gary Mach

2:00 PM: HD Radio™ Broadcast System – 4th Generation

As HD Radio has achieved commercial acceptance, broadcasters are demanding more features in simpler, more robust and cost effective transmission solutions. Advances in Digital Signal Processing technology are enabling developers and manufactures to reduce the cost, size and complexity of the HD Radio Broadcast system while providing increased flexibility, advanced features and zero-defect, mission-critical reliability. Anderson will discuss the past, present and future HD Radio system roadmap along with the state of development, challenges and solutions for providing the next-generation HD Radio Broadcast System Architecture.



Speaker Timothy Anderson Harris



Moderator Steve Brown Woodward Communications

2:45 PM: Break Sponsored By: RCS

3:00 PM: Radio Engineer - 2030

Radio broadcasters must harness the latest technologies to make better sounding content across all the mediums radio may now be found on. Learn how this is possible and where the radio engineering position is headed.

Learning Objectives: Where radio automation is headed and why the ride will be wild.





Speaker (photo unavailable) Diana Stokey RCS

Moderator Gordon Carter Professional Audio Services

3:45 PM: Getting the Most Out of Your Wireless Mics

As more changes happen to spectrum we have to share it with more users, proper selection of frequencies and system setup will become more crucial. This session will cover best practices for transmitter usage, antenna selection and placement, RF gain structure, and frequency coordination as well as briefly explore some of the newer technologies and tools being developed and offered to make your wireless usage more successful.





Speaker Dave Mendez Shure Incorporated

Moderator Jason Mielke WCLO/WJVL

4:30 PM: Exhibits Open/Reception Sponsored By: WBA 7:30 PM: Nuts & Bolts – Featuring: What Is It? Beer & Brats Sponsored By: Continental Electronics Corporation



John Bisset ELENOS USA Workbench Tips You Can Use



Wink Efitall Your Host for the Evening



Bob Surette



Mary Ann Seidler ELENOS USA



Gary Mach



Lana White aka Linda Baun

WEDNESDAY, OCTOBER 10

7:45 AM: Registration & Continental Breakfast Sponsored by: Elenos

8:30 AM: Care and Feeding of Solid State **Electronic Equipment**

This session looks at long term maintenance and support of solid state electronics (focused primarily on transmitters, but applicable to any solid state electronics, including studio equipment, office computers, your kids' PS3, etc.). Welton will cover the effects of operating temperature on reliability and life span, efficiency of cooling systems, basic grounding and transient protection and shielding considerations to prevent RF interference on audio signals. He will also look down the road, as more and more microcontrollers, DSPs and computer based devices become part of the airchain - and at things that can be done now to "future proof" the facility, with respect to planning an environment that will ensure equipment survives all the slings and arrows that the environment can throw.





Speaker Jeff Welton Nautel

Moderator Leonard Charles Television Wisconsin Inc.

9:15 AM: Transmission System Total Cost of **Ownership**

There is high interest among broadcasters and RF network operators to reduce their overall transmission facility cost of ownership. The Total Cost of Ownership (TCO) includes much more than the initial cost, energy consumption, and maintenance of the transmission equipment. The acquisition, maintenance, operating, and training costs of all the other required systems in the transmission facility must also be considered to arrive at lowest TCO. This paper investigates a new evaluation process and analysis tool to design a transmission facility for lowest TCO. Besides the reduction in direct operating costs, the benefits of reduced TCO include a reduction of carbon footprint in support of green technology. The comprehensive analysis includes the tradeoffs between air and liquid cooling system impact on the overall facility, floor space requirements, size, and the thermal efficiency of the transmitter building.





Speaker Geoffrey Mendenhall, P.E. Harris

Moderator Gordon Carter Professional Audio Services

10:00 AM: Exclusive Exhibit Time

11:00 AM: Lunch **Sponsored By: Comrex**

1:30 PM: Keynote Address: National Association of Broadcasters





Speaker Kevin Gage, Executive VP & Chief Technology Officer, NAB Television Wisconsin Inc

Moderator Leonard Charles

2:00 PM: Interference To Broadcast Facilities

Ruck will look at the interference that occurs to AM. FM. TV, and Microwave facilities. He will discuss the quantification of the interference, some potential remediation techniques, and then how the FCC regards the interference.





Bill Hubbard **UW-Green Bay**

Speaker Jeremy Ruck, P.E. Jeremy Ruck & Associates, Inc.

2:45 PM: Break

Sponsored By: RCS 3:00 PM: Planning a Microwave Link; It's Not Just Line of Sight!

In this presentation. Evans will discuss the technical considerations that must be taken into account when planning a fixed microwave link for an STL station, intercity relay, or whatever other use the broadcaster intends. For a robust microwave link, it's not enough to have a clear shot from the transmitting antenna to the receiving antenna (i.e., line of sight). Other factors that must be considered include: Fresnel Zone Clearance, Fading, Bandwidth, Reliability, Receiver threshold and Selection of transmitting/receiving equipment. Among the main topics to be discussed are: Terrestrial and atmospheric conditions that affect microwave links and steps to developing and installing a successful microwave link. Modern software technology and other tools used to design & display links will also be explored.





Speaker Ben Evans, P.E. **Evans Engineering Solutions**

Moderator Mark Burg **GRANT Media LLC**

3:45 PM: Hacked... Surviving a WEB Attack

The world does not end if your station's WEB server is hacked. But how you deal with the aftermath of the attack can affect how fast you can recover and provide confidence to both your internal users and viewers/listeners. Learn what went well, what didn't go so well and how you can plan to minimize the effects of an attack on your WEB server.





Keith Kintner UW-Oshkosh

4:30 PM: Here Comes Ethernet®!

Ethernet has been around since 1973. And you're probably aware of many companies who have struggled to make it work for audio and video applications. But those are proprietary systems where often Box A can't talk to Box B. So IEEE, which owns the Ethernet standard, has been working on a rewrite of the Ethernet standard called 802.1BA AVB, and the AVB is for audio and video bridging. Finally, a system may herald a new way to design, install and operate audio and video facilities. But, really, Ethernet AVB is taking off. This seems to be one technology that will have a very short start-up time, so the Clinic audience should be aware it is coming. This may prove to be a game-changing option for audio and video control, storage and transmission.





Speaker Steve Lampen Belden

Moderator Gary Mach

Wisconsin Public Television's (WPT) remote truck tours will be available from 4:00 p.m.-9:00 p.m. Station staff will be available to answer questions. (snow will be optional in October)



Thank you Russell Awe, Remote Truck EIC for providing this opportunity.

5:30 PM: Dinner

6:00 PM: Upper Midwest Regional SBE Meeting – The Tube Sound: Fact or Fiction?

The latest trend in audio is actually a very old trend. The evolution of high-end audio from vacuum tubes to solid state to integrated circuits to digital technologies is coming full circle as the vacuum tube amplifier stages a comeback. If you look at the top end of audio today, among the things you will find are vacuum tubes and vinyl records. So, while we are all focused on the future of digital video and audio, it is worthwhile to spend a few minutes looking at the other end of the spectrum. This presentation revisits the attributes of vacuum tubes for audio applications and seeks to answer the question - are vacuum tube amplifiers better or just different? The related issue of source material -in particular vinyl records will also be examined

in the presenter's quest to bring back "appointment listening." Prepare for a deep dive in the vacuum between the cathode and plate!



THURSDAY, OCTOBER 11

7:45 AM: Registration & Continental Breakfast 8:30 AM: New Digital Correction Techniques

In the early days of ATSC TV transmitter implementation it was the conventional belief that digital television coverage would not be significantly improved if the transmitter's SNR (MER) was raised above 27 dB. However, this number was based on a perfect link between transmitter and receiver. In the real world where the transmission link is less than perfect a significant improvement in coverage would materialize if the SNR/MER was increased to at least 32dB. Since the implementation of digital TV, there have been some dramatic developments in 8VSB signal technology such as specialized algorithms for nonlinear pre-correction, device memory effects compensation and crest factor reduction.





Speaker Perry Priestley Thomson Broadcast

Moderator Leonard Charles Television Wisconsin Inc.

9:15 AM: TV Technical Regulatory Rundown

Calm Act, White Spaces, Video Description, internet captioning, spectrum actions and repacking. Join Kelly Williams, NAB's Senior Director of Engineering & Technology Policy, for an informative overview of these and other important issues and for what you need to know to be prepared for the evolving technical regulatory landscape ahead.



Speaker Kelly T. Williams Senior Director Engineering & Technology Policy NAB Technology Department



Moderator Leonard Charles Television Wisconsin Inc.

10:00 AM: Break

Sponsored By: Alpha Video & Audio

10:15 AM: ATSC Update: New Technologies for **Today and Tomorrow**

Work is well underway in the ATSC on several major new technologies of importance to broadcasters. Collectively known as "ATSC 2.0" this collection of features is intended to move DTV broadcasting into a new connected and interactive world. Among the services under this umbrella is the new Non-Real-Time (NRT) Standard, just published by ATSC, for delivery of a wide range of innovative services to consumers. This presentation will update attendees on work underway in ATSC to help broadcasters meet today's challenging marketplace, and report on the rollout of important new services such as ATSC Mobile DTV. In addition, work now underway on planning the next generation of broadcast TV services will be outlined with a focus on what it means to broadcasters and how your input can help shape ATSC 3.0.





Speaker Jerry Whitaker ATSC

Moderator Kent Aschenbrenner **Milwaukee Public Television**

11:00 AM: Mobile DTV Update

Adrick and Luplow will cover mobile EAS, mobile digital signage, the two commercial rollouts (MCV and M-500) and the status of mobile system enhancements that are being worked within the OMVC and ATSC. Session may also include active demos of the MEAS and mobile digital signage systems.





Zenith

Speaker Jay Adrick Harris

Wayne Luplow

Moderator Matt Sperling WKBT TV

Noon: Lunch

Sponsored By: Ross Video 1:00 PM: Media Accessibility and Content Creation Workflows

Media companies face many operational challenges as they complete the transition to file-based workflows, HD broadcast, and web and mobile delivery. With the advent of the 21st Century Communications and Video Accessibility Act of 2010, media companies must also make their content accessible to audiences in new ways. In this talk. we will explore these industry trends and their impact on content creation workflows, with special emphasis on closed captioning. The talk will include an overview of captioning and ancillary data technologies, as well as a demonstration of typical production workflows in practice today. We will then present a vision for future workflows that could significantly reduce the overhead associated with increased accessibility.





Speaker Avid (Photo Unavailable)

Moderator Bill Hubbard **UW-Green Bay**

1:45 PM: Using the ITU BS.1770-2 and CBS Loudness Meters To Measure Loudness **Controller Performance**

This engineering report compares the performance of the ITU BS.1770-2 loudness meter algorithm with that of the Jones and Torick (Jones, Bronwyn L.; Torick, Emil L., "A New Loudness Indicator for Use in Broadcasting," J. SMPTE September 1981, pp. 772-777) when both meters are used to monitor the performance of an automatic loudness controller using the algorithm originally developed by Benjamin Bauer and co-workers at CBS Laboratories, refined by Jones and Torick at CBS Technology Center, and further refined by Robert Orban. It discusses the limitations of the BS.1770 meter's minimalist psychoacoustic model (a frequency weighting filter followed by a wideband power detector), particularly when measuring program material having low peak-to-RMS ratios. It concludes that while the BS.1770-2 is useful for measuring the integrated loudness of typical broadcast material having typical peak-to-RMS ratios, the Jones and Torick meter is better able to measure the loudness of a program's "anchor element" (typically dialog) when the anchor element's loudness is held constant while other program elements (like sound effects or underscoring) are added to the mix.





Speaker: Moderator Bob Orban Gordon Carter **Professional Audio Services** Orban 2:30 PM: Advanced RF Design and Measurement Toolš

The days of slotted lines, VSWR meters, scale modeling, far field testing and plotting on paper Smith charts are long gone. The presentation will take a "fun" historical look at broadcast antenna design and testing tools and bring the audience up to speed as to the methods used today. Focus will be placed on designing in a virtual environment with electromagnetic simulation as well as the benefits of indoor and outdoor near field testina.

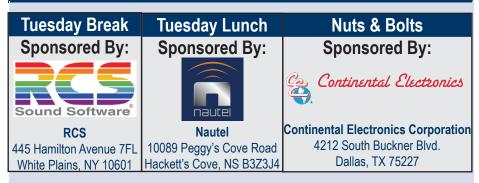


Speaker John Schadler SPX Communication Technology



Moderator Kent Aschenbrenner Milwaukee Public Television

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THANK YOU'S

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The Wisconsin Broadcasters Association would like to express its deepest appreciation to the Broadcasters Clinic Committee:



Leonard Charles Chair Television Wisconsin, Inc.



Kent Aschenbrenner Milwaukee Public Television



Steve Brown Woodward Communications, Inc.



Mark Burg GRANT Media LLC



Gordon Carter Professional Audio Services



Greg Dahl Second Opinion Communications, Inc.



Clif Groth New Radio Group



Bill Hubbard UW-Green Bay



Vern Killion



Keith Kintner UW-Oshkosh



Gary Mach



Jason Mielke WCLO/WJVL



Matt Sperling WKBT-TV



Kevin Ruppert WISC-TV



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The Broadcasters Clinic Committee and the Wisconsin Broadcasters Association wishes to extend our gratitude to: Broadcast Clinic Exhibitors and Prize Donors

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(List is subject to change. See Exhibitors Map in your Attendee Packet for up-to-date listing.)

Are You Aware Of The Following Programs And Educational Opportunities Available To You?

Wisconsin Broadcaster Emergency Personnel ID Card Program

After a lengthy development process with Wisconsin DOJ, an agreement has now been signed to issue Broadcasters ID cards. These cards will be issued to Wisconsin radio and TV station transmitter engineers, to aid them in crossing police lines in times of disaster to keep the transmitter on the air. For areas involved in MSRC, these ID cards can also be used by the engineers reporting to the local Emergency Operation Center (EOC) during times of disaster, as requested by local officials. Station managers should note that these ID cards grew out of the need to keep broadcast transmitters on the air in times of disaster, and for MSRC personnel reporting to the local EOC. Specifically, these cards are not to be used by news-gathering crews or personnel. More information available under Emergency Planning on our website at: www.wi-broadcasters.org.

WBA Media Technology Institute

The inaugural Media Technology Institute, underwritten by the Wisconsin Broadcasters Association and Midwest Communications, was held June 18-21 in conjunction with the WBA Summer Conference. MTI focused on practical, instructional courses for prospective, beginning, and current broadcast/media engineers. This 4 Day course included: Discussion on what is an engineer, Chief Operator/FCC/FAA Rules Review, RF Fundamentals, All about Antennas, IT/Networking Fundamentals Broadcast Safety & Security, Tower Lighting and attendance to the WBA Summer Engineering Conference. Join us next year at the Osthoff Resort, June 17-20 for the Media Technology Institute.

WBA Engineering Conference

The Broadcasters Clinic Committee put together a full day of sessions on current topics for the Broadcast Engineer. This one day of sessions complete with exhibitor reception and dinner is a great place to learn and to network. Join us at the Osthoff Resort, June 19th for Engineering Day at the WBA Summer Conference.

Engineering Fellowship Grant

Keeping current in Broadcast Engineering involves an investment of time and money in learning new technologies and practices. As our industry evolves, so must our understanding of how to implement new media transmission. Unfortunately, busy schedules and tight budgets for most engineering departments often do not permit engineers to learn new skills and acquire understanding of new technology. How are broadcast engineers able to keep up to date so that our industry thrives? The Wisconsin Broadcasters Association and Wisconsin Broadcasters Association Foundation would like to provide an answer by offering Engineering Fellowship Grants. This program is meant to provide a stipend for "Senior" Broadcast Engineers serving Wisconsin member stations to acquire continuing education in broadcast engineering. Want to take of advantage of one of five \$1,000 grants being offered? Check out our website at: www.wibroadcasters.org and click on Careers.

Engineering Internship Grant

Would you like to have an engineering intern but don't have the budget for it? This program will connect "future" engineers to Wisconsin broadcasters by funding a "Summer Engineering Intern" position right in your workplace! Up to five grants at \$2,500 for a two-month internship will be awarded to cover internship stipend and expenses. Internships are to run from June 15-August 15, 2013. The Wisconsin Broadcasters Association and Wisconsin Broadcasters Association Foundation know there is a shortage of people seriously interested in becoming qualified broadcast engineers, and we want to help develop such talent throughout Wisconsin by helping you to initiate an Engineering Internship at your station. More information available at: www.wi-broadcasters.org and click on Careers.

Join Us Next Year For The 2013 Broadcasters Clinic October 8-10, 2013 Madison Marriott West Hotel

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GENERAL INFORMATION

Hotel Information: The 2012 Broadcasters Clinic sessions are being held in the Ballroom at the Madison Marriott West Hotel which is located at 1313 John Q. Hammons Drive in Middleton. Please call 1-608-831-2000 to make your hotel reservations. The hotel deadline is <u>September 23, 2012</u> and the discounted rate is \$116.00. Please tell the hotel when making reservations that you are attending the 2012 Broadcasters Clinic.

Registration Fees: \$130 - Any two days \$150 - All three days: Fee covers program materials, continental breakfasts, luncheons and dinners as indicated, refreshment breaks, and an evening reception with hot hors d'oeuvres (cash bar). Vegetarian meals can be requested by calling the WBA office at 1-800-236-1922, by **September 25, 2012**. The WBA will need to guarantee meal counts with the hotel, therefore the WBA will <u>NOT</u> refund any cancellations made after **September 25, 2012**. The WBA will also invoice for all "no-shows."

Information: For further conference or exhibitor information please contact: Linda Baun 1-800-236-1922 or by email at lbaun@wi-broadcasters.org.

REGISTRATION IS ALSO AVAILABLE ONLINE AT: WWW.WI-BROADCASTERS.ORG