



SBE ENNES WORKSHOP AT 2009 NAB SHOW

The NAB Broadcast Engineering Conference at the Las Vegas Convention Center will run from Saturday April 18 through Thursday April 23, 2009. This year continues the tradition of kicking off the conference with a full day Ennes Workshop arranged by the Society of Broadcast Engineers. A summary of the program follows.

SBE Ennes Workshop - Continuing the Digital Transition

Saturday, April 18, 2009 8:00 a.m. - 5:00 p.m.



This year the SBE workshop covers the different technologies needed for digital broadcast transmission, both for radio and television, including mobile/handheld DTV. The workshop is co-chaired by Andy Butler of PBS - Public Broadcasting Service and by Tom Mikkelsen of Broadcast Facilities, Inc./Andrita Studios.

8:00 a.m. Digital Transmission 101 Part 1

Donald Vanderweit, Application Engineer, Agilent Technologies, Inc.

From Morse code to 8-VSB, QAM, and IBOC, digital radio has progressed within a generation from low-speed specialized applications to become the dominate means of transmitting information via radio communications. Each year, the Ennes sessions begin with an early-bird tutorial, and this year we are grateful to present Donald Vanderweit of Agilent as our guest educator. The tutorial will cover methods of digital modulation, measurements and impairments, and reinforces and expands what you already might know of this now essential part of broadcast engineering.

9:00 a.m. Opening Remarks

John Poray, Executive Director, Society of Broadcast Engineers

9:10 a.m. Digital Transmission 101 Part 2

Donald Vanderweit, Application Engineer, Agilent Technologies, Inc.

9:55 a.m. IBOC Performance: The 1% or 10% Solution

Mike Starling, Vice President & Chief Technology Officer, National Public Radio

Improved HD Radio coverage and new features in the HD Radio system are hot topics in today's terrestrial radio industry. Both iBiquity Digital and NPR Labs have conducted additional technical analysis which will be discussed. This presentation will provide essential information and perspective on the industry's work towards a consensus recommendation for FCC action on a managed HD Radio power increase authorization. Mike Starling of NPR Labs and Steve Densmore of iBiquity Digital discuss the latest developments and highlight important new features of the HD Radio system.

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10:30 a.m. IBOC's Opportunities

Steve Dinsmore, iBiquity

This presentation provides more perspective on IBOC and the current topic regarding IBOC power increases.

11:00 a.m. Five Good Reasons to Use a Tube for High Power FM+HD Radio

Geoffrey Mendenhall, Vice President – Transmission Research & Technology, Harris Communications

Adding HD to FM transmission presents many challenges to the transmission system, and there are rarely perfect solutions. It would seem that the role of tubes in new transmitter designs would continue to diminish; but in the case of FM+HD, efficiency and cost of operation might best be met with a novel use of power tubes.

11:30 a.m. DTV Transmission Status

William Meintel, Partner, Meintel, Sgrignoli & Wallace

Previously Bill Meintel has discussed a number of issues that could have come together to create the perfect storm leading to a DTV transition catastrophe. Bill will offer his perspective on the current state of the transition. Will the transition come to a successful conclusion or is there still more work to be done. Finally, what comes next? For example, despite the recent fanfare over the end of full power analog television transmission, many low power television stations and translators will continue to transmit analog signals for the foreseeable future.

1:15 p.m. Implementing Mobile/Handheld

Wayne Bretl, Principal Engineer, Zenith Electronics LLC

Jay Adrick, President, Broadcast Technology, Harris Communications Division

This presentation will provide an overview of the ATSC M/H system and describe what it will mean for those stations that choose to broadcast the service. It will cover a description of the service, the types of consumer devices that the service will reach, the business models that broadcasters might develop and the technical considerations for deployment of the service. An in-depth look will be made at the M/H Physical Layer, the equipment necessary to broadcast ATSC M/H and the possible changes that the system will require for the transmission plant in order to optimize mobile service. The current status of the ATSC Candidate Standard will be reviewed along with a view of what lies ahead as the technology rolls towards a commercial launch.

2:45 p.m. Improving DTV and Mobile TV Coverage through On-Channel and Translator Technologies

Richard Schwartz, Vice President of Product Management, Xcera

Current DTV coverage areas were allocated based on a single-transmitter architecture, which is predicted to provide minimum specified field strength to 50% of the locations within each coverage area, 90% of the time. Terrain features can produce shadowed areas, or coverage gaps, where signal strength is lower than required for reliable reception. Both the analog sunset and the desire to employ ATSC M/H mobile services have highlighted the extent of coverage gaps for many broadcasters. Networks of additional DTV emitters can be deployed to mitigate these gaps in coverage. These networks can range from groups of simple on-channel boosters and DTV translators that relay the primary transmitter signal, to complex networks of synchronized DTV transmitters deployed in a cellular arrangement that fundamentally replaces the single-transmitter architecture. The optimum choice of DTV coverage network technology is driven by the locations of terrain features and population distribution. Multi-emitter on-channel networks must be carefully designed to avoid significant harmful interference in overlapping coverage areas. This paper will describe how an on-channel DTV network functions, define the associated terminology, provide guidance in determining when this type of deployment is applicable and give an overview of the systems engineering necessary to design such networks.

3:30 p.m. DTV Maximization: The Value of the Power

Dennis Wallace, Managing Partner, Meintel, Sgrignoli, & Wallace

With the end of analog television transmission, television broadcasters will be much more reliant upon their digital transmission systems to reach the viewer. In this presentation, Dennis Wallace will discuss the findings of field and laboratory tests regarding DTV reception and in particular planning factors for indoor DTV reception. The Value of Power for DTV broadcasters will be discussed as well as important considerations for the post-transition DTV transmission facility. Dennis will provide an in-depth discussion of indoor planning factors for DTV reception as well as how those factors might be applied to the new M/H (mobile/handheld) DTV transmission

system. This discussion will include presentation of data regarding the measured performance of indoor antennas and pre-amplifiers as well as building penetration losses and other factors, such as taboo interference, needed to create an indoor DTV reception model. Mr. Wallace will also provide an overview of the various ways for broadcasters to maximize their coverage and service areas for DTV and will conclude with some suggestions for improving the coverage of DTV stations.

4:15 p.m. Antenna Choices for Digital Systems

Kerry Cozad, SVP, Engineering and Technology, Dielectric Communications

The importance of reliable wireless transmission/reception of data for video reception has been growing for the past few years. What choices do the data provider (broadcaster) and the data user (viewer) have when it comes to optimizing the performance of the antenna systems? Kerry Cozad will offer a discussion of what is available now and trends for the near future in antenna designs. He will review antennas for full power DTV transmitter installations and antenna considerations for mobile/handheld, single frequency networks and translators.

For additional information on these and other broadcast engineering conference sessions, or to register, go to the [NAB Show Web site](#).

Information on Indoor Antennas added to AntennaWeb



AntennaWeb
Maximize your television reception

The www.antennaweb.org Website, co-sponsored by NAB and CEA, is a valuable guide to help consumers choose a suitable antenna for DTV reception. The site makes recommendations for the type of outdoor antenna most suitable for a particular location, by predicting signal levels at the receiving location and matching them with antennas with different capabilities. Because of the number of indeterminate variables, it is not possible to make equivalent specific recommendations for indoor antennas. However, to meet the increasing demand for advice on indoor reception, a new information sheet discussing the factors to be considered in choosing and using an indoor antenna has now been added, linked from the home page of AntennaWeb, see: [DTV Reception with Indoor Antennas](#).

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