



2009



Broadcasters Clinic

And

Society of Broadcast Engineers Upper Midwest Regional Meeting



**October 13-15, 2009
Madison Marriott West**



BROADCASTERS CLINIC 2009

Program Agenda



TUESDAY, OCTOBER 13

7:45 am - Registration & Continental Breakfast

9:00 am - FM HD Transmitter Boost

Speaker: Jeff Welton, Nautel

Moderator: Greg Dahl, Second Opinion Communications



In light of the recent comment period opened by the FCC, with subsequent comments by NPR, iBiquity, broadcasters and manufacturers,

attention is being turned to what is involved with increasing HD injection levels. Until recently, the answer has been universally, "you must buy a bigger transmitter". However, recent developments indicate that this may not be the only option. Jeff Welton will discuss these developments, as well as covering points to consider when determining what might be the best solution for your particular situation.

9:45 am - Next Generation IP-based Audio

Speaker: Frank Grundstein, Logitek

Moderator: Jason Mielke, WCLOWJVL



Networked audio consoles have a poor record of interoperability. Even if models have the ability to communicate, the complex setup and varying

parameter choices by manufacturers effectively isolate one model of equipment from another. This is reminiscent of the early days of networking in the computer industry.

Recently available protocols allow multicasting systems, like digital mixers, to automatically find and select the many settings required for network communication to work. Consoles can now find other audio equipment, negotiate communication methods and receive a list of available sources just by turning on the power. Some user groups have started requiring a minimum set of protocols in the networked equipment they buy. This growing demand by users will speed the adoption of standards by manufacturers and make it possible for consoles from a variety of manufacturers to send and receive audio with little or no user involvement either across the room or around the world.

10:30 am - Break

Sponsored By: RCS



10:45 am - Fixing Delay Variations in IBOC Audio

Speaker: Dave Hershberger, Continental Electronics

Moderator: Clif Groth



Audio delay variations in IBOC systems can be a real annoyance. Even if you set the audio delay accurately, it

may drift or jump to a different value, creating an audible echo when receivers blend between digital and analog. The delay variations are often caused by changes in network latency or lost packets. The causes of delay variation are discussed along with a combination of technologies which can fix the problem.

11:30 am - IP High-Tech Delivery Advances

Speaker: Kevin Webb, Tieline

Moderator: Greg Dahl, Second Opinion Communications



IP High-Tech Delivery Advances will show you how to transition from circuit switched POTS and ISDN audio delivery

strategies to packet switched IP audio distribution and routing for remote broadcasts, audio distribution and studio to transmitter links. New skill sets and approaches are required by broadcast engineers to transition into audio over IP. Find out what's changed and how to go forward in the new world of IP. Kevin Webb has 20 years experience in broadcast engineering and has advised most of the top 40 Radio networks across America on strategies for transitioning into IP.

12:15 pm - Lunch

Sponsored By: Ross Video



2:00 pm - CLEANER...Yet Still Loud!

Speaker: Frank Foti, Telos

Moderator: Gordon Carter, WFMT Radio



Broadcast audio processing for conventional transmission (FM and AM) has reached extreme levels. Most methods available

today are capable of creating LOUD competitive signals, usually at the noticeable and perceptible expense of quality. What can be done...again...to raise the bar?

Through critical listening, extensive research, and evaluation of processing methods, it was determined the single most annoying quotient is due to inter-modulation distortion (IMD) induced by the aggressive functions within the processing system. The algorithms themselves are being pushed to the limits, and possibly beyond.

Through discussion, and sonic demonstration, the problem will be illustrated. More importantly, a new method for competitive audio processing will be revealed which eliminates the challenges suffered by current processing methods. Audio demonstrations will be used to provide A/B comparisons of the present and new method.

Additionally, it will be discussed how this method can be used for other processing applications in addition to conventional FM and AM broadcasting.

2:45 pm - FM Antennas 101.1

Speaker: Bob Surette, Shively

Moderator: Gary Mach



While there has been a host of technology changes over the years when it comes to FM RF transmission systems there is a need for a good understanding of

basic filter and antenna theory starting with isotropic 'perfect' sources. My presentation will take the audience through how energy is radiated from a single source and how multiple sources can be connected together to form a simple antenna array.

I will show by examples how familiar parameters such as beam tilt and null-fill are realized within a practical array by varying the amplitudes and phases of the feeds to each source. Expanding the discussion to the differences between isotropic sources and real antennas Bob will explain by example how various methods commonly used to reduce downward radiation are implemented within the practical antenna array.

3:30 pm - Break

Sponsored By: RCS



3:45 pm - AM Method of Moments

Speaker: George Werl, Commsulting, Inc

Moderator: Steve Brown, Radio Rangers



"The FCC recently adopted rules allowing AM stations with directional antennas to certify and maintain directional system

parameters with a new methodology called Method of Moments. This paper will compare and contrast the traditional field measurement approach with the new Method of Moments methodology and discuss what is necessary to implement Method of Moments in new and existing directional antenna systems."

4:30 pm - Broadcasters Clinic

Exhibits Open/Reception

Sponsored By: WBA



7:30 pm - Broadcasters Clinic Nuts & Bolts, Panel Discussion lead by:

Speaker: Bob Surette, Shively

Moderator: Bill Hubbard, UW-Green Bay

Moderator: Gary Mach



WEDNESDAY, OCTOBER 14

7:45 am - Registration & Continental Breakfast

Sponsored By: Nautel Limited



8:30 am - Tower Grounding

Speaker: Jeff Welton, Nautel

Moderator: Gary Mach

FLASH...CRASH.....WE'RE OFF THE AIR!



Jeff Welton discusses lightning prevention and things you can do to protect the facility – the discussion will involve basic

techniques to ensure good lightning protection practices are being followed so that you can maximize revenue potential by minimizing down time. These days with solid state transmitters and computers everywhere in the studio and transmitter site, proper grounding and lightning protection practices are essential to ensure continuous operation of your station. We will explore various aspects of facility protection, with any eye toward cost effective damage prevention.

9:15 am - Basics of the Smith Chart

Speaker: Jeremy Ruck, D.L. Markley & Associates

Moderator: Greg Dahl, Second Opinion Communications



For many engineers the Smith Chart is a mystery, but it doesn't need to be. In this presentation we will examine some of the fundamental concepts

that led to the development of the Smith Chart. The historical derivation of the chart will be briefly discussed, with practical examples of how the chart may be used in the broadcast environment.

10:00 am - Exclusive Exhibit Time

11:00 am - Lunch (Ticket required)

Sponsored By: Comrex Corporation **COMREX**

1:30 pm - Implications of Man Made Noise

Speaker: Chuck Kelly, Nautel

Moderator: Keith Kintner, UW-Oshkosh



In the last decade, noise floor levels have risen due a dramatic increase in high frequency devices in the home, workplace and car. This paper will examine available

data about current noise levels, both theoretical and anecdotal, and describe possible efforts that broadcasters can make to maintain their coverage area.

2:15 pm - Update on EAS CAP

Speaker: Gary Timm, Journal Broadcast Group
Moderator: Kent Aschenbrenner, Milwaukee Public TV



The FCC and FEMA are moving forward with plans to modernize the Emergency Alert System (EAS) through the adoption of CAP, the Common

Alerting Protocol. What is CAP, and why do we need it? Where are we in this process, and what is the status of the infamous "180-day clock"? Gary Timm, Broadcast Chair of our Wisconsin EAS Committee, is involved with numerous working groups and committees dealing with the many phases of this historic transition and will bring us up to date on the current status of this revolution in emergency alerting.

3:00 pm - Break

Sponsored By: RCS



3:15 pm - Reception on the Fringe

Speaker: Stan Winrich, Digital Pro
Moderator: Leonard Charles, WISC-TV



In the last couple of years I have done extensive testing in fringe to extreme fringe area television antenna installations and reception issues for UHF and high

band VHF digital signals in central WI, after dozens of installations I have come up with the proper combination of antenna's and amplifiers for most terrains. I have earned a reputation as the go to guy for difficult fringe installations and receive referrals from the local TV and appliance store and from engineers, I will share what works and what does not work and answer questions to help clear up some of the misinformation that is out there.

4:00 pm - 10Gigabit Cable for Audio and Video Applications

Speaker: Steve Lampen, Belden
Moderator: Gary Mach



The hottest new thing in data is 10gig, 10GbaseT, and it will be sweeping into audio, video and broadcast applications soon. This

presentation shows what it is, how it works, and why previous cable designs don't work.

Connectors, patch panels, and patch cords are also critical and are included. This presentation starts with the history of EthernetR and twisted pairs for data.

5:30 pm - Dinner

7:00 pm - SBE Meeting - Cart Machine Anniversary

Speaker: Andy Rector, ACC Electronix



The broadcast cartridge machine was introduced at the NAB Convention in 1959 by Collins Radio and Automatic Tape Control. This machine had a profound impact on broadcasting in general and "top forty" radio specifically over the following forty years. Some old timers from ATC will be at the Madison Broadcasters Clinic to recall the history of the broadcast cartridge machine via a PowerPoint Presentation spiced with some memorable cart machine stories. There will also be an exhibit in the SBE booth of some of the cart machines that evolved during the last 50 years.



Alpha & Omega? Just about. One is an endless loop tape player (manufactured by Moulic Specialties of Bloomington, Illinois) The other is an ITC Series 99 Recorder/Reproducer thought by many to be the ultimate broadcast cart machine.

THURSDAY, OCTOBER 15

7:45 am - Registration & Continental Breakfast

8:30 am - Understanding Reliability in Mobile TV

Speaker: John Schadler, Dielectric Communications
Moderator: Kevin Ruppert, WISC-TV



Reliability is the key to the success of Mobile TV. Service reliability depends on the spatial immunity of the handheld receiver. Spatial immunity can only be achieved with

sufficient margin in the received signal strength. Over the last 18 months, Dielectric has presented experimental results showing transmission of circularly polarization to a linearly polarized receiver provides approximately 5 dB of margin improvement over horizontal and vertical transmission in a depolarized fading environment. These tests were performed in a controlled environment; but what about the real world? New tests compare real world test data with our initial conclusions and answer questions about the choice of circular polarization for Mobile TV and its link to reliable service.

9:15 am - Video (AFD) & Audio Metadata

Speaker: Randy Conrod, Harris Corporation
Moderator: Leonard Charles, WISC-TV



Utilizing metadata for audio and video essence enhanced processing is one of the key aspects for designing today's systems. This paper is

a discussion of what is possible, what works well and what doesn't work so well. Examples for audio metadata applications and AFD for aspect ratio signaling will be given.

10:00 am - Break
Sponsored By: RCS



10:15 am - Mobile TV Field Tests

Speaker: Victor Tawil, MSTV
Moderator: Leonard Charles, WISC-TV



MSTV has been involved in field testing the ATSC Mobile TV system for standards verification. This presentation will go over the results of

those field tests held in various cities around the country.

11:00 am - Lip Sync and ATSC Update

Speaker: Adam Goldberg, AGP, LLC
Moderator: Leonard Charles, WISC-TV



A technical discussion of contemporary digital television implementation issues and future enhancements. The presenter will include discussions on audio-

video synchronization problems and solutions, audio loudness issues and possible solutions, from both emission and reception perspectives, as well as a brief discussion of future ATSC enhancements.

Noon - Lunch

Sponsored by: WBA



1:15 pm - Implementing Mobile/Handheld

Speaker: Jay Adrick, Harris Corporation
Moderator: Mark Burg, WLAX-TV



This program will include an update on the standardization process, an overview of the ATSC Mobile DTV technology and a review of the planned activities that will lead

up to commercialization of this exciting new technology. There will also be a complete discussion of the systems and equipment required at the digital television station in order to implement mobile service. The presentation will also look at prototype receiving equipment that will be soon be available in the consumer market place.

2:00 pm - Display Technology

Speaker: Jim Noecker, Panasonic
Moderator: Bill Hubbard, UW-Green Bay



A brief history of how reference monitor technology has evolved from the mainstay of CRTs to today's PDP, LCD and other emerging technology candidates

- Plasma fundamentals – How does it work?
- Comparison of Panasonic Professional to Consumer plasmas
- Comparisons of PDP to LCD for Reference Monitoring applications
- Key attributes of plasma for studio and post-house applications

2:45 pm - Repurposing Content for Web and Mobile

Speaker: Scott Matics, Thomson Grass Valley
Moderator: Keith Kintner, UW-Oshkosh



Few will argue that the way we produce, and distribute television content has changed dramatically in the last several years. At

no time in the history of the industry have a collection of technological, market, and economic forces converged to alter the business of broadcast. This session will present an analysis of the technical options available to broadcasters today to make the process of repurposing content more efficient, productive, and simultaneously drive the creation of "better" content, as far as its ability to be indexed, discovered, and viewed on multiple devices.

Many broadcasters today utilize primitive repurposing tools and a linear, manual process to take their over-the-air content to the web and mobile platforms. Recent advancements in automation make it possible to significantly improve these workflows, resulting in repurposed content that is easier to create, and gets to multiple distribution points within minutes (it is News content after all!).

**Join us next year for the
Broadcasters Clinic
October 12-14, 2010**

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

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(List is inconclusive. See Exhibitors Map in your Attendance Packet for complete listing.)

BROADCASTERS CLINIC 2009 REGISTRATION FORM

October 13-15, 2009

I will attend: (Please check) ☐ Tuesday ☐ Wednesday ☐ Thursday

Fees: \$130 (Any two days) \$150 (All three days)

PLEASE FILL OUT COMPLETELY

Name: _____

Organization/Station: _____

Business Address _____
street city state/zip

Phone: _____ Email _____
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Amount enclosed: \$ _____

Mail this form and your check by September 24, 2009 made payable to Broadcasters Clinic:

To pay by credit card please complete the following:

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Linda Baun
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44 E. Mifflin Street Ste. 900
Madison, WI 53703

To register by phone,
please call 1-800-236-1922 or
fax to 608-256-3986
or register at www.wi-broadcasters.org

GENERAL INFORMATION

DATES

Tuesday through Thursday, October 13-15, 2009

LOCATION & ACCOMMODATIONS:

All sessions of the Broadcasters Clinic 2009 are held at the Madison Marriott-West, located at 1313 John Q. Hammons Drive, Middleton. Please make your own room reservations with the Marriott-West. The hotel telephone number is 608-831-2000. We suggest that you make your reservations before September 18, 2009, while discounted rooms are being held for the seminar. The discount rate is \$114. Please specify that you are attending the Broadcasters Clinic 2009.

FEE

\$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 **September 24, 2009**.

The WBA will need to guarantee meal counts with the hotel, therefore the WBA will NOT refund any cancellations made after **September 21, 2009**. The WBA will also invoice for all "no-shows."

INFORMATION

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

REGISTRATION

To register by phone, please call 1-800-236-1922 or fax to 608-256-3986 to register online at www.wi-broadcasters.org