



2014
Broadcasters Clinic
and
Upper Midwest SBE
Regional Meeting



October 21 - 23
Madison Marriott West Hotel
Middleton, WI



Tuesday, October 21

7:45 a.m.
Registration & Continental Breakfast

9:00 a.m. Superior Room
**Filters, Second Edition
"Plus"**

**Presenter: Bob Surette,
Shively Labs**



This presentation starts where last year's presentation left off. Bob will review some of last year's highlights before introducing some of this year's advances in close-space channel-combining systems; namely, combining stations spaced only 400kHz apart.

Bob will then totally digress and talk about antenna installation check-out and antenna maintenance. It is always a good idea to know what your antenna looks like today so you can troubleshoot a problem tomorrow.

9:45 a.m. Superior Room
**Transmission Challenges and
Solutions for All-Digital
AM IBOC**

**Presenter: Jeff Welton,
Nautel**



The NAB has recently tested the viability of the all-digital AM IBOC mode, MA-3. This paper will analyze the MA-3 signal and spectral mask along with the implications for passing it successfully through both current- and past-generation AM transmitters. Suggested power levels for a given transmitter will be reviewed along with how these could be increased

by reducing the amount of power in the AM carrier. An innovative signal conditioning technique that reduces the envelope and phase frequency content will be explored.

10:30 a.m.
Break

10:45 a.m. Superior Room
**Dense Node Architecture for
IP Audio Networks**

**Presenter: Frank
Grundstein, Logitek**



IP audio networks have become the accepted method for new facility construction. With the AES establishing the AES67 AoIP standard, more and more devices will utilize IP as their default I/O. Early IP audio networks use small nodes as their basic system architecture. Logitek has introduced Dense Node Architecture as an alternative. The company's JetStream Plus continues and expands Dense Node Architecture by providing 240 channels of audio I/O in a single node with a full array of broadcast features for radio and TV. Frank will discuss how Dense Nodes can deliver simpler, less costly system architecture for any broadcast facility.

11:30 a.m. Superior Room
**Ways to Rapidly and Cost
Effectively Expand Your
Remotes Capability**

**Presenter: Jake Daniluck,
Tieline, The Codec
Company**



Jake will discuss the cost-effective methods of outside broadcasts, including a discussion of the downfall of ISDN and POTS

transmissions. He will explore Internet Protocol remotes and explain the benefits of transmitting remotes via the public and private Internet.

12:15 p.m. Monona Room Lunch

**1:15 p.m. Superior Room
Review and Discussion of
the New AM Detuning
Requirements**

**Presenter: Jeremy Ruck,
Jeremy Ruck &
Associates**



If you are constructing towers in the vicinity of AM antenna systems this session is just for you! Jeremy will step through the changes in the procedures, the modeling of offending structures, and then cover some practical considerations for the detuning of reradiating structures.

**2:00 p.m. Superior Room
From Cow Pies to Contours:
Building an AM
Directional Array**

**Presenter: Leonard
Charles, Morgan
Murphy Media,
Midwest**



This paper will show an end-to-end build and Method of Moments proof of an AM directional antenna system. From site search, to site layout, building construction and grounding, tower construction including tower ground system installation, and all the technical measurements along the way to successful pattern and FCC licensing. This program will be entirely real rather than theoretical.

**2:45 p.m.
Break**

**3:00 p.m. Superior Room
EAS Text Messages Via
Radio**

**Presenter: Steve
Johnston, Wisconsin
Public Radio**



In this presentation, Wisconsin Public Radio Director of Engineering and Operations Steve Johnston will provide an overview of the FM-RDS and HD-PAD messaging systems, as well as describing the unique details necessary for sending EAS alerts to radio receiver front-panel displays. WPR flagship station WHA 970 AM, and its translator stations on 90.9 and 107.9 FM, were the test-bed to prove the concept.

**3:45 p.m. Superior Room
Integrated Data Services for
Enhanced Radio
Broadcasting – Delivering
content for NextRadio®
and HD Radio™ Receivers**

**Presenter: Paul Brenner,
Emmis Communications**



Advanced radio receivers are capable of presenting artwork, program metadata, and audience interaction to a listener regardless of the receiver platform or delivery method. Broadcasters must implement metadata services to support these enhanced radio broadcasts and provide a consistent consumer experience. This session will cover the key things a broadcast engineer should know about integrating metadata services into radio play-out systems, demonstrate how metadata is managed in TagStation, and outline best practices for workflow within the station.



2014 Broadcasters Clinic | Program Agenda

4:30 p.m. WI/MI Room
Exhibits Open/Reception

7:30 p.m. Superior Room
Nuts & Bolts – Back to the Good Ol' Days
Facilitators: Bill Hubbard and Gary Mach

Hark back, once again, to those thrilling days of yesteryear. Got a good inspection story? Got the solution to all the world's technical problems? Want to learn something in a fun, relaxed atmosphere? Then hang out Tuesday evening for some good conversation, food, fun and prizes. Join your colleagues for beer and brats and a few tall tales from your vast broadcast knowledge databank. Share your best tips, hints and tricks. Everyone will be talking about the Nuts & Bolts session on Wednesday, and you won't want to be left out!



hollow pipe leg structures, special concerns inherent to pipe/tubing when utilized in broadcast towers, and an example of an engineered controlled tower demolition.

9:15 a.m. Superior Room
Audio Over IP: An Undiscovered Country. (The audio is the Easy Bit)
Presenter: Steve Dove, Wheatstone



An IP audio network is incomplete if it just taxis audio from point A to point B. Steve Dove briefly explores how audio networking evolved, and elaborates on the less obvious synchronization, discovery, and control aspects that are essential to a useful and functional system. He talks about the recently ratified AES67 Audio-over-IP standard and what this means for stations moving toward totally interoperable studio facilities, and the broader-in-scope implications of AoIP interconnection between facilities, which may have different flavors of AoIP systems already installed.

Wednesday, October 22

7:45 a.m.
Registration & Continental Breakfast

8:30 a.m. Superior Room
Evaluation of Pipe Leg Tower Structures/ Executing Controlled Demolition of Guyed Structures
Presenter: James Ruedlinger, ERI Inc.



This presentation will cover a brief overview of the current ANSI/TIA-1019-A construction standard, inspection and condition assessment techniques for evaluating degraded

10:00 a.m. WI/MI Room
Exclusive Exhibit Time

11:00 a.m. Exhibit Floor
Lunch

1:30 p.m. Superior Room
NAB Regulatory Update
Presenter: Kelly Williams, NAB Senior Director, Engineering & Technology Policy



Subjects will include closed captioning, spectrum auctions, ATSC 3.0, AM all-digital radio tests and politically hot topics.

2:15 p.m. Superior Room
**The state of AM, FM and TV
 – a Focus on Interference**
**Presenter: Doug Vernier,
 V-Soft Communications**



Topics to be covered include the FCC's station application freeze, TV band repacking, AM band improvement, an AM application window for FM translators. Doug will also review the current FCC propagation prediction method and offer an improvement on Longley-Rice. He will also cover several FM Interference Issues.

3:00 p.m.
Break

3:15 p.m. Superior Room
**Bridging the Gap Between
 Your All-IP Studio and
 Transmitter Site**
**Presenter: Jeff Holdenrid,
 DoubleRadius, Inc.**



Jeff will help to educate broadcasters on the growing need for IP connectivity between their studios and transmission sites. Jeff will show how IP solutions can piggy back to current analog and digital systems without overloading the tower. Jeff will also inform on what is working today and the options out there. Finally he will introduce a new smart redundancy manager that allows for fail over before the failure.

4:00 p.m. Superior Room
**Green Broadcasting –
 Saving Your Station
 Money, Each and Every
 Day, and Saving the
 Environment as Well**
**Presenter: Charles Kelly,
 Jr., Nautel**



With electrical costs at an all-time-high, there's never been a better time to analyze transmission facilities and find ways to reduce the power consumption and bills. Chuck will demonstrate models that allow engineers to calculate the operating costs and include the costs of cooling the room as well. ROI strategies will be presented to effectively communicate this information to station management in proper financial terms.

4:45 p.m. Superior Room
**Interactions Between High-
 Speed Internet and Video
 Entertainment on the
 Same Network**
**Presenter: Stuart Lipoff,
 IP Action Partners Inc.**



Fiber to the node high-speed digital subscriber line (VDSL) technology delivers multiple entertainment services and Internet access, which directly competes with cable MSO delivered via HFC with broadcast QAM plus DOCSIS cable modem technologies. This session will report on the theoretical limits of VDSL to carry multiple video streams versus using the same VDSL facility for high-speed Internet access. The results of the theoretical analysis are then compared to actual field tests results.

**Save the date for the 2015
 Broadcasters Clinic:
 October 13 - 15, 2015**

The WBA and Wisconsin SBE are pleased to announce that the SBE National Meeting will join the 2015 Broadcasters Clinic.

5:30 p.m. Superior Room
Dinner

6:00 p.m. Superior Room
SBE Meeting - The SBE 50th Anniversary and SBE Update

**Joe Snelson, CPBE 8VSB, President, Society of Broadcast Engineers
VP of Engineering
Meredith Corporation**



As the SBE celebrates 50 years, here's a vintage shot of Joe Snelson.

Thursday, October 23

7:45 a.m.
Registration & Continental Breakfast

8:30 a.m. Superior Room
The Evolution of Cellular Bonding

Presenter: Ken Zamkow, LiveU Inc.



Live video is driving today's breaking news coverage. Satellite and cellular technologies continue to converge with the two complementing each other in different scenarios for live video transmission. How can central operators manage and control the vast array of field solutions and large amounts of content being fed from different locations? What IP solutions are being used to offer the best in live video transmission for news? This presentation presents the latest advances in cellular-based newsgathering and live video man-

agement, and discusses how hybrid solutions benefit newsgathering operations, including a wide-range of case studies from the field.

9:15 a.m. Superior Room
Closed Caption Verification in a File-Based Video Workflow

Presenter: Giovanni Galvez, Telestream



For viewers at home, checking closed captioning on a TV show is as simple as pressing a button. However, TV broadcast professionals who have to manage a file-based digital video delivery workflow have a limited toolset to verify a video file has proper TV closed captioning data. This session covers a variety of new options to be able to check video files with software that does not rely on hardware and expensive TV monitors to decode the caption data. Once the caption data is checked and verified it can be extracted and repurposed for a variety of delivery formats, including Internet videos, to meet 508 compliance.

10:00 a.m.
Break

10:15 a.m. Superior Room
Getting the best from your Inductive Output Tubes in Digital TV

Presenter: Mark Strohecker, e2v



This session will include an IOT & ESCIOT introduction, theory of operation, digital performance and practical operation.

11:00 a.m. Superior Room
**ATSC 3.0 What Is It? And
 When Will We Have It?**
**Presenter: Jay Adrick,
 GatesAir**



For the past year, the ATSC Technology Group has been working on the next-generation digital television system to help U.S. broadcasters remain competitive with the many new media delivery systems. This session – a mini version of the ATSC 3.0 Boot Camp – will review the system requirements developed by broadcasters, the proposed solutions available to the ATSC and the progress in selecting those solutions by the ATSC Specialist Groups.

12:00 p.m. Greenway
Lunch

1:00 p.m. Superior Room
**Closed Captioning for the
 Web**
**Presenter: Jim Klas, ECB/
 Wisconsin Public
 Television**



One frustration for a TV station is closed captioning for the Web. What does it mean? What does it require? What will it cost? This session will review the current requirements for broadcasters to provide captioning for the Web including insight on what the FCC is looking for in quality, and available tools to edit closed captioning, including a freeware gem.

1:45 p.m. Superior Room
**Loudness vs Speech
 Normalization in
 Broadcast**
**Presenter: Thomas Lund,
 TC Electronic, Inc.**



This presentation is an empirical study of the differences between level-normalization of programs using the two dominant methods: loudness normalization and speech (dialog) normalization, focusing on important technical aspects. The study furthermore finds a notable and systematic difference between manual speech measurement and automatic speech measurement. Uncertainties in classification, in measurement and in definition are described and compared against the requirements for precision in ITU and ATSC loudness-based standards.

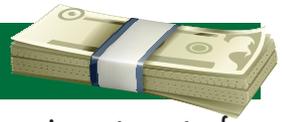
2:30 p.m. Superior Room
**Repacking – Preparing of
 Antennas, Combiners and
 Transmission Line**
**Presenter: Dan Fallon,
 Dielectric**



Common questions concerning re-packing include, “When will it actually happen?” “How will it happen?” “What’s the process?” “What’s the incentive?” Dan will take an in-depth look at the RF equipment required for re-channelizing, including what equipment is required for preparation during the transition and after the switch. Focusing mainly on the RF system, the paper will examine the equipment that can be re-purposed, retuned or replaced, as well as the technical complications, effect on available space and tower loading and the reconfiguration logistics of multiple scenarios.



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 advantage of one of five \$1,000 grants being offered? Check out our website at www.wi-broadcasters.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 14, 2015. 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.

Make your plans to join us for the 2015 Summer Conference Engineering Day, June 17 at the Kalahari Resort, Wisconsin Dells.

2014 Broadcasters Clinic | Planning Committee

SBE



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Second Opinion Communications, Inc.



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2014 Broadcasters Clinic | Thanks



Michelle Vetterkind, CAE
WBA President and CEO



Linda Baun
WBA Vice President & Clinic Email Queen



Mandy Endicott
WBA Administrative Assistant



2014 Broadcasters Clinic | General Info

Hotel Information: The 2014 Broadcasters Clinic sessions are being held in the Superior Room at the Madison Marriott West Hotel, which is located at 1313 John Q. Hammons Drive in Middleton. Call 608-831-2000 to make hotel reservations. **The hotel deadline is September 19, 2014, and the discounted rate is \$118.00.** Please tell the hotel when making reservations that you are attending the 2014 Broadcasters Clinic.

Registration Fees: \$130 - Any two days \$150 - All three days: Fee covers program materials, continental breakfasts and luncheons 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 October 6, 2014.** The WBA will need to guarantee meal counts with the hotel, therefore the WBA will NOT refund any cancellations made after **October 6, 2014.** The WBA will also invoice for all "no-shows."

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

WBA | Emergency Personnel ID Program

An agreement was signed with the Wisconsin DOJ in 2007 to issue broadcaster ID cards to help stations stay on or return to the air after an emergency.

These IDs are recognized by all officers in the state. The cards are issued to radio and television station

transmitter engineers, to aid them in crossing police lines in times of disaster to keep the transmitter, and Wisconsin stations, on the air. 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. The

cards are not to be used by news-gathering crews or personnel.



To apply for a card, stations complete the Individual Station Agreement Form/ID request under Emergency Planning on the WBA website:

www.wi-broadcasters.org.



Broadcasters Clinic October 21 - 23, 2014 Registration Form

Days attending (check all that apply):

- Tuesday Wednesday Thursday

I will attend (check all that apply):

- Tuesday Breakfast Tuesday Lunch Nuts & Bolts
 Wednesday Breakfast Wednesday Lunch
 SBE Dinner SBE Meeting
 Thursday Breakfast Thursday Lunch

Registration fees:

- \$130 (any **two** days) \$150 (all **three** days)

Attendee Info:

Name: _____

Company: _____

Address: _____

Phone: _____ Email: _____

Payment method:

- check payable to Broadcasters Clinic VISA MasterCard

Name on card: _____

Card number: _____

Expiration date: _____ 3-digit security code on card: _____

Card billing address: _____

Daytime phone: _____ Amount charged: \$ _____

Cardholder signature: _____

Mail this completed form by October 6, 2014 to:

Broadcasters Clinic • Attn: Linda Baun
44 E Mifflin Street, Ste 900 • Madison, WI 53703

registration is also available online at www.wi-broadcasters.org





2014 Broadcasters Clinic | Sponsors



Tuesday Breakfast



Tuesday Breaks



Tuesday Lunch



Tuesday Nuts & Bolts



Wednesday Breaks



Wednesday Lunch



Wednesday Dinner



Event Host



Thursday Breakfast



Equipment



Projector



Monitors & Screen



2014 Broadcasters Clinic | Exhibitors

The Broadcasters Clinic Committee and the Wisconsin Broadcasters Association extend their gratitude to the Broadcast Clinic exhibitors and prize donors.

AJA Video Systems
Alpha Video and Audio, Inc.
AVI Systems
Broadcast Electronics
Broadcast Pix
Clear-Com
Comrex
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DoubleRadius Inc.
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Society of Broadcast Engineers
Sony Electronics
Streaming Broadcast Solutions
Telestream Inc.
Tieline, The Codec Company
Vislink
Wave Communications
Wheatstone Corporation
WideOrbit

Exhibitor list is current as of July 24, 2014. The most up-to-date list is in the attendee packet.