TV TechCheck

NAB
NATIONAL ASSOCIATION OF BROADCASTERS

The Weekly NAB Newsletter for Television Broadcast Engineers

NAB Broadcast Engineering Conference Sessions Now Online

This year's NAB Broadcast Engineering Conference (BEC), held from April 14-19, 2012 in Las Vegas, Nevada as part of the 2012 NAB Show, was jam-packed with interesting technical presentations and lively panel discussions. Even though the conference is now over, a large portion of the content presented is available in the NAB BEC Proceedings (available online at www.nabstore.com), as well as online from the NAB Online Learning Center (www.nabshow.com/olc). Online content includes an audio recording of the presentation synchronized with the PowerPoint slides used (sample screen capture at right shows user interface). Listed below are all of the sessions from the BEC and within each session, which presentations are available either online and/or in the Proceedings.

To use the Online Learning Center, here are some helpful tips:

● Access to the online content must be purchased (details provided below) starting at $249 (price depends upon your registration status at the 2012 NAB Show). Once you have paid, you have access to all of the conference sessions available. New subscribers are eligible for $150 off their purchase (see below).

● A number of *complimentary* presentations are accessible from the Online Learning Center home page. Selecting a complimentary session will immediately take you to the user interface so you can experience how the presentations have been captured for Online access (you must LOGIN to access these complimentary sessions – see below).

● If you previously purchased access to the Online Learning Center, you should have already received an email that contains your username and password. If you registered for NAB Show SMART Pass, you received access to the Online Learning Center as part of your registration, and should also have received an email that contains your username and password. Use those to login to the Online Learning Center. (If you did not receive this email you may contact the Online Learning Center for assistance by sending an email to multiviewmediasupport@multiview.com.)

● For new subscribers, go to http://nab.sclivelearningcenter.com/index.aspx?PID=396 and look for "Login/Create Account" on the left-hand side of the home page, click on this link, and set up an account (no charge to do so).

Then, use the "Login/Create Account" link to login, which is the first step to either accessing sessions (if you have already purchased access, or to access complimentary sessions) or purchasing access.

● To purchase the BEC sessions, first select the link "2012 Broadcast Engineering Conference" which is on the right-hand side of the page under "2012 Recordings." This will bring up a list of the 132 presentations that are available. Click the "BUY NOW" button on any presentation and select the appropriate package, based upon your registration status at the 2012 NAB Show. This will place your Online Access package into the "cart" where you can complete your transaction. Again, note that once purchased, this will give you access to all of the content available in the Online Learning Center which includes the BEC, the Broadcast Management Conference, Creative Master Series, and the Disruptive Media Conference.

● Once you have purchased access to the sessions, click on "My Content" on the left side of the screen (under "My account"). You will then see an alphabetical list of the available presentations which can be sorted based upon the pull-down menus at the top of the window. Once you have located the presentation you wish to view, click on the AUDIO icon under "Watch Now" to start playback.

Saturday, April 14, 2012
SBE Ennes Workshop - Infrastructure: Keeping It Going in Challenging Times
Moderators: Fred Baumgartner, Trustee, Ennes Educational Foundation Trust

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
The Broadcast Engineer in an IT World: What Do I Need to Know and How Do I Learn IT? Wayne Pecena, Director of Engineering, Texas A&M University	√	
Opening Remarks John L. Poray, Executive Director, Society of Broadcast Engineers	√	
The Broadcast Engineer in an IT World: What Do I Need to Know and How Do I Learn IT? Part 2 Wayne Pecena, Director of Engineering, Texas A&M University	√	
The Tube Sound: Fact or Fiction? Jerry Whitaker, VP, Standards Development, Advanced Television Systems Committee	√	
Broadcasting and the Cloud Michael Bittle, COO, ATTEND LLC Al Kovalick, Principal Member and Founder , Media Systems Consulting Stan Moote, Vice President, Business Development, Harris Corporation	√	
IBM Case Study: Broadcast Management Cloud for Fuji TV Katsushi Yamashita, CTO, IBM Japan Cloud Computing, IBM Japan	√	
Chyron Cloud Case Study Greg Lennon, Director, Product Management, Chyron	√	
Standards Update Peter Symes, Director, Standards & Engineering, SMPTE	√	
Evolved Multimedia Broadcast/Multicast Service Tutorial G. Kent Walker, Vice President of Technology, Qualcomm Inc.	√	
IPTV Tutorial Wendy Allen, Sr. Dir. Media Ops Center, PBS John McCoskey, Chief Technology Officer, PBS Steve Scheel, Sr. Dir. Media Ops Center, PBS Eric Wolf, Technology Strategy, PBS	√	
Broadcast Workflow / Content Flow 2012 John Footen, Principal, Cognizant Technology Solutions Benjamin Ropke, Sr. Manager, Cognizant Technology Solutions	√	
ATSC's Future of TV Jim Kutzner, Sr. Director, Advanced Technology, PBS	√	

The Next Digital Transition for Television
Chairperson(s): Lynn Claudy, Senior Vice President, Technology Department NAB
Gary Cavell, President, Cavell Mertz & Associates

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Progress in the ATSC's Effort Toward ATSC 3.0: The Next Generation Broadcast Television System Jim A. Kutzner, Sr. Director, Advanced Technology Public Broadcasting Service	√	√
On the Road to 4K: How Can HD Picture Quality Evolve? Jean-Louis Diascorn, Product Manager – Encoders, Thomson Video Network	√	√
A Loudspeaker Array Frame Reproducing 22.2 Multi-channel Sound for Super Hi-Vision Flat Panel Display Takehiro Sugimoto, Audio Engineer, NHK	√	√
The Strategic Impact of Ultra High Definition Television David Wood, PhD, Deputy Director, EBU Technology and Development, European Broadcasting Union		√
The Production of "The Last Launch of Space Shuttle" by Super Hi-Vision Kensuke Irie, Sound Engineer, Japan Broadcasting Corporation (NHK) Toshihito Miura, Principal Engineer (Technical Producer), Japan Broadcasting Corporation (NHK)	√	√
Dialog Enhancement – Enabling User Interactivity with Audio Stefan Meltzer, Technology Consultant, Fraunhofer IIS	√	√
HTML 5 and MPEG DASH Adaptive Streaming: Will These New Standards Become Important to Broadcasters David Price, Head of Business Development, Solution Area TV, Ericsson Television Inc.	√	
The H.265 Standard and What It Will Mean to the Broadcast Industry Sean Gardner, Business Unit Manager, Texas Instruments	√	
A 120-fps, 33-megapixel Image Sensor for Full-spec Super Hi-Vision Hiroshi Shimamoto, Senior Research Engineer, NHK	√	√
New CODEC Choices to Support New Applications Michael Bergeron, Group Manager, Strategic Technology Liaison Panasonic	√	√
High Efficiency Video Coding: Next Generation Compression Technology Driving New Business Models for Television Matthew Goldman, Head of Compression Technology, Ericsson	√	√
Using State of the Art Technology (including Speech Analysis Technology) to Reduce the Cost of Captioning/Subtitling Creation and Repurposing Sam Pemberton, Chief Executive Officer, Softel	√	√
What's Next for Adaptive Bit-rate: Will MPEG-DASH be the New Contender for Multi-screen Services? Matt Smith, VP, Internet Television, Envivio	√	√
Client-side Recommendations: Content Discovery Systems for One-Way Broadcast Networks Paolo Cremonesi, CTO, Moviri	√	√

Sunday, April 15, 2012
Advancements in Radio Technology
Chairperson(s): Steve Fluker, Director of Engineering, Cox Media Group
Milford K. Smith, VP/Radio Engineering, Greater Media, Inc.

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
A New Approach to High Power Circulator Solutions for FM Dual Input Antenna Systems Nicholas Paulin, RF Engineer, Electronics Research, Inc.	√	√
A Standardized Method for Radio Program Service Data Distribution - An Update Dan Mansergh, Director of Engineering, KQED Public Radio Bruce Wahl, Senior Solutions Architect, NPR Distribution	√	
FM-Stereo Transmission Using Single Sideband Suppressed Carrier (SSBSC) Modulation Frank Foti, President, Omnia Audio	√	√
Optimal Deployment of an FM+HD Booster with a New Over-The-Air Repeater John Kean, Senior Technologist, NPR Labs	√	√
The Advantages of Liquid Cooled vs. Air Cooled Transmission Systems Terry Cockerill, Systems Engineer, Harris Corporation	√	
High Level IBOC Combining Methods for Single Input Antenna Systems Thomas Silliman, President, Electronics Research, Inc.	√	√
Interactive HD Radio Opportunities Paul Donahue, Chairman, MelRok Co.	√	
Characterizing Digital SNR Improvement with FM IBOC Asymmetric Sideband Operation David Layer, Sr. Director Advanced Engineering, NAB	√	
HD Radio™ Broadcast System: 4th Generation Tim Anderson, Manager of Strategic Market and Product Development, Harris Corporation	√	√

Monday, April 16, 2012
Broadcasting: A Global Technology Perspective
Chairperson: Victor Tawil, Senior Vice President, Technology Department, NAB

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Video Distribution Issues Unique to the South American ISDB-Tb Broadcast Standard Nelson Botsford, Manager, Video Networking Systems, Harris Corporation	√	√
Broadcasting – A Global Technology Perspective Guillermo Chialvo, Tech News Editor, Radio Mitre		√
Digital Radio − A Global Perspective Richard Redmond, Vice President – Product Management and Strategy, Harris Corporation	√	√

Monday, April 16, 2012
Engineering Case Studies for Broadcast
Chairperson: Bruce Franca, Senior Vice President, Technology Department, NAB

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
VoIP In The Real World: How I Quit Worrying and Learned to Live Without POTS Joe Talbot, Product Manager, Telos Systems	√	√
Advanced STL Alternatives for Radio Benjamin Brinitzer, Regional VP Engineering Clear Channel Media and Entertainment	√	
Social TV System for Public Broadcasting Services: Analysis of User Behavior in Large-Scale Field Trial Masaru Miyazaki, Principal Research Engineer, Japan Broadcasting Corporation (NHK)	√	√
Identifying and Correcting a New Form of Interference for Broadcasters: Spectral Growth Through Passive Intermodulation (PIM) Distortion S. Merrill Weiss, President, Merrill Weiss Group LLC	√	√

Monday, April 16, 2012
Loudness Measurement and Control for Television
Chairperson: Skip Pizzi, Director, Digital Strategies, NAB

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
The CALM Act and Cross-platform Broadcast Thomas Lund, HD Development Manager, TC Electronic A/S	√	√
Audio Loudness: Get it Right From The Start Karsten Hansen, CEO, DK-Technologies A/S	√	
Loudness Measurement and Control Vivek Koul, Product Manager, Interra Systems	√	√

Monday, April 16, 2012
Next Generation Remote Production and Delivery
Chairperson: Andy Laird, Vice President, Chief Technology Officer, Journal Broadcast Group

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Towards Broadcast Data Capture, Transformation and Management for Portable Devices – Critical Issues and Key Hardware/Software Building Blocks Curtis Davis, Co-founder, COO, VP of Engineering, MulticoreWare Inc.		√
Assuring the Integrity of Wireless Microphone Frequencies upon the Introduction of White Space Devices Louis Libin, President, Vimionix	√	
Reliable Networking Solutions for Television Distribution over IP Helge Stephansen, Chief Technical Officer, T-VIPS	√	√
If I Can See It, I Should Be Able to Use It: Connecting Broadcast Production Systems with Social Media, UGC and Web Production Systems Mike Palmer, Dir. Design & Integration Strategy, Associated Press	√	√
The New Newsroom: Using Technology to Cover More News For Less Sean Morgan, Founder & CEO, Critical Media, Inc.	√	√

Tuesday, April 17, 2012
Network Security for Broadcast
Chairperson: Robert Seidel, VP, Engineering and Advanced Technology, CBS Television Network

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Securing Television in a Connected World Christophe Nicolas, Chief Technology Officer, Nagra Kudelski	√	
Securing Content for Multiplatform TV Steve Tranter, VP, Interactive and Broadband, NDS Americas	√	
Session-Based Watermarking: Protecting Video on Demand, Linear TV and Live Streaming on Broadband and Broadcast Networks	√	
IP Network Security for Broadcasting Leigh Whitcomb, Principal Engineer, Harris Corporation	√	√
Securing SNMP for Transmitter Control Brian Lindemann, Vice President RF Engineering, Broadcast Electronics	√	

Tuesday, April 17, 2012
The Broadcast Infrastructure
Chairperson: Gary Nadler, GM Telecommunications and Affiliate ServABC TV Network

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
IPv6: Why Do I Need To Implement? Wayne Pecena, Director of Engineering, Texas A&M University	√	
Hey! You! Get Off of My Cloud Keith Graham, Consultant, Independent Consultant	√	√
Monitoring the Whole MPEG Transport Stream Gary Learner, Chief Technical Officer, Volicon	√	√
Managing Modern "ALL-IP" Based on Super Head-End Shahin Arefzadeh, CTO/COO, Dimetis GmbH	√	√
The New Genlock: Generation of Broadcast Signals from Precision Time Paul Briscoe, Manager of Strategic Engineering, Harris Corporation	√	√
Dealing with Consumer Display Interfaces in the Professional World Peter Putman, Contributing Editor, Pro AV	√	√

Tuesday, April 17, 2012
Green Engineering for Broadcast
Chairperson: Glynn Walden, Senior VP Engineering, CBS Radio

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Weighted Carbon Footprint for Broadcasting Products Christian Wachter, Product Manager, Rohde & Schwarz	√	√
The ABC's of LED's John Gates, Lighting Director, Gates Service Group, Inc.	√	√
Making Redundancy Cheap and Green Leigh Whitcomb, Principal Engineer, Harris Corporation	√	√
Greening of Engineering Revisited Andrew Janitschek, Director, Program & Operations Support, Radio Free Asia	√	√
Transmission System Total Cost of Ownership Geoffrey Mendenhall, VP – Transmission Research & Technology, Harris Corporation	√	√
High Efficiency Transmission – Green Amplification Henry Rodrigues, Research & Development Engineer, Hitachi Kokusai Linear	√	√

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
LED Lighting Systems for Aviation Obstructions; Improving Safety, Quality of Light and Reliability also Makes Financial Sense Jerry Ehlers, Advocate, Dialight	√	
The Green Advantages of ATSC and DVB-T2 Stan Moote, Vice President, Business Development, Harris Corporation	√	√
Sustainability Aspects of Innovative Products in Broadcasting Dave Benco, Key Account Manager, Rohde & Schwarz USA, Inc.	√	√

Tuesday, April 17, 2012

Mobile TV Update: Domestic and International
Chairperson: Jeff Andrew, VP, Engineering and Operations, Fox Television DC

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Data-casting: What's Old is New Again using ATSC and ATSC-MH Broadcasts to Deliver Data to Remote Devices Don Tenhundfeld, Engineer, Harris Corporation	√	
Interactive Content Authoring for A/153 ATSC Mobile Digital Television Employing Open Source Tools Brad Fortner, Operations Director, Rogers Communications Centre	√	
DVB-T2-Lite: A Second Wind for Mobile TV? Peter Siebert, Executive Director, DVB Project Office	√	√
Use of Gap-Filler Technology to Create ATSC MH "Hot-Spots", a Field Study Matt Brandes, Transmitter Supervisor, WRAP-TV/Capitol Broadcasting Co. Joe Seccia, Project Engineer for TV Transmission Products, Harris Corporation	√	
Elliptical Polarization: Influences on the Performance of Digital TV Coverage Valderez Donzelli, MSC Engineer, Universidade Presbiteriana Mackenzie	√	√
Content Creation and Distribution Challenges for ATSC Mobile DTV John Mailhot, Director of Product Architecture, Harris Corporation	√	
Mobile DTV Status Report and Transmission Update Sterling Davis, Consultant, Open Mobile Video Coalition (OMVC)	√	√
Creation of a Library of RF Recorded Signals for ATSC Mobile DTV in a Single Frequency Network Environment Yiyan Wu, Principle Research Scientist, Communications Research Centre	√	√
Mobile DTV and the Development of Non-Real-Time (NRT) Applications Mark Rushton, Vice President, Broadcast Sales, Roundbox	√	
Mobile DTV as a Digital Radio Distribution Platform Joe Igoe, VP & Chief Tech Officer, WGBH		√

Wednesday, April 18, 2012

Engineering Management in Challenging Times
Chairperson: John L. Poray, Executive Director, Society of Broadcast Engineers

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
The Shortage of Broadcast Engineers: Is There, or do We Just Need to Know Where to Look? John L. Poray, Executive Director, Society of Broadcast Engineers	√	
Broadcast Engineering Perspective: A Useful Data Point in Planning for the Future Fred Baumgartner, Dir. Broadcast Operations, Harris Corporation	√	

Wednesday, April 18, 2012
Technical Regulatory Issues for Engineers
Chairperson: Gary Kline, Senior Vice President Engineering and IT, Cumulus Media

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
EAS: The Nationwide Test Is Over, So What's Next Moderator: Larry Walke, Associate General Counsel, NAB Panelists: Thomas Beers, Chief, Policy Division, FCC Antwane Johnson, Division Director, IPAWS, FEMA National Continuity Programs Mark Lucero, Chief, IPAWS Engineering, FEMA National Continuity Programs Sharon Tinsley, President, Alabama Broadcasters Association	√	
Implementation of Statewide Common Alerting Protocol (CAP) Delivery for EAS-Alabama Rolls Out New State Wide Satellite Network for EAS Distribution Larry Wilkins, Engineering Consultant, Alabama Broadcast Association	√	√
EAS Manufacturers Panel Panelists: Jared Maynard, Vice President, Comlabs Darryl Parker, Senior Vice President, TFT, Inc. Harold Price, President, Sage Alerting Systems, Inc. William Robertson, V.P. Business Development, Digital Alert Systems Matthew Straeb, Executive Vice President, Global Security Systems, LLC	√	
Technical Regulatory Panel Issues for Television Moderator: Ann Bobeck, Senior Vice President and Deputy General Counsel, NAB Panelists: Brett Jenkins, Vice President and CTO, LIN Media	√	

Wednesday, April 18, 2012
3G/4G for Broadcast
Chairperson: Joe Snelson, Vice President of Engineering, Meredith Broadcasting Group

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Addressing the Challenge of Live TV in Different Scenarios: A Practical Discussion Related to the "Edge" of Uplink Technology Avichai Cohen, COO and Co-Founder, LiveU	√	√
HD on the Go: How Mobile Broadcast Technologies are Easing the Transition to HD Paul Shen, CEO, TVU Networks	√	
Video Without Boundaries: Enabling Broadcast-Quality HDTV Over-the-Top Israel Drori, CEO, ZiXi	√	√
Mobile Newsgathering Bob Hildeman, CEO, Streambox, Inc.	√	
Bonding 4G LTE/3G for HD-Quality Live Video Transmission Rony Ohayon, CTO and Co-Founder, LiveU	√	√
Fattening the Pipe: Overcoming bandwidth constraints on 3G/4G Wireless Networks Paul Shen, CEO, TVU Networks	√	

Wednesday, April 18, 2012
Media Archiving
Chairperson: Jim Kutzner, Sr. Director, Advanced Technology, PBS

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Managing Audiovisual Archives Tony Taylor, Chairman & CEO, TransMedia Dynamics Ltd.		√
Adoption of Large-Scale HD File-Based Systems at the NHK News Center Hidetoshi Yuzaki, Principal Engineer, NHK (Japan Broadcasting Corporation)	√	√
One Size Does Not Fit All: How to Use the Different Implementations of Solid-State Storage to Accelerate Video Workflows Scott Cleland, Senior Manager, Worldwide Channel Marketing, LSI Corporation	√	√
Media Archiving Simon Eldridge, Senior Manager, Management Applications, Harmonic Inc.	√	√
The Building of a Fine-Tuned Digital Library Karl Kandell, Senior Director, Turner Broadcasting	√	√
Storage, Sharing and Archiving in Media and Entertainment: Strategies and Best Practices Edwin Childers, Tape Platform Manager, Systems and Technology Group, IBM Corporation Krishna Nathan, Vice President, Storage Systems Development, IBM Corporation	√	

Wednesday, April 18, 2012
Disaster Preparedness and Recovery
Chairperson: Jim Stagnitto, Director of Engineering, New York Public Radio – WNYC/WQXR Radio

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Stormy Weather: Making an Effective Business Continuity Plan in the Cloud Sarah Foss, Interim SVP Media, Edge Technology Services	√	
Preventing the Next Tower Disaster David K. Davies, Partner, Engineering Consulting Firm, CEI-Consolidated Engineering, Inc.	√	
Covering the March 11, 2011 Disaster in Japan Katsunori Osada, Engineer, NHK (Japan Broadcasting Corporation)	√	√
Tailoring a Disaster Recovery Plan to Your Business Continuity Requirements Richard Buchanan, VP & General Manager, Content Services, Comcast Media Center	√	

Wednesday, April 18, 2012
Hybrid Television
Chairperson: Brett Jenkins, Vice President and CTO, LIN Media

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Basics of Over-the-Top (OTT) Video for Broadcast Engineers Danny Wilson, President & CEO, Pixelmetrix Corporation	√	√
Connected Television: Relationship to the Broadcaster Rich Chernock, CTO, Triveni Digital	√	
Making Smart Devices Smarter Automated Content Recognition – What it is, Why it is Critical, and Who Will Benefit Jay Friedman, VP Product Management, Audible Magic	√	√
Next Generation Advertising: Marrying Broadcast and Unicast Stuart Lipoff, President, IP Action Partners Inc.	√	√
Stream Switching: Addressable TV Commercials for TV Everywhere Greg Philpott, Founder & President, mDialog.com	√	
An Implementation on Hybrid Service of Terrestrial Mobile Broadcasting with Web Technology Shinil Chung, Researcher, Korean Broadcasting System	√	√
Convergence of Datacasting and Interactive Communications − Technologies and Examples in Japan Kenichiro Ishijima, Engineer, Nippon Television Network Corporation	√	√

Thursday, April 19, 2012
Broadcast 3DTV
Chairperson: Youngkwon Lim, ETRI

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Enhancing the 3D TV Experience through Next-Generation 3D Audio Coding and Processing Technology Jean-Marc Jot, VP, Research and Development, DTS	√	
High-quality 3D Baseball Games Broadcast Live using Stereoscopic Image Capturing, with Realtime 3D CG Overlays to Ease Visual Fatigue of the Viewing Audience Tsukuru Kai, Engineer, Nippon Television Network Corporation	√	√
SMPTE and 3D: Making It All Work Together Chris Lennon, CTO Group Lead, Harris Corporation	√	
Advanced ATSC Service with MPEG-4 Jong Won Park, New Media Strategy Director, KBS	√	√
Transmission of Second Generation 3DTV: Challenges, Risks and Opportunities Aurora Mourelle, R&D Engineer Jorge Rodríguez, R&D Project Responsible Inés Sanz, Head of Customer Engineering, Hispasat	√	√
Depth Based Trifocal Systems, a Flexible and Efficient Way towards Broadcast 3DTV Ralf Tanger, Project Manager, Fraunhofer-Gesellschaft HHI	√	√
The Importance of Testing 3D Content for Broadcast Juan Reyes, CTO, BluFocus	√	√
200-inch Glasses-free 3D Display with Wide Viewing Angle Masahiro Kawakita, NICT	√	√

Thursday, April 19, 2012
Saving Energy with MDCL
Chairperson: Martin Stabbert, Regional Engineer, Cumulus Media, Inc.

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Energy Savings with MDCL Daniel Maxwell, Electronic Engineer, International Broadcasting Bureau		√

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEEDINGS
Saving Power with AM IBOC Using Modulation-Dependent Carrier Level Control Brian Walker, Research Engineer, Nautel	√	√
Application of Modulation Dependent Carrier Level ("MDCL") Control Technologies to Amplitude Modulation Transmission Systems Terry Cockerill, Systems Engineer, Harris Corporation	√	√

Thursday, April 19, 2012
Graphics for Radio
Chairperson: Martin Stabbert, Regional Engineer, Cumulus Media, Inc.

PRESENTATION	ONLINE LEARNING CENTER	BEC PROCEED-INGS
Understanding and Deploying RadioText Plus (RT+) Alan Jurison, Senior Operations Engineer, Clear Channel Radio	√	√
Creating Real Web Video with Virtual (Few) Resources Gordon Burnett, Production Engineer III, Radio Free Asia Andrew Janitschek, Director, Pgm & Ops Support, Radio Free Asia	√	√