All sessions and activities are in the Superior Room unless otherwise noted.

7:45 a.m. 
REGISTRATION & CONTINENTAL BREAKFAST

8:50 a.m. 
OPENING REMARKS

9:15 a.m. 
BENEFITS OF LIQUID COOLING FOR HIGH POWER FM DIGITAL TRANSMITTERS
TIMOTHY ANDERSON, CPBE, GATESAIR
This session will discuss the advances in RF power systems and modern liquid cooling techniques being employed to reduce both operational cost and the carbon footprint of high-power FM digital transmitters.

10 a.m. 
µMPX: NETWORK FM-STEREO COMPOSITE CONNECTIVITY
FRANK FOTI, TELOS ALLIANCE
This presentation will offer an explanation of µMPX, an innovative method in which the MPX signal can be carried over a data link of 320KB/s.

10:45 a.m. 
BREAK

11 a.m. 
THE FCC’S AM REJUVENATION; CAN REDUCED PROTECTION BE A GOOD THING?
DOUG VERNIER, V-SOFT
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 a.m.-1 p.m. 
LUNCH

1 p.m. 
WHY 0.01% DISTORTION SOMETIMES MATTERS, AND 30% SOMETIMES DOESN’T
STEVE DOVE, WHEATSTONE
A lighthearted romp through why some things sound the way they do—deflating some conventional wisdoms, and highlighting some surprising insights.

1:45 p.m. 
OPTIMIZING COMBINED AM ANTENNA SYSTEMS
KURT GORMAN, PHASETEK INC.
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 also be improved with these techniques.

2:30 p.m. 
BREAK

2:45 p.m. 
ADAPTIVE MULTI-RATE AUDIO STREAMING
KIRK HARNACK, TELOS ALLIANCE
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 p.m. BUILDING THE ULTIMATE IP AUDIO NETWORK TONY PETERLE, WORLDCAST SYSTEMS

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 p.m.-7 p.m. EXHIBITS OPEN—EXHIBITORS RECEPTION WISCONSIN/MICHIGAN ROOMS

7 p.m. Beer & Brats NUTS & BOLTS SESSION: AN EVENING WITH SPARKS AND WIRES RICHARD SPARKS

If you aren’t laughing, check your pulse.

7 a.m. REGISTRATION & CONTINENTAL BREAKFAST LOBBY

8:30 a.m. TELEVISION SPECTRUM REPACK—A RADIO PERSPECTIVE RICHARD REDMOND, GATESAIR

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 a.m. TODAY’S REMOTE CONTROL AND SNMP TOM BOSSCHER, CORNERSTONE UNIVERSITY RADIO WCSSG

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 a.m. WISCONSIN/MICHIGAN ROOMS EXCLUSIVE EXHIBIT TIME

11 a.m. WISCONSIN/MICHIGAN ROOMS LUNCH ON EXHIBIT FLOOR

1:30 p.m. ENGINEERING MICROWAVE LINKS JEREMY RUCK & ASSOCIATES, INC.

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.

JOIN US ONLINE

TINYURL.COM/J8YWKEV

#WABC16
2:15 p.m.

TECHNICAL REGULATORY UPDATE AND CYBER SECURITY FOR BROADCASTERS

KELLY WILLIAMS, NAB

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 p.m.

BREAK

3:15 p.m.

ADVANTAGES OF ALUMINUM TRANSMISSION LINE

MANUEL SONE, ELECTRONICS RESEARCH INC.

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 p.m.

ADVENTURES IN 4K

STEVE LAMPEN, BELDEN

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 p.m.

DINNER

6 p.m.

SBE ALL CHAPTER MEETING AND PROGRAM: HOW TO TAKE TIME OFF FROM A 24/7 CAREER

JEFF WELTON, NAUTEL

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.

7:45 a.m.

REGISTRATION AND CONTINENTAL BREAKFAST

8:30 a.m.

ATSC 3.0 IN THE REAL WORLD

MICHAEL GUTHRIE, HARMONIC

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.

GARY MACH, GEMCOM

THANK YOU FOR 32 YEARS OF SERVICE TO THE BROADCASTERS CLINIC
9:15 a.m.  
**ATSC 3.0 AND FUTURE ANTENNA TECHNOLOGIES**  
*John Schadler, Dielectric*  
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 a.m.  
**BREAK**

10:15 a.m.  
**THE SPECTRUM REPACK, IS THERE A MOVE TO VHF IN YOUR FUTURE?**  
*William Ammons, Micronetixx*  
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 a.m.  
**TELEVISION SPECTRUM AUCTION AND REPACK UPDATE**  
*Jay Adrick, GatesAir*  
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 p.m.  
**LUNCH**  
*Mendota Room*

1 p.m.  
**STATUS OF ATSC 3.0**  
*Jerry Whitaker, ATSC Committee*  
The next-generation digital television system promises to provide broadcasters with new features and services and consumers with robust mobile, immersive audio, UHDTV 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 p.m.  
**HIGH EFFICIENCY IN MODERN SOLID STATE UHF/VHF TV TRANSMITTERS**  
*Walt Gumbert, Rohde & Schwarz*  
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 p.m.  
**DEMYSTIFYING VIDEO OVER IP**  
*Valeri Nzeyang, Senior Applications Engineer for Compression Systems and IP Transport, Evertz*  
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.
2016 BROADCASTERS CLINIC | PLANNING COMMITTEE

Committee Chair Leonard Charles
Television Wisconsin

Kent Aschenbrenner
E.W. Scripps Company

Steve Brown
Woodward Radio Group

Dennis Baldridge
Baldridge Communications

Mark Burg
WLAX-DT/WEUX-DT

Greg Dahl
Second Opinion Communications

Clif Groth
New Radio Group

Bill Hubbard, UW-Green Bay

Keith Kintner, UW-Oshkosh

Gary Mach, GEMCOM

Kevin Ruppert, WISC-TV

Matt Sperling WKBT-TV

Tom Smith

Michelle Vetterkind
WBA President & CEO

Linda Baun
WBA Vice President & Email Queen

Liz Boyd
NCSA/PEP Coordinator
The 2016 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. The hotel deadline is Sept. 19, 2016, and the discounted rate is $119. Reservations can be made online at wi-broadcasters.org. To register by phone, call 888-745-2032 and mention WI Broadcasters group code BROBROA to receive the discounted rate.

Registration Information
Registration fee covers: program materials, continental breakfasts and luncheons as indicated, refreshment breaks and an evening reception with hot hors d’oeuvres (cash bar) and Beer and Brats at the Nuts and Bolts session.

Vegetarian meals can be requested by calling the WBA office at 1-800-236-1922, by Sept. 15, 2016. The WBA will need to guarantee meal counts with the hotel, therefore the WBA will NOT refund any cancellations made after Sept. 15, 2016. The WBA will also invoice for all “no-shows.”

Contact
For further conference or exhibit information contact: Linda Baun
608-729-1480
lbaun@wi-broadcasters.org

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

- 25-SEVEN
- ALPHA VIDEO
- AXIA AUDIO
- BROADCASTERS GENERAL STORE
- BSW
- CANON
- CLEAR-COM
- COMREX
- DAVICOM, A DIVISION OF COMLAB
- DIELECTRIC
- DOUBLERADIUS
- ENCO
- EVERTZ
- FOR-A CORPORATION OF AMERICA
- FULL COMPASS
- GATESAIR
- GORMAN-REDLICH MFG.
- JAMPRO
- JOSEPH ELECTRONICS
- KATHREIN
- LINEAR ACOUSTICS
- LOGITEK
- MINNETONKA AUDIO
- NAUTEL
- OMNIA AUDIO
- RESONANT RESULTS
- ROHDE & SCHWARZ
- ROSS VIDEO
- SHIVELY
- SONY
- TELESTREAM
- TIELINE THE CODEC COMPANY
- THE TELOS ALLIANCE
- TELOS SYSTEMS
- UTAH SCIENTIFIC
- V-SOFT COMMUNICATIONS
- WHEATSTONE CORPORATION

Exhibitor list is current as of Aug. 12, 2016. The most up-to-date list is in the attendee packet.
2016 Broadcasters Clinic | Sponsors

Tuesday registration
Tuesday breakfast
Tuesday lunch

Nuts & Bolts Co-Sponsor

Wednesday breakfast

Wednesday Exhibitor Coffee Break

Wednesday lunch Co-Sponsor

Technical equipment
Monitors & Screen
State of the art projector

Broadcasters Clinic Underwriter

Sponsor list is current as of Aug. 12, 2016. The most up-to-date list is in the attendee packet. Brochure design and layout by Erin Shipps.