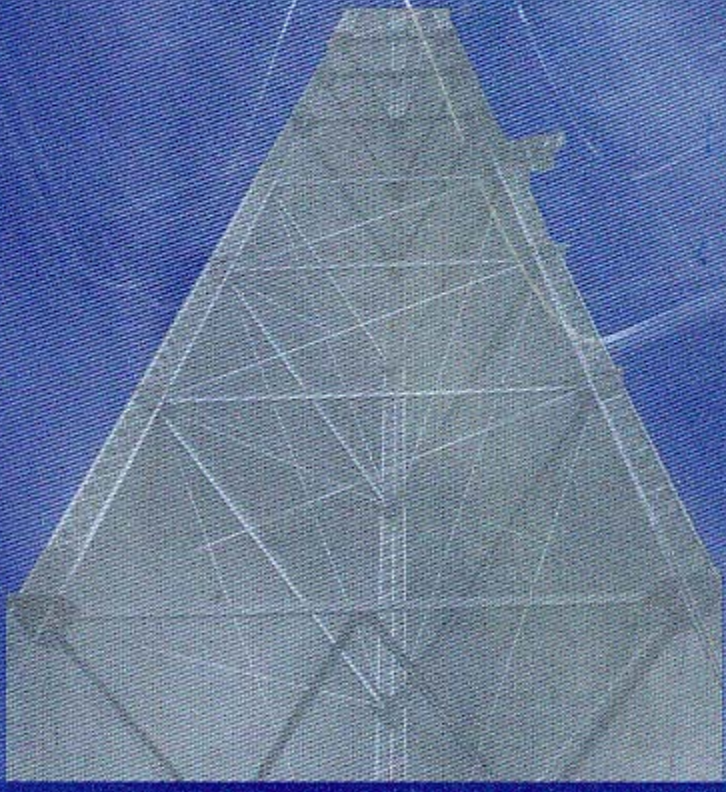
Broadcasters Clinic

And

Upper Midwest Regional Society of Broadcast Engineers Meeting



October 9-11, 2007
The Marriott West • Madison, Wisconsin

BROADCASTERS CLINIC 2007
Program Agenda

TUESDAY, OCTOBER 9TH

7:45 am *REGISTRATION AND CONTINENTAL BREAKFAST*

9:15 am **AM IBOC Antenna System Design Considerations**
Speaker: Tom King, President and CEO, Kintronic Labs

This presentation will address design considerations for non-directional, multiplexed and directional antenna systems specific to the requirements for AM IBOC transmission as we understand them at the present time. Illustrations of various techniques that can be utilized in the design of an AM IBOC antenna system will be highlighted.

10:00 am **Considerations for Automation and Playout in MultiStream Applications**
Speaker: Neil Price, C.O.O. ENCO

This paper presents considerations for automation and playout in support of multi-streaming environments. It will outline the history of standards for streamed metadata, how system flexibility is critical in addressing rapidly changing requirements and what might come next.

10:45 am *BREAK*

11:00 am **Digital FM SCA's: An Introduction to FMeXtra**
Speaker: Derek Kumar, VP, Engineering, Digital Radio Express, Inc.

Radio is going digital. But while analog FM radio technology is a true worldwide standard, no single digital radio technology has emerged as the likely successor, so that the legacy analog FM spectrum is likely to be maintained indefinitely. This paper introduces the digital FM subcarrier (SCA) technology known as FMeXtra. FMeXtra facilitates digitization of the existing FM spectrum by gradually converting the analog FM signal to a data-bearing signal without creating new interference to neighboring stations. Moreover, FMeXtra uses existing FM transmission infrastructure, generation and distribution equipment. FMeXtra supports the latest industry-standard audio compression technology, open-standard conditional access, and direct audio streaming. FMeXtra is already in use both domestically and internationally for conventional radio broadcasting, private radio networks, and data distribution systems. Case studies will be discussed.

Noon *LUNCHEON*
(Provided for Clinic Attendees)

2:00 pm **A Case Study of a Complex Directional FM Antenna System on a Short Tower.**
Speaker: Bob Surette, Director of Sales Engineering, Shively Labs

The directional antenna is mounted on a short 2 tower arrangement that made the directional pattern difficult to achieve. This short tower is located just 80 meters from a dwelling, forcing radio station to not only comply with the FCC rules for directional antennas but also minimize the RF level on a patio. I will discuss how we modeled the tower structure to produce the directional pattern, how we engineered the elevation pattern to focus a null in the elevation pattern to land at an exact distance from the tower and show the result of the field test.

2:45 pm **Multipoint E2X Transport Protocol**
Speaker: Jeff Welton, Technical Sales Representative, Nautel

The introduction of the 3rd generation digital HD Radio™ systems broadcast architecture transforms the broadcast system from an audio based broadcast system to a general digital data broadcast system that carries audio content along with advanced application services (AAS). The transition to this architecture necessitates changing traditional audio based studio to transmitter links (STLs) to generic IP based data links between the studio and transmitter site.Whereas IP streams are ideal for transferring arbitrary digital information not limited to audio content, many of the

challenges inherent to IP based streaming are now imposed on this architecture. The nature of this system places stringent requirements on the STL that can cause significant on air data outages, resulting in off-air situations for the broadcaster. However, to deploy a system that is successfully synchronized based on the data stream rather than external GPS based synchronization brings an additional set of challenges which will be discussed in this presentation.

3:30 pm *BREAK*

3:45 pm **Improving Engineering Efficiency at the Transmitter Site**
Speaker: John Bisset, NE Regional Sales Manager, Broadcast Electronics

As today's broadcast engineer is forced to do "more with less", working efficiently is often the difference between proactive and reactive engineering. Broadcast Electronics' John Bisset brings an engineering session that will discuss techniques that you can use at your transmitter site to head off problems before they occur, and maintenance tips that you can't afford to ignore. John's transmitter experience with Broadcast Electronics, coupled with nearly two decades writing the Radio World WORKBENCH columns ensures a lively presentation with useful information for both radio and television

4:30 pm ***EQUIPMENT EXHIBITS ARE OPEN***
(Everybody is welcome)

7:30 pm **Engineering Nuts and Bolts Session**

Wednesday, October 10th

7:45 am *REGISTRATION AND CONTINENTAL BREAKFAST*

8:30 am **DTV Audio Metadata Demystified**
Speaker: Mike Babbit, Customer Support Manager, Dolby Laboratories

Multichannel audio conveyed to the home in an HD broadcast is encoded into an AC3 data stream which contains audio metadata. This audio metadata instructs the home receiver and theater system how to present the audio dependent upon the home systems' capabilities and the viewer's preferences. This tutorial discusses the "Three D's of Metadata" and provides examples of the effects of audio metadata when set correctly as well as the consequences of setting specific parameters incorrectly. This tutorial provides important information that the broadcaster needs to know to effectively use audio metadata.

9:30 am **Guy Anchor Rod Corrosion and Subsequent Tower Failure**
Speaker: David Davies, Director of Structural Products and Services, ERI

Guyed tower collapse due to galvanic corrosion and subsequent anchor rod failure is a well documented phenomenon, the frequency of which continues to shorten. This paper will present the root causes of galvanic corrosion, various detection procedures and prevention methods. The benefits and disadvantages for each type of method and related cost will be discussed. The results of ERI's experimentation in a non destructive and non intrusive method of detection will also be presented.

10:15 am ***EQUIPMENT EXHIBITS OPEN***
Lunch Ticket Required

1:30 pm **Infrared Testing – See the Heat and Prevent the Outage**
Speaker: Richard Wood, President, Resonant Results, Ltd

This session will focus on the use of Infrared imaging as a tool for analysis of electrical and RF equipment while in service. Heat build up in equipment can result in unexpected failures or a fire. Infrared testing looks at the operating temperatures of equipment without contact or interruption of the operating systems. Through this analysis unexpected equipment failures can be prevented.

2:15 pm **Digital AES Auto Analyzing**
Speaker: Mike Swanson, Technical Sales Engineer, Sencore Electric

We will cover the basic fundamentals of Digital Audio and how to measure test and analyze using the Sencore DA795.

3:00 pm *BREAK*

3:15 pm **Introducing the FCC-mandated "Next Generation EAS"**
Speaker: Gary Timm, Broadcast Engineer, Journal Broadcast Group-Milwaukee

As well as updates on Amber Alert, NWS HazCollect, the Wisconsin Broadcaster ID Card Program, the federal Disaster Information Reporting System, and the First Response Broadcasters Act introduced in Congress, Gary will discuss the implications for all Wisconsin broadcasters and our State EAS Network resulting from the newly-mandated FCC "Next Generation EAS" requirements.

4:00 pm **Tower Lighting Systems and Monitoring Compliance**
Speaker: Richard Hickey, Inside Sales Manager, Flash Technology

This session addresses the FCC/FAA regulations for tower lighting and monitoring, along with the different types and applications of each. Also included are initial and maintenance-related costs.

6:00 pm *RECEPTION*

7:00 pm **Upper Midwest Regional Society of Broadcast Engineers Meeting Program: The history of WHA-AM and the stations that became Wisconsin Public Radio**
Author: Randall Davidson-chief announcer/news anchor/producer, Wisconsin Public Radio
"9-X-M talking . . . department of physics . . . University of Wisconsin . . . stand by one minute . . ."

These words crackled in the headphones of crystal sets around the country in 1921 as the University of Wisconsin radio station 9XM began its regular schedule of voice broadcasts. Randall Davidson provides the first comprehensive history of the University of Wisconsin radio station, WHA; affiliated state-owned station, WLBL; and the post–World War II FM stations that are the backbone of the network now known as Wisconsin Public Radio. 9XM Talking describes how, with homemade equipment and ideas developed from scratch, 9XM endured many struggles and became a tangible example of "the Wisconsin Idea," bringing the educational riches of the university to all the state's residents. From the beginning, those involved with the radio station felt it should provide a service for the practical use of Wisconsin citizens.

Thursday, October 11th

7:45 am *REGISTRATION AND CONTINENTAL BREAKFAST*

8:30 am **MPEG Master Control Technology**
Speaker: Rick Post, Applications Engineer, Harris

The development of transmission of High Definition programming necessitates the use of digital data reduction to fit the content into the allocated transmission bandwidth. Once compressed, many engineers believe that digital signal can not longer be processed. This paper explores the technologies used to provide the functions of the master control switcher, including splicing, commercial insertion branding and multiple program processing in the MPEG compressed digital domain.

9:15 am **Consumer Display Technology**
Speaker: Steve Mahrer, Director Engineering, Business Development Group Panasonic Broadcast & Television Systems Company

With the imminent demise of the more than 100 year old CRT as a display device, consumers (and professionals) are moving towards newer and different technologies. Modern displays such as DLPs, LCDs, Plasmas, LCOS etc provide larger brighter images, they do however behave differently. What device has the best contrast, brightness, colourimetry, does any one device have them all? What's the best display for the application required? This session will outline the various new display

technologies and endeavor to remain objective in an increasingly confusing marketplace.

10:00 am *BREAK*

10:15 am **Perspective on Mobile DTV**
Speaker: Harvey Arnold, Corporate Director of Engineering, Sinclair Broadcast Group

Digital television is well on its way to becoming a standard in every home in the Americas. The US government has mandated turn-off of the current analog transmission system in early 2009. Unfortunately, the current transmission standard was not designed to be received in a mobile or portable environment. The good news is that new systems are being proposed and demonstrated that would make mobile and portable DTV practical within the current system. This presentation will review the ATSC standards process, and the ongoing work within ATSC and others in the broadcast community to insure that mobile and portable DTV will be available as an optional tool to bring additional flexibility and value to terrestrial television.

11:00 am **HD and Triax**
Speaker: Steve Lampen, Multimedia Technology Manager, Belden

With the development of high-definition video (HD-SDI) it was believed that traditional triax cable could not handle this high-frequency high-bandwidth signal. SMPTE 311M fiber optic camera cable was the result. But, can triax carry HD? And what about all those camera manufacturers who are offering a triax option for HD? Is this really HD? This paper covers all aspects of triax and HD signals.

Noon *LUNCHEON*
(Provided for Clinic Attendees)

1:15 pm **Reality Engineering Part 2**
Speaker: Jeremy Ruck, Senior Engineer D.L. Markley & Associates, Inc.

A practical examination of several technical issues facing television engineers. Examples and case studies will be utilized and will cover theoretical, regulatory, and operational topics.

2:00 pm **Mobile Television - The Third Screen**
Speaker: Fred Baumgartner, Director of Broadcast Engineering, Qualcomm MediaFLO

Mobile Television presents a series of technical obstacles unique to the medium, and the medium is unlike either the lean-forward user experience of computer video, or the lean-back experience of traditional broadcast television. As this new medium finds its place in a world of media, it is worthwhile for broadcast engineers to understand how it works, interfaces with existing broadcast facilities and content, and what opportunities exist for broadcast engineers.

2:45 pm **Analog RF Systems-uses in a digital world, retuning and reusing**
Speaker: Jim York, RF Technical Sales, Dielectric Communications

With the approaching "analog sunset", many TV Broadcasters have posed the question "What Now?"; What can be done with the existing equipment, can it be retuned, reused or allocated to another site? This paper will describe some options and limitations in reusing or retuning Analog RF Systems for DTV applications. In addition a discussion of the feasibility, timing, and site restrictions that may limit the broadcaster in choosing one of the above options will also be discussed.

The 2007 Broadcasters Clinic is dedicated to the memory of Phil Livingston.

2007 PROGRAM COMMITTEE

Kent Aschenbrenner, Journal Broadcast Group, Milwaukee, WI
Don Borchert, Madison, WI
Stephen Brown, Radio Ranger LLC, Minneapolis, MN
Mark Burg, WLAX-TV, La Crosse, WI
Gordon Carter, WFMT Radio, Chicago, IL
Leonard Charles, WISC-TV, Madison, WI
Greg Dahl, Second Opinion Communications, Inc., Rockford, IL
Clif Groth, Clear Channel Radio, Madison, WI
Vern Killion, KRVN Radio, Lexington, NE
Vicki Kipp, Educational Communications Board, Madison, WI
Gary Mach, Green Bay, WI
Kevin Ruppert, WISC-TV, Madison, WI
Tom Smith, WHA TV, Madison, WI
Linda Baun, Vice President, WBA, Madison, WI

EXHIBITORS

Exhibitors from the BROADCASTERS CLINIC 2006 and expected for 2007 include:

ADC
AEQ
Alpha Video & Audio Inc.
Avid Technology
Axcera
Belden
Bogen Imaging
Broadcast Electronics
BMS
Broadcasters General Store
Burk Technology
Canon USA
Clark Wire & Cable
Continental Electronics
Crispin Corporation
DaySequerra
Dielectric
DiskStream Inc.
Electronics Research, Inc.
Emerson Network Power
Enco Systems
Evertz
Full Compass Systems
Gepco International
Gorman Redlich Mfg
Grass Valley
H & H Industries
Harris
Heartland Video Systems
Jampro Antennas/RF Sys.
JVC
Joseph Electronics
Logitek Electronic Systems
MRC
Miranda Technologies Inc.
MyTED, Inc.
Nautel
NSI
Nvision, Inc
Omneon Video Networks
Pesa Switching Systems
Phasetek Inc.
RCS
Radian/Rohn Corp
Ram Broadcast Systems
RF Technologies
Richardson Electronics
Rohde & Schwarz
Roscor Corporation
SBE
SCMS Inc.
SeaChange International
Sierra Automated Systems
Snell & Wilcox
Sony Electronics
Sony Media Software
Stainless LCC
Sundance Digital
Switchcraft
Tektronix
Tron-Tek, Inc
Ultech LLC
Utah Scientific
V-Soft Communications
Vizrt
Wave Communications

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

BROADCASTERS CLINIC 2007 REGISTRATION FORM

October 9-11, 2007

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 _____
daytime number/evening number

Amount enclosed: $ _____

Mail this form and your check by October 1, 2007 made payable to Broadcasters Clinic:

Linda Baun
WBA
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 9-11, 2007

LOCATION

All sessions of the Broadcasters Clinic 2007 are held at the Marriott-West, located at 1313 John Q. Hammons Drive, Madison, WI - 608-831-2000.

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, 2007.**

The WBA will need to guarantee meal counts with the hotel, therefore the WBA will NOT refund any cancellations made after **September 24, 2007.** The WBA will also invoice for all "no-shows."

ACCOMMODATIONS

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 6, 2007, while discounted rooms are being held for the seminar. Please specify that you are attending the Broadcasters Clinic 2007.

INFORMATION

For further conference or exhibitor information, contact: Don Borchert, 1955 Oakland Avenue, Sun Prairie, Wisconsin 53590. Phone 608-837-3462; or 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
or register at www.wi-broadcasters.org