

**ENNES REGIONAL WORKSHOP
SACRAMENTO REGISTRATION**

Please copy this form for multiple registrations

Registration: \$25 for SBE and SMPTE members, \$30 for non-members (Includes lunch!)

Name: _____

Company: _____

SBE Member #: _____

Chapter #: _____

Daytime Phone: _____

Address: _____

City/State/Zip: _____

I plan to attend: Radio Sessions Television Sessions

Payment method: Amount: \$ _____

Check Visa Mastercard American Express

Card #: _____

Exp. Date: _____ Security Code^: _____

Print Cardholder: _____

Signature: _____

^ Last 3 digits in signature strip on back of card (AMEX, 4 non-raised digits on the front).

Mail Payment & Registration to:

Society of Broadcast Engineers
Boston Ennes Workshop
9102 North Meridian Street, Suite 150
Indianapolis, IN 46260

or Fax with Credit Card info: (317) 846-9120

Questions? Call Debbie Hennessey:
(317) 846-9000

**Ennes Educational Foundation Trust wishes to thank
SBE Chapter 43 Sacramento for hosting this Workshop
and Fred Baumgartner, CPBE, CBNT, for moderating.**

LOCATION

HAWTHORN SUITES

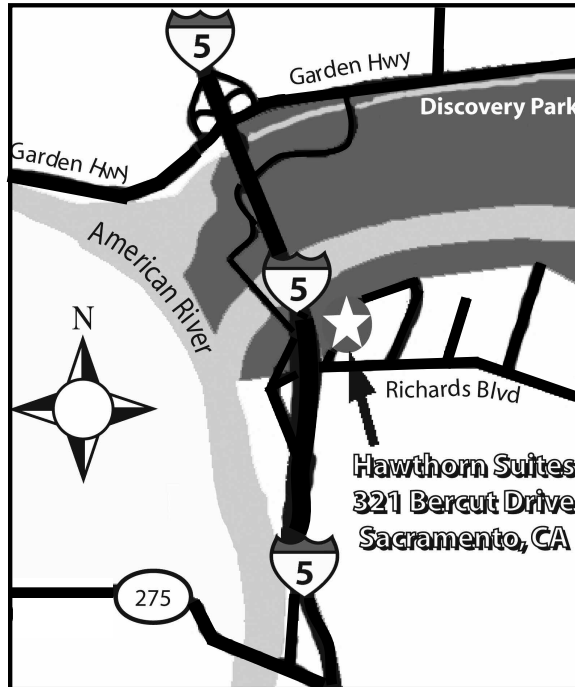
321 Bercut Dr., Sacramento, CA 95814
(916) 441-1200

Special Rate: \$84 (single) \$99 (double), plus tax;
mention the Ennes Workshop

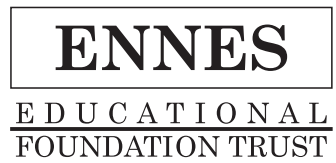
Hotel Features: Complimentary wireless internet,
daily hot buffet breakfast, airport shuttle, conven-
ience store, handicap accessible, restaurant, valet
service, and *plenty of free parking.*

Directions from airport: Take I-5 South to the
Richards Blvd. Exit. Go left on Richards Blvd, and
then left on Bercut Drive.

Directions from downtown: Take I-5 North to the
Richards Blvd Exit. Go right on Richards Blvd, and
then left on Bercut Drive.



Society of Broadcast Engineers
9102 North Meridian Street, Suite 150
Indianapolis, IN 46260



Present the

**SACRAMENTO
ENNES
WORKSHOP**

**Continuing Education
for Radio & TV Engineers**

**Saturday, February 24, 2007
8:50 AM to 5 PM**

*Hawthorn Suites
321 Bercut Drive
Sacramento, CA*

**HELD IN COOPERATION WITH
AND HOSTED BY:
SBE CHAPTER 43**

Society of Broadcast Engineers
9102 North Meridian Street, Suite 150
Indianapolis, IN 46260
(317) 846-9000
www.sbe.org

ENNES WORKSHOP PRESENTED BY SOCIETY OF BROADCAST ENGINEERS

REGISTRATION

8 TO 8:50 AM

OPENING REMARKS

8:50 TO 9 AM

Moderator: Fred Baumgartner, CPBE, CBNT; **Emmes Trustee;** Director Broadcast Engineering, MediaFLO USA Inc.

JOINT SESSIONS

SESSION 1

9 TO 10 AM

PROPER WIRING TECHNIQUES FOR BROADCASTERS

Speaker: Steve Lampen, Belden Cable

Miles of various types of cables with a multitude of signal types make up the modern Radio and Television facility. There are mechanical, fire, ease of construction, bend radius, termination, length, and a myriad of other considerations for the broadcast engineer to consider. Labeling, dressing, access, and documentation are all important. Developments and new products make a marked improvement over the days when 8281 and zip-stereo seemed like major improvements in interconnect technology.

BREAK

10 TO 10:15 AM

SESSION 2

10:15 TO 11:15 AM

ENGINEERING CONSIDERATIONS FOR DIGITAL MICROWAVE STL, TSL AND ICR

Speaker: Scott D. Nelson, Alcatel-Lucent

Digital microwave radios play a crucial role in broadcasters' transition to DTV — allowing them to relay high quality digital program material between studios, transmitters, and remote sites. However, digital microwave links have different propagation characteristics than traditional FM BAS links. Impairments due to multipath as well as adjacent channel and co-channel interference can render a digital microwave signal unusable without aggressive countermeasures. Fortunately, the 30 year history of digital microwave has led to electronic technology and engineering design methods that effectively deal with these impairments and enable broadcasters to use digital microwave with capacities up to 155 Mb/s over long paths.

RADIO SESSIONS

SESSION 3-R

11:15 TO 12:15 AM

IMPROVEMENTS TO FM AND HD SIGNAL QUALITY

Speaker: Wendell Lonergan, Nautel

FM HD Radio™ transmission, whether pure digital or hybrid (FM+HD), requires the use of a linearized transmitter to minimize the generation of intermodulation products during amplification of the HD signal. Even these transmitters have limitations to their linearity so to further reduce spectral regrowth, pre-correction techniques at the exciter level have been employed. With the hardware now available in these modern exciters coupled with their linear transmitter, it is also possible to add corrections for amplitude and phase variances introduced by the transmission system. The objective of this presentation is to demonstrate improvements that can be achieved to the FM broadcast signal, both analog and digital, by the use of pre-equalization at the exciter stage.

LUNCH

12:15 TO 1:15 PM

SESSION 4-R

1:15 TO 2:30 PM

WORK BENCH TIPS AND GETTING THE RAISE

Speaker: John Bisset, Broadcast Electronics

WORKBENCH TIPS — With well over 400 Workbench columns written and published in Radio World, B.E.'s John Bisset brings some of the best tips that engineers can use in their studio and transmitter plants to this presentation. Both beginner as well as seasoned engineers will benefit from the information that not only focuses on good engineering practice, but also problem areas to avoid, and ways to make the best use of time. John also discusses some techniques that can elevate the engineer in the eyes of the station owner, bringing job satisfaction while saving the station money

GETTING A RAISE — In today's broadcasting environment, automatic salary increases are no longer "automatic". Management rewards those who help the bottom line, but how do you "sell" your abilities to station management? This presentation will review the steps an engineer needs to take to document engineering contributions, then make management aware of those contributions, how to ask for a raise, and if a salary increase is not possible, what kind of non-financial benefits are typical and can be negotiated.

BREAK

2:30 TO 2:45 PM

SESSION 5-R

2:45 - 3:30 PM

AUDIO OVER IP - IT'S NOT JUST THE FUTURE, IT'S A MUCH

BETTER FUTURE

Speaker: Mike Uhl, Telos

The sun never sets on the IP empire - this modest transport protocol owns the market for data networks worldwide. Infrastructure that once belonged to TDM-based systems is all migrating to packets. Routing and mixing audio and related data is moving to the IP world, too. Moreover, it's now practical to extend the LAN via IP-Radios for STL and inter-city relay applications. We'll explore and explain how IP networks are solving engineering problems in radio stations right now, and opening up new capabilities in every size facility.

SESSION 6-R

3:30 TO 4:15 PM

DIGITAL AUDIO - CHOICES AND CONSIDERATIONS

Speaker: Steve Lampen, Belden Cable

Digital audio comes in a number of choices, in twisted pair and coax formats, networked digital audio, and Category 5, in professional and consumer applications. This presentation covers all of these, with installation and operational tips.

SESSION 7-R

4:15 TO 5 PM

NETWORKING AND DATA TRANSMISSION FOR HD RADIO

Speaker: Gary Liebisch, Harris Corporation

As HD Radio evolves to a multi-media, multi-channel service, the challenges of implementation have shifted from the RF configuration to the networking side. This session will examine what the latest iBiquity software offers in terms of features and changes, and offer "best networking practices" guidelines to planning your system. Drawing from lessons learned in the field, some of the more common installation errors will be examined.

TELEVISION SESSIONS

SESSION 3-T

11:15 TO 12:15 AM

DIGITAL VIDEO AND TRANSPORT BASICS TUTORIAL

Speaker: Craig Beardasley, Leitch-Harris

This session covers the under-the-hood basics of today's digital Television and the processing, conversion, and distribution of video and audio for the modern broadcast station. Great for whether you've been in the business for years, or just learning your way.

SESSION 4-T

1:15 TO 1:45 PM

DTV UPDATE

Speaker: Jerry Whitaker, ATSC Organization

This presentation will update attendees on current activities within the ATSC, with special emphasis on emergency alerting, advanced transmission technologies, mobile, and non-real-time services. The current status of the DTV transition will also be reviewed.

SESSION 5-T

1:45 TO 2:30 PM

HOW BIG IS YOUR PIXEL?

Speaker: Steve Lampen, Belden Cable

RGB and VGA signals (and their cousins SVGA, XGA, QXGA etc.) are analog component delivery systems. They split the signal into component parts that are carried by multi-coax or multipair cables. The delivery time of each pixel component is critical for resolution and picture detail, called 'timing' for coaxes, and 'delay skew' for twisted pairs. This presentation will show how far you can go in different variations of coax and twisted pair cables, how it is related to screen resolution and pixel size, and how you can calculate these distances yourself.

SESSION 6-T

2:45 TO 5 PM

MONITORING AND ANALYSIS OF MPEG VIDEO SYSTEMS AND A/78,

THE ATSC RECOMMENDED PRACTICE FOR TRANSPORT STREAM

MONITORING

Speaker: Rich Kaye, Triventi Digital

The transition from analog television to digital has changed the way that broadcast engineers monitor their signal. For many reasons, it is no longer enough to use a television or set top box to monitor a DTV signal.

The relative health of a digital television transport stream can be judged using an MPEG analyzer. However, it is not always easy to determine the impact on the viewer of an error detected in the transport stream. Certain compliance issues are much more likely to create problems than others. Broadcast Engineers need a guide to help them interpret the severity of the problems on their video distribution networks.

The ATSC published A/78, a Recommended Practice for Transport Stream Verification, to help broadcasters distinguish between service affecting faults, and non-service affecting faults. After a brief review of digital television, MPEG, and A/65 (PSIP), we will discuss digital television monitoring and analysis and A/78 in detail.