2011 NAB Broadcast Engineering Conference

Saturday, April 9, 2011

Infrastructure: Keeping It Going in Challenging Times
8:00 a.m. – 5:15 p.m.
Las Vegas Convention Center, Room S219

Chairpersons: Fred Baumgartner, Director of Operations, Harris
Tom Mikkelsen, Broadcasting Consultant

8:00 – 9:00 a.m.
Tutorial: Infrastructure 101
Is it time for you to build a new facility, studio, technical, or non-technical space? Are you faced with challenges in maintaining or fixing an existing one? In this session we will cover: The basics – architectural, structural, mechanical, electrical, plumbing The players – architects, design consultants, MEP, GC, contractors, integrators, inspectors Project management – developing a scope of work, design, costing, scheduling, finance, contracting, insuring, construction Regulations – code (ADA, NEC, security, fire, earthquake, flood), regulatory concerns (approvals, permitting) Technical Design - space planning, power, acoustics, noise and vibration control, cooling, sound, video, data, lighting Budgeting - ROM figures for studio, tech and office space USGBC LEED - strategies aimed at improving performance (energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts)

Speakers: Ronald Eligator, Principal, Acoustic Dimensions; Arthur Metzler, Managing Principal, AMA Consulting Engineers, P.C; Neil Tucker, Principal Design Republic; Stuart Reynolds, Central US Senior Manager Diversified Systems

9:00 – 9:10 a.m.
Opening Remarks - Break
Speaker: John Poray, Executive Director, SBE

9:10 – 10:00 a.m.
Tutorial: Infrastructure 101- Part II
Is it time for you to build a new facility, studio, technical, or non-technical space? Are you faced with challenges in maintaining or fixing an existing one? In this session we will cover: The basics – architectural, structural, mechanical, electrical, plumbing The players – architects, design consultants, MEP, GC, contractors, integrators, inspectors Project management – developing a scope of work, design, costing, scheduling, finance, contracting, insuring, construction Regulations – code (ADA, NEC, security, fire, earthquake, flood), regulatory concerns (approvals, permitting) Technical Design - space planning, power, acoustics, noise and vibration control, cooling, sound, video, data, lighting Budgeting - ROM figures for studio, tech and office space USGBC LEED - strategies aimed at improving performance (energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts)

Speakers: Ronald Eligator, Principal, Acoustic Dimensions, Arthur Metzler, Managing Principal, AMA Consulting Engineers, P.C.; Neil Tucker, Principal, Design Republic; Stuart Reynolds, Central US Senior Manager, Diversified Systems

10:00 – 10:45 a.m.

Broadcast Engineering in Modern Economic Times; Bankruptcy and the Reorganization of Broadcast Facilities

This 45-minute seminar will address issues faced by broadcast engineers whose companies are in reorganization or bankruptcy. An overview of United States bankruptcy laws will be provided followed by a discussion of some of the unique problems faced by broadcast engineers, be they employees of the company in reorganization or contract engineers, as the result of the status of their employers.

Speaker: Chris Imlay, Partner, Booth, Freret, Imlay & Tepper, P.C

10:45 – 11:30 a.m.

Keeping It Going in the Real World

When critical station equipment is down, the pressure is on the engineering department. This is a time for engineering to shine - if advance planning has been implemented. In this presentation, a variety of solutions, with photos, to catastrophic problems will be discussed. Not all solutions need to be costly, and their implementation may save your job!

Speaker: John Bisset, Business Development Executive, Amercias, Tieline Technology

11:30 a.m. – 12:15 p.m.

Monitoring and Control for Broadcast Infrastructure

The modern remote control system is a necessity that can also assist engineering staff by tracking the routine and mundane items that often get overlooked. While we expect M&C systems to alert key personnel to prevent downtime and avoid damage to the station's systems, M&C systems can also track the health of the PCs in your play-out and support systems -- even things as mundane as available drive space, fan and power supply statuses. Monitoring off air data for program statistics and time information as well as closed captioning and other announcement services are all on the modern M&C capabilities list. M&C systems can support your operators with ready access to information, policies and practices, and even root cause analysis so they have the information in front of them automatically to get to the answers when alarms occur.

Speaker: Brad Strommen, Project Manager, Engineering, Comcast Entertainment Group

1:30 – 2:15 p.m.

IT Infrastructure & the Accidental Administrator

In this presentation, attendees may recognize the long path which led Brad from a career which was squarely oriented in the broadcast domain down the slippery slope of IT to the role of Accidental System Administrator. Brad presents lessons

learned along the way as he worked with one foot in the broadcast space and the other foot in the IT world. Brad will discuss AS-02 and AS-03, which are critical components of file-based workflows. He concludes with a discussion of service-based media workflows - the next likely evolution in the merging of broadcast media and the IT world.

Speaker: Brad Gilmer, President, Broadcast Engineering

2:15 – 3:00 p.m.
Improved Tower Management by Understanding the Three C's of Structural Failure: Causes, Cost, and Cures
Broadcasters may have choices concerning which structural design code or parts of that code can pertain to analyzing or reinforcing their towers. This paper will explain how to effectively use the intricacies of each design code to achieve the broadcasters' objectives, which could include: increasing the tower's antenna load capacity, meeting insurance or community requirements, or, most importantly, preventing a tower disaster.

Speaker: David Davies, Director, Structural Services & Products, ERI

3:00 – 3:45 p.m.
KREX - The Real World of Disaster Recovery
For most engineers, the Disaster Recovery Plan is a file on their hard drive that is a rarely updated and a sketchy plan on what should be done if the station is destroyed. Find out what real world lessons in disaster planning were learned when the CBS and Fox affiliate in Grand Junction, Colorado burned completely to the ground and the Super Bowl was just two weeks away.

Speaker: Skip Erickson, Manager of Systems Engineering and Applications, Harris Professional Services

3:45 – 4:30 p.m.
Maintaining Power for Broadcast Facilities
For most broadcast engineers, it is critical to have reliable back-up power in the case of a power outage. A good Preventative Maintenance program is essential for the emergency back-up generators and transfer switches. A proper Preventative Maintenance program also will save the end user money in the long term as costly corrective maintenance is reduced. Bay City learned in the last two rounds of fires in Southern California just how absolutely critical the power systems are, and will share their lessons learned.

Speakers: William Havrilla, Director Product Support and Service Operations, Bay City Electric Works: Steve Agan, Director of Business Development, Bay City Electric Works

4:30 – 5:15 p.m.
Transitioning to IPv6
IP version 6 addressing has lived in the bowels of government and University research for many years. However, its time has now arrived, and time for a "call to action" as IPv4 addresses that we know today are about to become exhausted. The desire for more wireless spectrum to support a vast array of

wireless network enables devices cannot be implemented without additional IP addressing space to network enable the seemingly unsatisfied desire for device connectivity. This presentation will address the fundamentals of IPv6 addressing, by providing a technology foundation to understand the addressing terminology and fundamentals. Comparison and contrast to familiar IPv4 concepts will be used to assist in the understanding of IPv6 basics. IPv4 to IPv6 migration strategies and challenges will be incorporated with examples oriented towards the broadcast and media content provider to help chart your IT infrastructure preparation for the future.

Speaker: Wayne Pecena, Director of Engineering, Texas A & M University

Sunday, April 10, 2011

The Future of Radio Broadcasting
9:30 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Dom Bordonaro, Chief Engineer, Cox Radio Inc.

9:30 – 10:00 a.m.
Next Generation of Radio Content Collection and Delivery Tools
In the new context of networked multi-media, multi-platform radio architecture, this paper will present an overview of several new small content collection and delivery tools including the new enhanced 3G/4G smart phones video and audio capabilities for recording, editing, real-time streaming and uploading, from the field. The paper will include reliability, transport QoS, audio quality and interoperability issues. This presentation will explain how to use these devices for remote programs such as sports, special events, breaking news reporting and in emergency situations. Part of the new radio context, topics such as studio virtualization, interactive radio, video for radio and IP encapsulation for MPEG TS feed, will also be discussed.

Speaker: Pierre Robidoux, Senior Engineer, CBC / Radio-Canada

10:00 – 10:30 a.m.
Media on the Move: From Applets to Craplets
Radio and television have embraced the digital world and as technology continues to change, engineers lead that change. In this paper, we will look at useful, and some not so useful, applets that apply to our daily engineering and broadcast work. No matter what smart phone you use at your station or network, whether it be the Android (aka Droid), the iPhone, or some other make, this paper will help expose broadcast professionals to valuable applications, some of which are free, that go a long way in helping make broadcasters work not only smarter, but make that work load easier. We will end with a look at specific applets Radio Free Asia uses ‘in the trenches’ to accomplish our daily audio and video productions.

Speaker: Andrew Janitschek, Director, Program & Operations Support, Radio Free Asia

10:30 – 11:00 a.m.
Migrating Radio Call-in Talk shows to Wideband Audio
The very first radio talk show sounded much as they do today--Radio hosts are heard in full fidelity wideband quality, but listener callers sound thin and grating. This is due to the limitations of the telephone network, which only allows a small portion of audio spectrum to pass. Information is conveyed, but much emotion and nuance is lost. With the advent of mobile smart phones and Voice-over-IP technology, it's possible to create a radio talkshow where guests sound as good as the host. This creates an experience that is much less fatiguing to the listener, resulting in longer TSL and higher ratings. We present a new telephone talkshow product that can blend phone calls from traditional sources, as well as new wideband calling sources like VOIP clients and Skype. Stations can encourage

their listeners to call using these new, wideband telephone applications and create a much more compelling and listenable on-air product.

Speaker: Tom Hartnett, Technical Director, Comrex

11:00 – 11:30 a.m.

Adding Visual Communications to Radio Broadcasts

In 2010, Premiere Radio Networks revolutionized the way radio stations participate in remote broadcasts. As part of Premiere's annual radio remote broadcast leading up to "The 44th Annual CMA Awards," Country radio stations are using cutting-edge video and telepresence solutions to virtually participate in the remote broadcast from Nashville. This innovative technology allows stations to interview Country Music's biggest stars via live video, thus minimizing onsite staff to a single representative. These "video-link" stations also have the unique opportunity to immediately post video of the interviews on their station's Web sites. This game-changing approach to delivering the CMA Awards to radio stations and their listeners/online audiences around the world creates location liberation so people can have more engaging, interactive experiences in new ways that defy the boundaries of distance.

Speakers: Beth Tepper, SVP Integrated Marketing and Promotions, Premiere Radio Networks; John Antanaitis, VP Product Marketing, Video Solutions Division, Polycom

11:30 a.m. – 12:00 p.m.

The Impact of Consumer Devices on Radio Content Development and Engineering

The lines between consumer and business products have blurred. You can now run many functions of your radio station from your smart phone or tablet computer. Remotes, engineering functions, programming adjustments and voice tracking all utilize consumer technology. Costs are constantly improving and migrating to unique engineering possibilities is achievable now. Easy to use consumer hardware and thousands of well-written software programs combined with the social networks have changed the face of broadcasting. The global village has arrived and smart radio people are jumping into the village with both feet. A radio station is no longer just a radio station. Radio is a content provider that needs to tap into the millions of outlets for their content. With terrestrial broadcast, internet streaming, HD channels, downloadable podcasts, mobile phones being landing places for radio content, broadcasters have to move quickly. Tech savvy consumers expect to be able to click a button and get whatever content they way, for free, or for minimal cost. Program Directors and Engineers need to work together to take on the challenges and find solutions that keep them on the cutting-edge. Join us as we review the new face of broadcasting brought in large part by consumer driven demands and choices.

Speaker: Chip Jellison, EVP - Technology and Development, RCS

Sunday, April 10, 2011

The Future of Television Broadcasting
9:30 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S219

Chairperson: Jim Kutzner, Chief Engineer, PBS

9:30 – 10:00 a.m.
Non-Real-Time Delivery of Broadcast Services
Television viewers are becoming accustomed to being able to access content whenever they want, as opposed to on a pre-scheduled basis. Digital Television technology is rapidly changing to enable new consumption and distribution models and receiving devices are getting smarter and contain persistent storage. These factors combine to allow a shift from linear TV viewing to on-demand consumption of content. One of the main enablers of this shift is the capability for Non-Real-Time (NRT) delivery of content – content that is delivered in advance of use and stored in the receiving device for access on demand. NRT content can include both “traditional” TV fare, information that is not now part of traditional TV fare or that is presented in a customized and non-traditional way as well as information not aimed at the TV at all (including content targeted to PCs, handheld media players or even commercial platforms). The newly emerging Non-Real-Time Services standard within ATSC has been designed to address this need for both fixed and mobile broadcasts. This presentation will give an overview of NRT services (what they are and some example use cases), explain the underlying technology/standard and discuss some of the considerations for adding NRT capabilities to a DTV broadcast system.

Speaker: Rich Chernock, CTO, Triveni Digital

10:00 – 10:30 a.m.
Live Sports Production of 22.2 Multi-Channel Sound for Super Hi-Vision TV
NHK (Japan Broadcast Corporation) presents, as the world's first project, 22.2 multi-channel sound for “sports” events with Super Hi-Vision (SHV) pictures. The topic covers the processes and discussions including examples of figure skating, swimming, and more. How can it be possible to make “the emotion of being in a real place"? The question is naturally raised by “live” broadcast situation that is consistently essential for “sports” events. The extremely unique feature, consisting of the three-layered audio including height channels while 4320 scanning lines and 110 degrees viewing angle of the screen, is surely expected to answer it, having the possibility of much higher sense of presence and immersion, and the ability of both lateral and vertical sound expression over the image. The presentation deepens the subject of the discussions of capturing sounds of field play and venue Ambience matching to SHV, psychoacoustic cue of making the sense of immersion, and developments of dedicated devices, in order to make a successful next-generation standard of broadcast audio.

Speaker: Tsuyoshi Hinata, Principal Engineer, Outside Broadcast Engineering

10:30 – 11:00 a.m.

Captioning for Next Generation Broadcasting

Television broadcast is evolving at breakneck speed. In turn, technology shifts are transforming the services that broadcasters are offering to their viewers. Most broadcasters are at least in the process of doing one of the following: transitioning to tapeless, upgrading to HD delivery, exploring multi-platform delivery, and rolling out multi-language feeds. Some are also focusing on 3D, but all, without exception, face the key business challenges of generating new revenue streams, or reducing operating costs, or both. In these proliferated and globalized workflows, captioning and subtitling provision needs more than ever before to remain simple, yet extremely flexible, efficient and reliable while delivering ROI quickly. This paper explains how broadcasters can transition their services to enable captioning and subtitling across multiple-language, in multiple-format and over multi-platform systems. This can be achieved through tight integration with workflow and automation systems, and through tight alignment with broadcast schedules.

Speaker: Sam Pemberton, Chief Executive Officer, Softel

11:00 – 11:30 a.m.

DVB 2nd Generation Standards: Commercial and Technical Drivers

The DVB Project was created about 17 years ago to provide the standards for digital television in Europe. Soon after the specifications for digital transmission via satellite, cable and terrestrial (DVB-S/C/T) were created are by now deployed widely. Following the success of these first generation standards DVB has developed second versions of these specifications: DVB-S2, DVB-T2 and DVB-C2. In the DVB session we will provide the commercial as well as the technical drivers of the 2nd generation standards. We will analyze the change of broadcast environment and the resulting requirements for new specifications which are described in DVB Commercial Requirements. Based on these requirements technical solutions have been derived. These solutions will be described and the corresponding performance will be discussed. Furthermore we will deliver an overview of the deployment of these specifications on a worldwide basis. Complementing the new transmission standards DVB has also created a new version of the DVB Common Scrambling algorithm CSA-3. This algorithm shall provide sufficient security for high value content such as High Definition TV (HDTV) as well as 3DTV. A short overview of this algorithm and the corresponding license condition will be provided. Finally we would like to give an outlook on upcoming specifications from DVB.

Speaker: Peter Siebert, Executive Director, DVB Project Office

11:30 a.m. – 12:00 p.m.

Current Status and Future Prospects of Initiatives for Disaster Prevention Information Dissemination in Data Broadcasting

By taking advantage of the unique features of digital TV, NHK has been providing its viewers with disaster prevention information using data broadcasting. A system that automatically produces and transmits data broadcasting contents based on various kinds of disaster information, such as information about river conditions and evacuation systems that are sent in a common format from different municipalities, was built and is now fully operational. An overview of the

data broadcasting system, as well as its functions, features and operational performance will be discussed.

Speaker: Norio Sasaki, Data Broadcasting Technologies and Applications, Japan Broadcasting Corporation (NHK)

Sunday, April 10, 2011

Implementing Mobile TV
1:00 – 5:00 p.m.
Las Vegas Convention Center, Room S219

Chairperson: Brett Jenkins, VP Technology, ION Media Networks

1:00 – 1:30 p.m.
Mobile DTV Implementation: A Status Report
The three-year effort to develop a comprehensive system for mobile and handheld digital television services—known as ATSC Mobile DTV—has moved from standardization to implementation. This milestone, along with the launch of other mobile delivery systems, has ushered in a new era for content suppliers and distributors. This presentation will examine key areas of ATSC Mobile DTV implementation and outline the fundamental technologies that make up the new system. In addition, the status of work on planned enhancements will be reviewed. ATSC Mobile DTV was developed to support a variety of services including free (advertiser-supported) television and interactive services delivered in real-time, subscription-based TV, and file-based content download for playback at a later time. The standard can also be used for transmission of new data broadcasting services

Speaker: Jerry Whitaker, VP, Standards Development, Advanced Television Systems Committee

1:30 – 2:00 p.m.
Update on ATSC M/H Field Testing
This presentation will discuss the current field testing projects on the ATSC M/H standard. The presenter will detail the objectives, techniques, and results of field testing the ATSC M/H system.

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

2:00 – 2:30 p.m.
ATSC Mobile DTV Gap Fillers, Repeaters and Translators
This presentation will look at a wide range of possible solutions for the architecture of ATSC Mobile DTV gap fillers, repeaters and translators. The advantages and disadvantages, as well as the limitations, of each type of device will be reviewed. Technologies such as digital IF filtering and adaptive echo cancellation will be covered in detail, along with planning factors for on-channel repeaters, including power limitations when repeating an off-air received signal. The presentation will also look at the various types of ATSC mobile coverage challenges and match up the possible solutions that will enable adequate mobile signal coverage. This includes solutions for the urban canyon, inside office buildings and other similar challenges.

Speakers: Jay Adrick, Broadcast Systems Technologist, Harris; Joe Seccia, Project Engineer for TV Transmission Products, Harris

2:30 – 3:00 p.m.

Updating the STL for Mobile DTV Operations

Significant investment in the infrastructure of Studio-to-Transmitter Links (STLs) has been made during the conversion from analog to digital television (DTV) operations. Now another conversion is on the horizon – from standard to Mobile DTV (M-DTV) operations. Using the same STL equipment to carry the more complex data required for M-DTV will help to minimize the costs of adding M-DTV to existing DTV facilities. To enable M-DTV operations on existing STLs, a great deal more synchronization between systems at the two ends of the link is required. Certain constraints also are required on the processing that can occur as the data stream is transported across the link. The synchronization will be provided by equipment installed at the ends of the link; the link constraints must be taken into account in the design of the link itself and in the terminal gear that is connected to it. The presentation will describe the systems at the two ends of the link and the synchronization required between the various subsystems. It will describe new standardized methods for providing the needed synchronization – both for single transmitters and for single-frequency networks (SFNs) – that will allow interoperability between equipment of different manufacture. Most importantly, it will explain the system limitations that must be observed in order to obtain a successful M-DTV STL.

Speaker: S. Merrill Weiss, President, Merrill Weiss Group LLC

3:00 – 3:30 p.m.

Distributed Antenna Repeater Systems for Mobile TV Broadcast

Explore the viability of mobile handset content delivery with the assistance of a distributed antenna repeater system. Present real life implementation examples covering the system architecture, design overview and sample equipment list. Discuss transmit options as it relates to varying applications such as stadiums, city centers and mass transit.

Speaker: Daniel Barton, Director of Engineering, Alive Telecom

3:30 – 4:00 p.m.

Non-Obvious Considerations for Adding Mobile DTV to a Broadcast Station

ATSC MobileDTV is a new, emerging technology that offers considerable potential to a broadcaster, including new business models and retention of viewers. Some of the changes needed to add MobileDTV capabilities to a station involve obvious additional or modified equipment (encoders, multiplexer, transmitter). However, there are a number of other non-obvious considerations: Workflow – both scheduling and metadata management Viewing habits Content Considerations (video and audio) Adding interactive services Service protection While much of this is still new and the implications are still being understood, this presentation will provide a summary of the considerations necessary for adding MobileDTV and discuss what has been learned so far on these topics.

Speaker: Rich Chernock, CTO, Triveni Digital

4:00 – 4:30 p.m.

The MDTV Opportunity

The new ATSC Mobile DTV Standard will give broadcasters the ability to tap new revenue sources and grow their audience, by delivering a wealth of video content and exciting new interactive services to handheld and vehicular devices. We will present a vision of the not-so-distant future of television, from both the broadcaster and consumer perspectives, followed by a discussion of how to launch a financially viable and successful service. A key component of this new opportunity is a two-way interaction channel that will allow broadcasters to not only conduct personalized content transactions with individual viewers, but to also gather valuable direct information regarding viewer interests, behavior, and content consumption. This interaction channel will enable a level of interactivity that places unprecedented power in the broadcasters' control. We will show how broadcasters can take a step-by-step approach to a realistic deployment, beginning with a limited market trial aimed at proving out various services, and leading to a larger scalable launch.

Speakers: Aldo Cugnini, Co-Founder, Vimionix; Louis Libin, President, Broad Comm, Inc.

4:30 – 5:00 p.m.

Experimental Relation Between Signal Power and Service Level for Mobile DTV

The Digital TV standard adopted in Brazil has the capability of delivering mobile reception within the same channel used for the fixed service. The availability of mobile services created the need of extensive measurements of service robustness and also the need of comparison with predicted coverage. Three heavily urban cities were selected to represent three profiles of environment and terrain, varying from a flat condition to a very rough distribution. In each city the measurements were made with a drive test system equipped with an omni-directional antenna, GPS receiver, 1-SEG demodulator and an acquisition data system. The measured parameters were position, BER before and after Reed-Solomon decoder, received power, signal-to-noise ratio and speed. A total of more than 185.000 points were measured and statistically treated to achieve the required signal power level for the specified service availability. Obtained results were compared with the link budget used for channel planning where additional fading and multipath margins were added to predict the service level.

Speaker: Francisco Peres, Engineer, Globo TV Network

Sunday, April 10, 2011

Improving HD Radio
1:00 – 4:30 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Steve Fluker, Director of Engineering, Cox Media Group, Orlando

1:00 - 1:30 p.m.
PAPR and Asymmetrical Sidebands Field Results: HD Radio Coverage Technologies
Nautel, Ltd., NPR Labs and WAMU (Washington, DC) will discuss an enhanced PAPRIL (Peak to Average Power Reduction) algorithm for HD Radio™ broadcasters which can provide up to 30% more transmitter output power while simultaneously improving operating efficiency. It also permits regeneration of the HD Radio sideband carriers at whatever ratio is required, and asymmetrical operation is supported. This presentation is the final phase, whereas prior NAB papers on the topic showed proof of concept. Here, independent laboratory verification measurements and on-air transmission monitoring will provide data on actual broadcast operation. NPR Labs performed verification testing with measurements of host compatibility, including simulated multipath conditions, in comparison to the standard iBiquity PAPRIL. WAMU has been operating with the HD PowerBoost™ system since 25 September 2010 for on-air verification prior to final product release to customers and will provide solid data to demonstrate the benefits of asymmetrical sideband power when an allocation does not permit full -10 dBc IBOC levels on both sidebands. The paper will provide an overall summary of HD PowerBoost and NPR Labs will highlight their testing and verification, while WAMU will provide information regarding the actual on-air performance.

Speakers: Hal Kneller, Market Development Manager, Nautel; John Holt, Director of Engineering and Operations, WAMU 88.5 FM American University Radio; John Kean, Senior Technologist, National Public Radio

1:30 – 2:00 p.m.
A Standardized Method for Radio Program Service Data Distribution
This presentation will cover recent efforts by the PSD Task Force of the iBiquity Public Radio Advisory Board to develop a flexible, extensible standard for metadata packaging and distribution that addresses the largest obstacle to broader deployment of PSD services among broadcasters who air programming from multiple sources. Rather than requiring each broadcaster to aggregate data from all programming sources manually, the Task Force has developed a method to enable program producers to provide a standard xml package of metadata through the program audio delivery channel, allowing semi-automated creation of PSD feeds synchronized with the station's broadcast schedule. The method will be described in detail, including details about the system architecture, examples of several distribution paths and programming types considered as case studies, and techniques for managing incoming data at the station level. The xml schema for the data will be covered in depth, since this standard package forms the core of the new approach and enables flexible redistribution and reuse of the data

across multiple platforms. Details of a live demonstration of the method using actual public radio programming delivered via the Public Radio Satellite System during the Convention will also be discussed.

Speakers: Bruce Wahl, Senior Solutions Architect, NPR Distribution;
Dan Mansergh, Director of Engineering, KQED Public Radio

2:00 – 2:30 p.m.

New Developments in Master FM Antenna Systems

As more and more FM stations consider consolidation on a common site to lower expenses or look to upgrade present systems for improved performance, the design of Master FM Antenna Systems is evolving. New systems recently installed in the United States and Brazil have unique features for those broadcasters including the power levels, coverage, introduction of digital transmission, auxiliary capabilities and installation requirements. This paper will describe how these requirements are addressed with the broadcasters and the subsequent development of the hardware (antenna components) and antenna system to produce the desired results. Actual installations will be used as case studies for demonstrating the implementation and final performance of the design solutions.

Speaker: Keith Pelletier, Director, Engineering, Dielectric Communications

2:30 – 3:00 p.m.

Decision Points and Implementation Considerations for Elevated HD Radio Power

Broadcasters are faced with several choices for implementing elevated HD Radio power ratios now allowed by the FCC. In this session, BE Vice President of RF Engineering Brian Lindemann will outline the decision points broadcasters need to consider in order to determine the best implementation for their stations. He will cover cost and complexity of installation and offer an in-depth look at techniques for increasing transmitter efficiency, including a new approach to peak-to-average ratio reduction and transmitter linearization through pre-distortion called Vector Power Enhancement (VPe).

Speaker: Brian Lindemann, Vice President RF Engineering, Broadcast Electronics

3:00 – 3:30 p.m.

Using the IBOC Quality Metric to Optimize the transmission System for HD Radio Reception

The IBOC Quality metric introduced last year, gave Broadcasters a tool to determine if HD Radio signal met MER, pilot carrier levels, and flat frequency response criteria. While pass/fail measurements are useful, a detailed analysis is required to identify where the transmission system requires improvement. Even a metric passes, it may be possible to improve reception at the edge of the service area by using it to provide a glimpse of what the receiver would see. This paper examines sources of signal degradation that affect IBOC reception by using a practical implementation of the IBOC Quality Metric. The effects of transmitter non-linearity can be measured and by using adaptive predistortion the impact on reception can be minimized. Frequency responses in the transmission path can

be quantified, and should ideally be equalized in the exciter to improve the receiver locking time. Finally, the most significant signal degradation in IBOC signals will be due to PAPRIL reduction. While this allows for less transmitter overhead being required for a given FM carrier power, or for higher sidebands on the same transmitter, the trade off may be a slight deterioration in the metric and associated coverage area. Broadcasters can use the techniques presented in this paper to optimize transmitters for their preferred combination of efficiency, power output, and IBOC signal quality.

Speaker: Brian Walker, Research Engineer, Nautel

3:30 – 4:00 p.m.

New Vector Power Enhancement (VPe) Scheme Yields Greater Transmitter Efficiency for Elevated FM HD Powers

A new approach to crest factor reduction and distortion pre-correction provides improved transmitter efficiency for elevated HD Radio power outputs allowable by the FCC as of earlier this year. In this paper, BE Vice President of RF Engineering Brian Lindemann explains Vector Power Enhancement (VPe), a new approach involving peak-to-average ratio reduction and transmitter linearization through pre-distortion to yield greater transmitter efficiency and output power for elevated HD Radio power ratios -14dBc and up to -10dB below the FM analog power. Along with greater transmitter efficiency overall, among the benefits of VPe is the backward compatibility with existing transmitters in the field.

Speaker: Brian Lindemann, Vice President RF Engineering, Broadcast Electronics

4:00 – 4:30 p.m.

Transmitter Cooling Technologies and Tradeoffs

As authorized HD Radio™ digital injection levels increase, the overall AC to RF efficiency of the typical FM broadcast transmitter is compromised. At the same time, the options for, and use of, high power hybrid solutions (both tube and solid state) has increased significantly since the HD Radio rollout began. This presents a challenge to both the manufacturer and the broadcaster to improve cooling techniques and operating environment. While FM broadcast transmitters have been traditionally air cooled, water cooled approaches have also been tried. This paper examines the relative advantages and disadvantages of air vs.water cooling for high power HD Radio hybrid FM transmitters.

Speaker: Gary Liebisch, Eastern Region Sales Manager, Nautel

Monday, April 11, 2011

Cloud Based Technologies for Broadcast
10:30 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Greg DePriest, VP-Technology Policy, NBC Universal

10:30 – 11:00 a.m.
Planning for the Cloud - Essential Concepts and Applications for the Media Facility
Cloud computing will change the landscape of the media facility. Coverage includes review of fundamentals, business benefits, three cloud types compared. Public and private clouds are contrasted. Cost analysis is examined for several case studies. Server and storage virtualization is shown to be the key enabling technologies for secure, efficient and on-demand use of cloud computing resources. Review of enablers/inhibitors to usage. Finally, presentation methods for thin-client web applications (Rich Internet Applications) will be covered with emphasis on benefits for the media facility.

Speaker: Al Kovalick, Strategist and Fellow, Avid

11:00 – 11:30 a.m.
Does Cloud Computing Matter? Or, is there a Cloud in Your Future?
This presentation will take the mystery and esoteric-nature out of cloud computing for M&E companies seeking a solution. It will explore the following areas: 1) What is a media cloud and what does it mean to broadcasters? Beginning with the NIST framework and explaining the basic deployment models and services provided in a cloud architecture. 2) What has cloud done for me lately as a broadcaster? Explore how what broadcasters have done in the past and how they have used consolidation models for transmission and emission; and, how broadcasters think and act has always included a cloud-like paradigm. 3) What are the use cases and business models that cloud has to offer? Discuss certain “sweet spot” and “no brainer” cloud applications, as well as explore some emerging use cases and business models that innovative media companies are adopting. Describe some recent implementations of private and hybrid cloud architectures such as transmission facility resilience, rights management, archive monetization, and the manufacturing of derivatives (packaged digital goods).

Speaker: John Hoehn, Senior Consultant / IT Architect, IBM Media and Entertainment

11:00 a.m. – 12:00 p.m.
Cloud-Based Graphics Creation Offers Broadcasters Lofty Rewards
In the realm of broadcast graphics, new Internet-based approaches can mitigate and even eliminate the crippling cost structures dictated by conventional workflows. Today, the twin technologies of cloud computing and Software as a Service (SaaS) empower broadcasters to employ online graphic services and complementary applications in a more versatile and cost-effective centralized graphics creation model. This presentation will examine the possibilities presented by Web-based workflows, discuss ways in which such workflows

reduce equipment and operational costs, and provide an overview of how broadcast stations can transition to a game-changing approach to graphics. In addition to outlining the requirements and benefits of this approach, the session will also provide real-world examples including a case study profiling one broadcast group's successful shift to online content creation.

Speakers: Todd Martin, Vice President, Strategic Partnerships and Professor, Chyron; William Hendler, Chief Technology Officer, Chyron

Monday, April 11, 2011

TV Loudness and Lipsync
10:30 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S226

Chairperson: Larry Ness, Director of Spectrum Management, CBS Corporation

10:30 – 11:00 a.m.
Fingerprinting for Solving A/V Synchronization Issues
In modern TV production and distribution system, problems with synchronization of the audio and video content are very common. Audio to video delay can occur at multiple points in the system, Audio / Video fingerprinting has emerged as a simple and effective technology to track and correct A/V synchronization problems. This presentation will look at how A/V fingerprinting technology can be used to solve the A/V synchronization problem, including the generation of the fingerprint, the transport and the correlation. Particular emphasis is placed on testing that has been conducted to ensure that the fingerprint technique can survive the typical conversion and processes in a television system SMPTE is currently in the process of studying proposals to standardize a lip sync tracking method based on audio/video fingerprints. The presentaion will conclude with a progress report of this effort.

Speaker: Jean-Claude Krelic, Sales Specialist - Infrastructure Products, Miranda Technologies

11:00 – 11:30 a.m.
HD Dev Manager
International broadcast is moving towards loudness based normalization. The paper reports how new guidelines are being adopted in the US, Japan and Europe; and it details the tools to extend ITU-R BS.1770 that have been defined in a concerted effort between broadcasters and researchers around the world. The extension of BS.1770 enables transparent control of commercials and promos without sacrificing the possibility for distributing wide loudness range content such as film, drama and music. CALM act or not, transparent and predictable normalization of interstitials is vital to production companies as well as to broadcasters, and the techniques described work equally well with DTV, mobile platforms and IPTV in mono, stereo and 5.1. Finally, the paper broadens a previously presented study on consumer Loudness Jump Tolerance (LJT), now taking the listening environment into account, and provides a glossary of new terms relating to BS.1770.

Speaker: Thomas Lund, HD Development Manager, TC Electronic A/S

11:30 a.m. – 12:00 p.m.
Taming TV Audio Loudness:Issues and Answers
Technology, legislation (in the form of HR 1084, the “CALM” Act), and market forces are all trying to rein in loudness – but what exactly do we mean by loudness in an operational broadcast setting? In simple terms, it’s the perceived

loudness jumps between channels, programs, and commercials. The issue becomes more complex when we consider who or what is causing the problem, whether they can be stopped, and whether current standards are enough to control loudness. Who should be held responsible for loudness variations? Do the standards need the force of law, with monetary penalties, to work? Are more standards needed? Is technology the answer, and if so, where should it be deployed? In this presentation, we will address these questions and others related to the challenges of loudness control – including the ramifications of the pending CALM legislation, which would direct FCC regulation of audio volume in television advertising. We will also discuss the technology options and the latest developments in adaptive control algorithms that can ease the path to compliance with both internal and federally mandated loudness standards. This topic can be offered by a single speaker, or can be presented in the form of a panel discussion.

Speaker: Martin Winsemius, Sustaining Engineering Manager, Wohler Technologies

Monday, April 11, 2011

IEEE BTS Tutorial on 3DTV
1:00 – 5:00 p.m.
Las Vegas Convention Center, Room S228

Chairpersons: Yiyan Wu, Communications Research Centre Canada
William T. Hayes, Director of Engineering, Iowa Public Television

1:00 – 1:45 p.m.
3DTV: Benefits from Human Visual Perception Studies
Studies of human visual perception are important for the development of a 3D-TV system that is bandwidth-efficient and that provides high image and depth quality. In this presentation, a brief overview of human visual perception and cognition related to stereopsis and the design and development of 3D-TV will be provided. To illustrate the fundamental role of vision research in 3D-TV development, experimental studies and findings that were obtained at the Communications Research Centre Canada (CRC) as well as those from other research labs will be introduced. Specific examples of how our understanding and knowledge of human Visio-cognition can be exploited for practical 3D applications will be highlighted. Visual demonstrations will be provided wherever possible. At the end of the presentation the audience will have a greater appreciation of the importance of studies in visual perception and cognition in television research.

Speaker: James Tam, Communications Research Centre Canada

1:45 – 2:30 p.m.
3DTV Transmission Formats and Coding
Transmission of 3D content is being introduced to provide new services to both home and mobile devices. This talk will review the various representation and coding formats for stereo and multiview video that are available and being deployed today, as well as those that are actively under development. Several distribution scenarios will be discussed including delivery over cable, terrestrial, and Internet channels. The merits and drawbacks of the various 3D formats considering the application requirements and constraints imposed by different transmission systems will be analyzed. Emerging data formats to support future auto-stereoscopic displays will also be discussed. The talk will conclude with a discussion of future outlooks and existing challenges with regards to transmission formats and coding technology.

2:30 – 3:15 p.m.
3D Display Technology for Home and For Cinema
Speaker: David Bancroft, Consultant in Technology, Bancroft Technical Consulting

3:30 – 4:15 p.m.
3D Television System Based on Spatial Imaging Method for Future Broadcasting
NHK STRL is conducting research on spatial imaging-type 3D video capable of

reproducing light ray field as if they were from real objects. The long-term goal of the research is to realize the ultimate 3DTV broadcasting. The talk will start with the history of 3DTV research at NHK STRL including the research results on human factors of stereoscopic 3DTV, such as unnaturalness, eye fatigue, etc. In the latter half, current status and future research plan on integral photography, which is one of the methods of spatial imaging, will be reported.

Speaker: Dr. Takayuki Ito, Deputy Director-General, NHK Science and Tech Research Lab

4:30 – 5:00 p.m.
3D DMB: A Portable/Mobile 3D-TV System
Speaker: Namho Huretri, ETRI, Korea

Monday, April 11, 2011

Mission Critical IT for Broadcast
1:00 – 5:00 p.m.
Las Vegas Convention Center, Room S226

Chairperson: Greg DePriest, VP – Technology Policy, NBC Universal

1:00 – 1:30 p.m.
XML, WSDL, SOAP, SOA and REST: A Decoder Ring for the Broadcast Engineer
As the broadcast industry rushes headlong toward convergence with the IT industry, the station engineer is faced with a bewildering array of technologies and associated acronyms. Terms such as XML, WSDL, SOAP, SOA, and REST are increasingly being referenced in publications and their underlying technologies deployed in installations and upgrades. In many cases, because station management assumes that engineering staff simply will assimilate these new technologies, little thought and few resources are expended on education. This paper will review the most relevant new acronyms and their underlying fundamental principles, along with their typical applications, in plain English. Attendees can expect to leave the presentation with a much clearer understanding of these software constructs, along with pointers to more in-depth examinations for later study.

Speaker: Paul Turner, Vice President of Broadcast Market Development, Omneon, now part of Harmonic Inc.

1:30 – 2:00 p.m.
Wireless HD Secure Streaming Media Application and Case Study
The appeal of IP networks for delivering multicast live HD video content to mobile laptops, smart phones and tablets is clear for enterprise and university applications. The benefits include reduced infrastructure deployment costs and extended audience reach through wireless and handheld delivery. The university environment, in particular, demands mobile application access due to the students' needs. Delivering live, prepared, and copyrighted video over wireless IP networks requires that involved organizations protect the rights of content owners and the organizations that distribute such content. Delivering live video extends these concerns to cover privacy and confidentiality obligations, which must be addressed both by IP video system manufacturers and by the end-user clients. The combination of end-to-end security authorizations with granular per-view reporting is essential to adhere to both privacy and confidentiality obligations. This session will explore a case study of a university delivering live multicast HD video across its campus. The session will explore the type of wireless infrastructure and head-end server technology that were needed to support this application, and it will examine the multiple format requirements that must be met to accommodate a variety of mobile media consumption devices.

Speaker: Joseph Gaucher, CTO and Executive Vice President, Haivision Network Video

2:00 – 2:30 p.m.

10 Gigabit Networking for Audio and Video

The hottest new thing in data is 10gig, 10GbaseT, and it will be sweeping into audio, video and broadcast applications soon. This presentation shows what it is, how it works, and why previous cable designs don't work. Connectors, patch panels, and patch cords are also critical and are included. This presentation starts with the history of Ethernet® and twisted pairs for data.

Speaker: Stephen Lampen, Multimedia Technology Manager, Belden

2:30 – 3:00 p.m.

Seamless Audio Over Imperfect IP

As broadcasters increasingly take advantage of the benefits of IP links for audio networking, one of the key issues that must be addressed is that of dropped or out-of sequence packets. With packet-switched networks, a packet can take any route from source to destination. Should packets arrive either side of their predicted arrival time, the receiving codec may be unable to achieve real-time playout. Depending on the quality of an IP link and the bandwidth available; an IP network can also be susceptible to dropped packets resulting in loss of audio. This paper examines recent thinking and techniques that have been proposed to combat and conceal the effects of these two issues. It explores the advantages and disadvantages of several schemes proposed by codec manufacturers as well as those from industry bodies and outlines recommendations that can be tailored to each individual broadcaster's network to ensure seamless delivery of broadcast-grade audio over a less-than-perfect IP link.

Speaker: John Lindsay, R&D Manager, APT

3:00 – 3:30 p.m.

When Simple Isn't that Simple: Using SNMP in Broadcast Facility Control

The Simple Network Management Protocol (SNMP) has been a part of computer and networking systems for many years. Now, this standardized control language is migrating into more and more broadcast-oriented equipment and systems, and new facility control software is being developed to enable the use of this powerful tool to monitor and manage equipment as part of an overall broadcast facility control plan. This paper will introduce broadcasters to SNMP, explain the best practices and describe some common mistakes and challenges. Use of real-world examples will help to demonstrate how using this protocol can allow engineers to monitor and control more different types of equipment in more locations with less time and effort.

Speaker: Tony Peterle, Technical Support Manager, WorldCast Systems Inc.

3:30 – 4:00 p.m.

Building Redundancy and Resilience into Broadcast Networks

Broadcast networks are in the midst of a significant transition from dedicated deterministic links to ubiquitous, flexible packet based IP solutions. The adoption of IP networks in a broadcast environment has been rapid, but the need for adoption has been strengthened in light of the cost savings and the simplification possible with IP based infrastructure. However, the mechanisms used to counter burst errors in an IP network intended for data applications are inadequate for a

real-time broadcast environment. Similarly, provisioning for network redundancy in a broadcast environment is subtly different from the techniques employed by current IP based architectures. Sample architectures will be used to illustrate storage, encoding, multiplexing and conditional access functionality realized within an IP based head-end. This paper will focus on the solutions employed to bridge the gap between standard IP infrastructure and the requirement for seamless real-time video in a packet-based domain.

Speaker: Ian Trow, Director of Broadcast Solutions, Harmonic Inc

4:00 – 4:30 p.m.
Techniques for Integrating Audio Over IP (AoIP) with Program Automation
Now that AoIP has put more resources on tap in the studio, broadcasters are turning their attention to the studio automation system to manage it all. BE's studio systems expert Bryan Jones offers advice for integrating AoIP with program automation, from pointers on streamlining network architecture to tips on mapping all the elements of studio operation into one seamless system. He will present real-world examples of station groups remotely automating several stations through an integrated system, and provide the nuts and bolts of setup, including how to configure GPI/Os for routing and control, if and when to use audio cards, and how to protect dynamically available content from misuse, among other issues.

Speaker: Bryan Jones, Western Regional Sales Manager, Broadcast Electronics

4:30 – 5:00 p.m.
Real-time Professional Broadcast Signals Over IP Networks
For the past 60 years, most professional broadcast signals were transported over dedicated coax infrastructures. These infrastructures are simple to set up and they "just work." System designers never had to worry about factors such as traffic and QoS. To reduce cost and increase flexibility, more and more of these real-time audio and video signals are now being transported over IP networks. These infrastructures are not simple to set up and they do not "just work." System designers have several options, and there are gaps between what theoretically should work and what practically does work. This paper will examine design options, including Layer 2 with VLAN vs. Layer 3 and MPLS, managed networks such as SONET vs. the Internet cloud, dark fiber vs. managed optical networks, transport protocols, FEC, QoS, network evaluation parameter, standards vs. propriety protocols, and failure recovery

Speaker: Leigh Whitcomb, Principal Engineer, Harris Corporation

Monday, April 11, 2011

MPEGIF Master Class: Getting Ahead of the Game: How to Stay Relevant in the TV Landscape of Tomorrow
1:00 – 5:00 p.m.
Las Vegas Convention Center, Room S220

For the first time we have seen a decline in the number of people paying for TV. While most operators around the world have seen steady ARPU growth, there is great concern that perhaps the threat of Over the Top Television, enabled by ever increasing bandwidth availability and more efficient encoding, is a real and present danger to the industry as we know it. Even though some investment analysts have shown the dumb pipe business model to return more on investment than the current model, there is a lot to be lost if operators lose that connection with the subscriber. “Cutting the cord”, as it has become known, represents a threat to broadcasters and pay TV operators alike as it erodes both advertising and subscription models equally. In the spirit of “If You Can’t Beat Them then Join Them”, this season will examine the detail and the nuances in bringing an Over The Top experience inside “the wall” to retain that customer connection and even gain additional ARPU growth. We will examine options that are open to the broadcasters and operators and explore the technical, legal and commercial constraints that face different markets and present real life experiences from operators where Multi-screen services have been deployed.

1:00 PM - 1:10 PM
Introduction and Welcome
Chairperson(s): Sebastian Moeritz, Chief Executive Officer – dicas digital image coding GmbH, President, MPEG Industry Forum
David Price, Vice President Business Development & Marketing Communications, Harmonic

1:10 PM - 1:30 PM
Will Broadband be the Delivery Mechanism of Future Television?

For the first time we have seen a decline in the number of people paying for TV. While most operators around the world hve seen steady ARPU growth, there is great concern that perhaps the threat of "Over the Top" Television, enabled by ever increasing bandwidth availability and more efficient encoding, is real and present danger to the industry as we know it. We will examine options that are open to the broadcasters and operators and broadband delivered services hve been deployed.

Spotlight Speaker:Tony Werner, EVP and Chief Technology Officer, Comcast Cable

1:30 PM - 1:50 PM
Spotlight Speaker #2

Spotlight Speaker: Itzhak Elyakim, VP Engineering and CTO, YES Satellite TV

1:50 PM - 2:10 PM
Spotlight Speaker #3

Spotlight Speaker: Marc Gatto, Vice President Broadcast &, Discovery Communications

2:10 PM - 2:30 PM
Spotlight Speaker #4

Spotlight Speaker: John McCoskey, Chief Technology Officer, PBS

2:30 PM - 3:00 PM
Panel Discussion

Panelists:Tony Werner, EVP and Chief Technology Officer, Comcast Cable
Marc Gatto, Vice President Broadcast &, Discovery Communications
Itzhak Elyakim, VP Engineering and CTO, YES Satellite TV
John McCoskey, Chief Technology Officer, PBS

Moderator: David Price, Vice President Business Development & Marketing Communications, Harmonic

3:00 PM - 3:20 PM
Spotlight Speaker #1

3:00 PM - 4:50 PM
Show Me the Money - What Makes Commercial Sense in the Future

Even though some investment analysts have shown the dumb pipe business model to return more on investment than the current model, there is a lot to be lost if operators lose that connection with the subscriber. "Cutting the cord", as it has become known, represents a threat to broadcasters and pay TV operators alike as it erodes both advertising and subscription models equally. In the spirit of "If You Can't Beat them then Join Them", this session will examine the business details and the nuances in bringing an "Over the Top" experience insude "the wall" to retain that customer connection and even gain additional ARPU growth.

4:20 PM - 4:50 PM
Panel Discussion

Moderator: Sebastian Moeritz, Chief Executive Officer – dicas digital image coding GmbH, President, MPEG Industry Forum

Panelists: Del ParksSinclair Broadcast Group Inc
Chris Johns, Chief Engineer, B Sky B

Tuesday, April 12, 2011

Radio Engineering Forum I
9:00 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: E. Glynn Walden, Sr. VP Engineering, CBS Radio

9:00 – 9:30 a.m.
AM Directional Antenna Pattern Performance Improvement Using Power Dissipation within the Phasing and Coupling System
Choices can be made, when designing directional antenna patterns for AM radio stations, to result in significant performance improvements – particularly with regard to pattern bandwidth issues that impact the quality of coverage for both analog and digital transmission. Whole-system computer modeling, which considers phasing system and tower array self and mutual impedance characteristics together, is required to identify those choices. Application of these principles to find improvement possibilities for systems having the most difficult characteristics to correct – those with towers having high negative power flow – will be examined in detail. An example of a system that has been licensed by the FCC to terminate the power of a negative tower and make up for the difference with its common point input power for bandwidth performance improvement will be documented.

Speaker: Ronald Rackley, Partner, du Treil, Lundin & Rackley, Inc.

9:30 – 10:00 a.m.
Antenna Base Region Geometry and Voltage Sampling Techniques for Moment Method AM Directional Antenna Proofs
The base region of a series fed vertical monopole antenna element can be electrically and mechanically complex. The new FCC moment-method antenna proof rules require measurements made at each antenna element's base or feed point, as well as allowing antenna monitoring using sample measurements made at the tower feed point location. When the impedance measurements of each tower are made, they should be made at the location of the tower sample device. The other towers in the array should be open-circuited or shorted (either procedure is acceptable) at the same location. It's important to include the characteristics of the feed system between the measurement point and the tower base that are included in the measurement in the antenna moment method model as well. Examples and an explanation of the effects of various base circuit elements are shown. The rule provides that sample loops can be used in some circumstances, but only if the towers are identical in cross section structure. An example of the reason for this rule provision shows that even modest geometry differences between towers make significant differences in current pickup. In these situations, for towers greater than 120 and less than 190 degrees tall, base voltage sampling can be employed. An example of the voltage sample system and discussion of voltage sampling techniques is also described.

Speakers: Benjamin Dawson, President, Hatfield & Dawson Consulting Engineers

10:00 – 10:30 a.m.

MOM Methodology

I'd like to propose a presentation on how MOM methodology is being applied to the array design process as well as the licensing process. I'm sure you are aware that we lost all three towers at WWVA a few months ago. While we are replacing the towers at the same height we are switching from the original self supporting towers to guyed towers. Had we not done a MOM analysis we wouldn't have known that the operating impedances have increased several fold. The result is that all of the existing tuning units have been redesigned and will have to be modified. Now that one tower has been rebuilt and we've moved off the temporary longwire we have been able to confirm our model through actual impedance measurements and are moving forward with the stacking of the other two towers. We will be able to do the tuning unit modifications and be certain that the tuneup will go forward with a minimum of uncertainty. As a sidelight, we've used MOM to specify the insulator breakdown voltages for the reguying of "America's Station", WLW. That project is ongoing as well.

Speakers:John Warner,VP AM Engineering, Clear Channel Radio;

10:30 – 11:00 a.m.

Test and Evaluation of an AM Directional Antenna Tower Base Voltage Sampling System and MOM Proof Methodology for the WAOK Radio Array Utilizing a Mix of Guyed and Self-Supported Towers

This proposed paper will address the laboratory test and evaluation of the new Kintronic Labs Model VSU-1 voltage sampling units; the field testing of this voltage sampling system in the 4-tower, 4.2 kW, 1380kHz nighttime array of WAOK-AM radio in Atlanta, Georgia; and the methodology utilized to conduct a Method of Moments (MOM) proof of the WAOK array. By virtue of the fact that the WAOK array consists of two guyed towers and two wide-base self supported towers with the electrical height of the four towers being 179.3, the use of voltage sampling was the only permissible method whereby a MOM proof of this array could be conducted.

Speakers: Tom King, President, Kintronic Labs, Inc.

11:00 – 11:30 a.m.

KRKO-AM: 50,000 Watt Upgrade, Antenna Destruction, Reconstruction, and 50,000 Watt Diplex

Andy Skotdal will share a 30 minute presentation that includes photos, and radio and television news clips related to the construction and reconstruction of 50,000 watt KRKO-AM following ten years of land-use litigation and an attack on the new antenna, allegedly by the Earth Liberation Front. The PowerPoint presentation will include a discussion of the onslaught of land-use issued faced by KRKO and how they were addressed, images of the construction, destruction, and reconstruction of the antenna, site security (including the use of new anti-terrorism foundation nuts), and a brief discussion of the on-going criminal investigation. Select photos of the 2010 reconstruction can be found here: http://www.photoworks,com/slideshow/album/A8969133AO6D?c=pw59560&CS_003=4433951

Speakers Andrew Skotdal, President & GM, KRKO-AM

11:30 a.m. – 12:00 p.m.

Building an AM Array on a Landfill.Environmental Obstacles to be Considered

Decommissioned landfills offer the potential for AM transmitter sites in markets that otherwise restrict new construction of transmission facilities. Understanding the additional complexities, costs and environmental requirements will assist the project team in determining the viability of a landfill for AM Directional Arrays.

Speaker: Gary Smith, Director of Engineering, Bonneville Phoenix

Tuesday, April 12, 2011

The Impact of Innovative Technologies
9:00 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S226

Chairperson: Louis LIbin, President, BroadComm, Inc.

9:00 – 9:30 a.m.
The Impact of Innovative Technologies: Trial to Scale
Industry standards can only take you so far. There is a tremendous Amount of work needed to take a standard like SCTE-130 that represents several modules to a full-scale end-to-end system ready for production. Work is required across multiple functional groups to implement new technology while preserving and migrating traditional business. For example: Engineering – Multi-Vendor Integration Sales and Marketing – New Business Model Implementation Operations – Workflow Management and Optimization Without this additional work, innovative technologies will not migrate from trials to wide adoptions. It is up to the vendor community to take the initiative to pick up where standards leave off to move innovative technology to deployed technology.

Speaker: Mark Johnson, Product Manager, Harris Corporation

9:30 – 10:00 a.m.
Development of High Performance Video Codec for Super Hi-Vision
To help pave the way for Super Hi-Vision (SHV) broadcasting, we have developed a new codec system that can encode and decode SHV signals in real time. This is the third generation SHV real time hardware codec. This efficient compression system maintains high picture quality by using eight 1080/60p (60 frames per second) encoding units and an SHV format converter with signal compensation processing that takes properties of Dual Green format of SHV into account. The format converter divides an SHV image spatially into eight 1920x1080 portions, each of which is fed to the encoding unit. In the conventional codec, the SHV image is divided into 16 portions (spatially eight and temporally two) and 16 1080/30p encoding units are used. The new codec achieves 50% bitrate saving and downsizes codec by almost half compared with conventional systems. We have conducted the World's first SHV international transmission over advanced Internet using the codec at a TS rate of 240Mbps. The received picture quality is good enough to show any kind of SHV content on a large screen. The paper overviews the progress of SHV codec, together with results of SHV transmission experiments, and describes technologies and performance of the new codec.

Speaker: Yoshiaki Shishikui, Senior Research NHK (Japan Broadcasting Corporation)

10:00 – 10:30 a.m.
Single Frequency Network Experiences in NYC
Several ATSC Single Frequency Network (SFN) systems can be found operating throughout the US. Most of these systems include some sort of terrain shielding as part of their design. This paper highlights the challenges encountered and

results achieved in implementing a “True SFN” system in New York City. An analysis of the design, implementation, and field test results, including receiver performance in this high multi-path environment, will be presented.

Speaker: Ted Karam, Director of Engineering, Thomson Broadcast

10:30 – 11:00 a.m.

Embedded TV: Creating a New Digital Ecosystem for Broadcasters

With the transition to digital finally complete and deployment of Web-connected TVs increasing, the broadcasting community has a tremendous opportunity to change the way audiences engage with programming and with the advertisers who pay for that content. Broadcasters have the opportunity to capitalize on the data-rich characteristics of digital video, just as the online community already has done. By treating data as metadata and embedding it with tags, hyperlinks and EBIF triggers, broadcasters can allow viewers to enter an expanded universe of supplemental content and advertising showcases. Regardless of whether content is broadcast or targeted, embedded triggers can enable entry to Web-based content that can be delivered via managed or unmanaged networks. Clicking with a standard remote control on a blast chiller on “Top Chef,” for example, would allow viewers to learn more about the product and ultimately to make a purchase, increasing value for advertisers and broadcasters alike. This presentation would discuss the ability of embedded triggers and network-based platforms to create new opportunities for broadcasters to engage viewers and create more valuable opportunities for advertisers. The presentation would include a technical overview of deployed platforms, and would discuss how “embedded TV” would function in managed cable/IPTV and over-the-top environments.

Speaker: Jeremy Edmonds, Sr. Dir., Bus. Development & Customer Engineering, ActiveVideo Networks

11:00 – 11:30 a.m.

Do We Really Need New Video Codecs?

Video codecs are essential for digital broadcasting. A better video codec makes it possible to deliver more high-quality content over increasingly congested transport networks. New codecs offer the potential to improve compression performance. However, the cost and effort involved in switching to a new video codec is considerable. For example, migrating from MPEG-2 to H.264/AVC has saved bandwidth in many cases but has been an expensive and lengthy process. What’s next in the field of video coding? Google recently released the open source VP8 codec. ISO MPEG and the ITU are developing a new codec, High Efficiency Video Coding or HEVC. What impact will these codecs have on the industry? Are the benefits enough to justify replacing existing codecs? Do we really need new video codecs? Attendees will learn about new developments in the field of video coding and about another approach that just might be a better alternative: Configurable Video Coding, currently under development by MPEG and others.

Speaker: Iain Richardson, Professor, OneCodec Ltd.

11:30 a.m. – 12:00 p.m.

A Study and Comparison of Efficiency Enhancement Techniques for RF Power Amplifiers

There is high interest among broadcasters and RF network operators in new RF power Amplifier technology that offers improved efficiency over what is presently available. The benefits of higher power Amplifier efficiency include AC power consumption savings, reduction in physical size and cooling requirements, and lessening of carbon footprint in support of green technology. This paper will investigate and compare several new applications of technology that dramatically improve the DC to RF efficiency of solid-state, linear, RF power Amplifiers operating in the VHF, UHF and L-Band frequency ranges. The results of several advanced technology assessments focused on RF Amplifier efficiency enhancement will be presented.

Speaker: Geoffrey Mendenhall, Vice President - Transmission Research and Technology, Harris Corporation

Tuesday, April 12, 2011
Operational Efficiencies for Television
1:00 – 6:00 p.m.
Las Vegas Convention Center, Room S226

Chairperson:

1:00 – 1:30 p.m.
Advanced Compression Workflow for Multi-Stream Networks
As the media landscape is changing and broadcasters need to stream video across a growing number of networks to reach the end-user, an increased pressure is put on the Compression Workflow to deliver bit rate efficiency across a large number of streams. This leads the way for a new generation of advanced video and audio encoders capable of delivering an increasing number of streams for both live and file based workflows in any format from WebTV to full resolution 3D Content in an All-IP workflow. This paper will explore the latest developments in advanced video compression and how these new encoders are helping broadcasters to manage their content workflow whilst delivering the best possible picture quality across all delivery networks. Specifically the paper will examine key areas in both video and network technologies including: • The latest advances in MPEG-2 and H.264 compression • How to compress video for streaming applications • The latest generation multi-stream encoders • Creating an All-IP architecture capable of handling multi-network delivery

Speaker: Are Olafsen, Compression Solutions Director, Thomson Video Networks

1:30 – 2:00 p.m.
Managing the Proliferation of File Based Content Delivery: A Blessing in Disguise
The advent of the PitchBlue content delivery service in 2010 is the most recent example of the proliferation of programming and commercial delivery services. While call letter stations and station groups are faced with the challenge of managing more content from an ever increasing number of service providers (PitchBlue, Pathfire, DG/FastChannel, and Hula Media Exchange to name a few), this may in fact be a blessing in disguise. Many call letter stations and groups of call letter stations are using this as an opportunity to introduce groundbreaking new approaches and benefit from the efficiencies of file-based workflows and media asset management systems in their operations. This presentation begins with a description of these challenges from the perspective of Hearst Television's group of 31 stations and summarizes the steps they took to implement file based workflows, content aggregation, and shared program preparation. This presentation concludes with a summary of the operational efficiencies and benefits that the Hearst Television group has realized.

Speakers: Bob Coleman, VP Engineering, Masstech Group, Inc.;
Joseph Addalia, Director of Technology Projects, Hearst Television, Inc.

2:00 – 2:30 p.m.

Hybrid Routers: The Evolution Has Begun

As stations seek ways to lower costs and improve efficiencies, routers have evolved to meet the challenge of doing more than just routing. The evolution of Hybrid Routers has started a new era of routing. These Hybrid Routers which can handle multiple formats of video and audio within a frame are also capable of managing the dis-embedding and embedding of audio channels, audio channel shuffling and audio breakaways internally. This ability coupled with intelligent software control allows the router to do this seamlessly and automatically when needed. With the inclusion of Hybrid Routers, facilities will no longer need to rely on separate dedicated video and audio routers plus external signal processing equipment and complicated management to overcome their signal processing challenges. The integration of audio processing within the router will significantly reduce costs while saving power and space while simplifying management by handling the logic internally and streamlining a facility's overall workflow. This presentation will cover how and why routers evolved into Hybrids. It will look at the internal workings of such a router and provide a glimpse of what the future holds for Hybrid Routers.

Speaker: Sara Kudrle, Sr. Software Engineer, Miranda Technologies

2:30 – 3:00 p.m.

ASI STL Links

The DVB ASI interface standard has worked very well as a robust MPEG 2 transport link mechanism and continues to thrive in the broadcast industry. But as manufacturers, we aren't completely finished developing the DVB ASI interface as new systems are now being rolled out to support extremely tight timing requirements, as well as a range of new products to interoperate with this interface standard.

Speaker: Joel Wilhite, Solution Marketing Manager, Harmonic Inc

3:00 – 3:30 p.m.

Broadcasting and Streaming Live and File-Based Video to Multiple Platforms over IP Networks

In today's competitive climate, immediacy has become the watchword for global news organizations as they continue to evolve their business models from twice-daily news programs to 24/7 operations. Viewers increasingly expect up-to-the-minute reporting direct from the source of breaking news – putting added pressure on media companies to get the story before their competition. Often, the news is breaking in areas an SNG/ENG truck cannot reach, or places lacking in infrastructure or high-bandwidth networking capabilities. Satellite newsgathering has other drawbacks as well, requiring the presence of skilled technicians and limited by a pre-defined window of satellite uplink time, removing some of the spontaneity of live and breaking news. Next-generation encoding solutions for streaming video over IP networks offer a highly effective solution to these challenges. In this paper, we will present several real-world examples of how this encoding technology has enabled broadcasters to cost-effectively enhance their live news reporting capabilities.

Speaker: Bob Hildeman, CEO, Streambox, Inc.

3:30 – 4:00 p.m.

Design Considerations for Station Group Centralization

Because of the increased need to reduce costs of operation, centralization of many aspects of traditional television station operation, including traffic, ingest, graphics, automation and control, is once again a hot topic. Many station groups have seen recent success in centralizing some or much of their operations. But, does increased sophistication in television origination and content management systems mean a greater chance of success for centralized station group operations? Moreover, what technology architectures are best suited for the operational model, and how are these administered and maintained? In this paper, Mr. Hill will address these questions and examine multiple approaches to the question of centralization.

Speaker: Rich Hill, Principal Consultant, National TeleConsultants, Inc.

4:00 – 4:30 p.m.

The Impact of Filebased Newsgathering Becoming a Reality

Workflow in the studio has used IP transport for some time, but most breaking news occurs in the field. Journalists often submit stories using cellular data modems that can be painfully slow even with the latest technologies. By understanding the limitations one can look to make the best use of the available communications paths and structure a system architecture that could provide a fast and flexible extension of studio workflow management into the field. In this paper we will explore the objectives of an improved workflow management system in the field and the possible solutions, which include new forms of file based newsgathering from the field. The idea is that the introduction of new transformational IP communications systems will change the economics of newsgathering by accelerating the migration path from traditional IP-based newsgathering to enable more efficient deployment of infrastructure and personnel, as well as creating compelling new HD program making opportunities.

Speaker: Ben McLeod, Managing Director, Vislink News & Entertainment

4:30 – 5:00 p.m.

Centralcasting: The Future of Over-The-Air Television is Here

Amidst a rapidly changing local media landscape, television station owners and operators are innovating new ways of doing business. Centralcasting, the playout and transmission of multiple local TV stations from a central facility, represents a leading example of such innovation. Improvements in broadcast technologies are enabling the creation of centralcasting facilities capable of efficiently distributing 200 or more station feeds to locations across the U.S. Centralcasting not only reduces costs but can also improve service quality. Capital requirements and operating expenses are shared across multiple stations creating significant scale economies. As stations move from local markets to centralcasting facilities featuring world-class infrastructure, upgrades including the migration to HD become cost-effective and seamless.

Speaker: Jarred Kennedy, Senior Vice President, Business Operations, Encompass Digital Media, Inc.

5:00 – 6:00 p.m.

Compressing the Schedule: The Project Team Approach to Broadcast Facility Design and Construction

It's the typical project start up and everyone at the Network has agreed on one thing; It's time to renovate (or replace) the existing facility. After that there are many, many opinions about how to achieve the projects requirements. People may not agree with each other, but everyone has in mind the Consultant they believe will save the day: But traditional segmented thinking about the approach to project responsibility obscures the need for a Project Team to be created. The reality is that none of the individual Consultants can efficiently do this project. No one Consultant has the skills, experience or tools to do entire the project without relying on the expertise of the others. And without a coordinated approach to the Project kickoff, the Schedule will slip before the Consultants are even hired. A Project Team approach is the best way to assure that the completed facility project will operate as required, come in on budget, and be completed on schedule. This panel will consist of professionals from the many disciplines required to successfully complete a Broadcast project. Each participant will start by describing his or her portion of the responsibilities for a typical Broadcast facility project.

Speakers: John Gering, Managing Partner, HLW International LLP; Keith Hanadel, Broadcast Design Director, HLW International LLP

Tuesday, April 12, 2011
Radio Engineering Forum II
1:00 p.m. – 5:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: E. Glynn Walden, Sr. VP Engineering, CBS Radio

1:00 – 1:30 p.m.
Monitoring and Control Systems for Broadcast Transmitting Sites
To reduce the operating costs of critical infrastructure systems, including broadcast transmitting sites, the use of "predictive analytics" is growing. Historically, broadcast sites have used measurements of reflected power to provide protection for the transmitter system. However, this data typically is an indicator that something has already gone wrong and some type of emergency repairs will be required to bring the system back to full operational capability. This paper will describe the use of monitoring and control systems to provide ongoing and real time data of the transmission system that can be used to predict a future failure and potentially prevent catastrophic failures. A rule of thumb is the cost associated with a catastrophic failure of the transmission line or antenna that requires a tower crew to repair begins at $35,000 and goes up from there, dependent on the extent of the damage. The cost of a scheduled maintenance repair to a component that has not yet failed can be under $5,000. It is clear that an investment in a system to acquire operational data and analyze it for potential issues can a have a significant pay back in the avoidance of just one failure. This paper will describe the design and components of various monitoring and control systems for broadcast transmission sites, provide budgetary costs and provide actual data from field installations.

Speaker: Kerry Cozad, Sr. VP, Broadcast Engineering, Dielectric Communications

1:30 – 2:00 p.m.
Quality Radio Engineering on a Tight Budget
We’re all tired of hearing about the bad economy, but it is a reality, and we still need to keep our stations on the air and sounding competitive. No matter how management cuts the budget, it is still engineering’s fault when you’re off the air, not encoding PP.M. correctly, or don’t have the best fidelity possible. I’ll pull from my twenty years of IT experience, my audio engineering background, and give you ideas how you can make your facility rock solid on a budget. The radio broadcast industry of yesterday was almost completely proprietary in the systems that it used. Now our systems are commodity based in that they are, for the most part, standard computers running on IP networks. The breakthroughs of the high-tech and highly expensive data centers of yesterday can now be used in modern radio for a fraction of the cost. How does an independent, non-commercial radio station in a large market become consistently top 5, and even #1 12+? Quality programming and quality engineering. We’ll cover IT centric best practices and show how they can be employed in studio automation, STL systems, system monitoring and control, data center and transmitter site power, and more.

Speaker: Randy Woods, Director of Engineering, Z88.3 Radio

2:00 – 2:30 p.m.

Field Trials of Digital Radio Technologies: DAB, DAB+, T-DMB Audio, HD-Radio and DRM+

We depict field test results of digital radio technologies. For the test, we build the test sites with commercial broadcasting transmission system and measure the digital signals with test vehicle in Korea. In this paper, we show the results of DAB, DAB+, T-DMB audio, HD-Radio and DRM+. Also, we briefly analyze the test results based on the laboratory test results which were done in 2009.

Speaker: Yong-Tae Lee, Principal Researcher, ETRI

2:30 – 3:00 p.m.

Performance Analysis and Field Measurements with the Digital Radio Broadcasting Standard DRM+

DRM+ (Digital Radio Mondiale, Mode E) is the extension of the long-, medium-, and shortwave DRM standard up to VHF-band III. It has been approved from ETSI in 2009 and is in the process of standardization at ITU. Due to its flexible multiplex with up to four high quality audio and data services within the bandwidth of only 96 kHz and its capability of broadcasting in simulcast to FM and as single frequency network (SFN) it is regarded as one of the promising digital radio standards for local, regional and national broadcasting. In this paper we present an evaluation of the channel properties and audio quality for Digital Radio Mondiale Mode E (DRM+) in the VHF-band. Analysis and simulations of the system performance with varying frequencies and receiver velocities are shown. In addition, pilot sampling effects on channel estimation and flat fading at low velocities in multipath environments are regarded. Finally, measurements of mobile DRM+ field trials in various parts of the VHF-band are presented to analyze and compare the performance in the real-world.

Speaker: Jens Schroeder, Dr., RFmondial

3:00 – 3:30 p.m.

Automation Strategies for Sharing Resources and Talent

Increasingly, the radio operation is moving away from the physical studio to the "cloud," where tasks and resources take place in a network shared by multiple studios. In this session, BE’s Vice President of Studio Operations Ray Miklius will discuss simple changes broadcasters can make to get beyond server-centric studio automation and take advantage of the economies of scale in a shared environment. He’ll identify areas for improvement, including audio device connectivity and network routing, and outline a strategy for implementing a multi-engine, component-based infrastructure for shared redundancy and flexibility. Broadcasters will leave the session with a distributed networking blueprint that they can use in their facility planning.

Speaker: Ray Miklius, Vice President Studio Operations, Broadcast Electronics

3:30 – 4:00 p.m.

Get the MOST Out of Your Tower: Effectively Using Design Codes to Your Advantage

“That’s why we carry insurance!” is the all-to-often response when suggestions are made to analyze and/or reinforce a broadcast tower. Consider the tower built

30 years ago in a remote location, now surrounded by 300 homes, for which antenna changes become necessary. How would you proceed? What codes and criteria within the codes could apply when making necessary modifications? These answers may dictate if building permit is granted. What's the feasibility and cost of making changes to an older structure? Finally, will you gain the acceptance of the surrounding community? This paper explores advantages and disadvantages of each design code for the purpose of analysis and reinforcement. We will discuss which code application will best maximize owner options while minimizing reinforcing need and cost. Special attention is devoted to various reinforcement methods and schemes, with details as to why only some achieve their goal of increasing a tower's capacity.

Speaker: Dave Davies, Director, Structural Products and Services, ERI - Electronics Research, Inc

4:00 – 4:30 p.m.
Full Duplex for your RPU adds IFB
By making a few simple changes to your UHF RPU system you can add full IFB capability. This paper will define common terms used in the land mobile industry and show how easy it can be done.

Speaker: Bill Ruck, Broadcast Engineer, Broadcast Engineer

4:30 – 5:00 p.m.
Bend Radius
Sure, you've heard the standard rule "No tighter than ten times the diameter." But what actually happens when you bend a cable? We took both coax cables and twisted pairs cables, wrapped them around a cone, tighter and tighter, and read the impedance. Then we crushed each cable, read the impedance, and then "un-crushed" it by hand, to see how much of the performance came back. The results are very surprising. Much of what we believed about bending cable is not true.

Speaker: Stephen Lampen, Multimedia Technology Manager, Belden

5:00 – 5:30 p.m.
A New Approach to Solid-State High-Power FM Amplifiers
Continued innovations have led to a new generation of solid-state RF power Amplifier technology, providing significantly higher output power, density and greater efficiency. This has resulted in lower purchase and operating costs, with improved RF performance and robustness on par with tube-based RF power Amplifiers. These improvements in cost and efficiency will make solid-state transmitters more cost competitive. The authors will discuss recent developments in solid-state device technology, along with the challenges and solutions in high-power RF Amplifier design, cooling, combining, control and power supply systems for the next generation of solid-state, high-power, digital/FM transmitters.

Speakers: George Cabrera, Principal Engineer, Harris Corporation;
Tim Anderson, Manager of Strategic Market and Product Development, Harris Corporation

Wednesday, April 13, 2011

3DTV
9:00 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Graham Jones, Consultant

9:00 – 9:30 a.m.
Quality Assurance Issues for 3DTV
As the industry begins offering 3D content to subscribers, quality is yet again on the forefront of concerns. Existing tools are being deployed to monitor 2D video quality in a real time objective manner, so operators can identify quality events, trends and ensure a high QoE. The same must be done for 3D, and it is even more important to automate quality monitoring for 3D, given the complexities involved. Low quality now has potential physical effects; if 3D is not produced, processed and presented correctly, it can make a user dizzy and nauseous. In 2D one can look for blockiness, frozen video, blur and other well-known video artifacts. In 3D, the same artifacts still need to be detected, but they have a variety of effects on the subscriber's quality of experience. In addition to the common 2D quality issues from video compression, network impairments, etc., there are a number of quality issues specific to 3D video, related to depth, left/right views, frame-compatible systems, subtitles, display, and others. These will be explored and reviewed in the paper.

Speaker: Stefan Winkler, Chief Scientist, Cheetah Technologies

9:30 – 10:00 a.m.
General-Purpose 3D Video Signal Processing
3D has been thrust upon the TV industry. This has been enabled, in fact trivialized, by the fact that handling stereo 3D in side-by side and other "frame-compatible" formats makes it inherently compatible with 2D HD systems. While this has allowed 3D to move forward without the huge capital investments usually associated with a major technology step, many key pieces of the puzzle remain unaddressed. One overlooked class of equipment is general-purpose signal processing, the stuff that lines up" the signal for use, as well as devices that up/down/cross-convert between formats. These devices, designed for a single full image in an HD raster, perform full-frame processing. This provides a basic utility for 3D signal correction, but adjustments will impact both pictures, and some adjustments (geometry, etc.) will destroy content. This presentation discusses the handling and adjustment of signals in the frame-compatible format, and provides guidance as to the features required for various types of 3D processing in the 2D domain. Also discussed will be the necessary features for handling images in a true 3D manner while in frame-compatible format, as well as the functionality needed to get to/from these formats and dual (L/R) stream signals. Finally, practical 3D troubleshooting techniques are discussed.

Speaker: Paul Briscoe, Manager of Strategic Engineering, Harris Corporation

10:00 – 10:30 a.m.

3DTV and the Challenges for Traditional Terrestrial Broadcasters: Will it be Possible to Combine HD, Mobile TV, Interactivity and the "New" 3D Services in a Single UHF Channel?

The paper focuses on describing the main challenges for terrestrial broadcasters on the distribution of 3D content in coexistence with 2D HD content in the same channel. Since the start of DTV terrestrial transmissions around the world, the traditional analog TV is being replaced for HD video, digital surround audio and interactivity data using the same UHF / VHF bandwidth. Will it be possible to add new 3D services in the same channel used for DTV? The most usual 3D formats in the market like side-by-side are being widely used, but certainly are not the best option for the single channel TV Broadcasters. New compression methods like MVC that are backward compatible with H.264 AVC can make the coexistence between 2D HD and 3D technically possible for DTTV standards based on this compression technique, like ISDB-T and DVB-T2, but production would still be a problem. This paper will describe the existent trials on terrestrial 3D transmissions around the world, like the examples in Brazil, Korea, Australia and Europe and the production and distribution experiences of TV Globo on 3D like Rio's Carnival, Soap Operas and soccer matches. It will also address the main challenges, issues and impacts of each of the main 3D formats like Frame Compatible (side-by-side) and Service Compatible (MVC) on DTTV transmission and reception.

Speaker: Gustavo Marra, Project Manager, TV GLOBO

10:30 – 11:00 a.m.

Efficient Delivery of 3D-TV for Broadcast Systems

This paper gives an overview of the various encoding techniques used in Broadcast TV systems today for delivering stereoscopic 3D-TV content to the home, and also describes some possible future scenarios for more bandwidth efficient and higher resolution content delivery, using existing extensions to the H.264/AVC standard. The need to deliver 3D solutions within a short time scale initially required broadcasters to use existing HD broadcasting infrastructure to transmit "Frame Compatible" 3D coding, and to issue existing set-top boxes (STBs) with a firmware upgrade as required to deliver 3D content to available 3D-TV sets. Future requirements for Broadcast 3D-TV are likely to include the need for full HD resolution per eye, and also the need to improve the bandwidth utilization by avoiding the need for a simulcast of 2D and 3D content on different channels. This paper summarizes the possible different approaches using the Scalable Video Coding (SVC) and Multi-view Video Coding (MVC) extensions of H.264/AVC in achieving the future requirements of 3D-TV. We give an overview of the coding efficiency and implementation complexity of different models, and also outline possible pitfalls in terms of issues such as quality balancing and rate control between different viewpoints.

Speaker: David Clewer, Ericsson, Solution Area TV

11:00 – 11:30 a.m.

3D Intensity Adjustment of a Stereo Content to Improve Quality Of Experience

3D content to the home is becoming more and more a reality. Consequently new challenges have to be addressed to ensure a good Quality of Experience with these new contents. Since human vision system is not perfectly adapted to visualize 3D content on TV, special video processing must be applied to enhance the 3D rendering. Furthermore, variability of the human vision is so high that 3D intensity adjustment tools will be required for some people and/or for some specific contents. Several use cases are presented to illustrate this necessity. The view interpolation technology is described, using stereo content associated with dense disparity map. Depending on the application, the insertion of this processing in the complete workflow is discussed and some standardization challenges are presented.

Speaker: Didier Doyen, Research Engineer, Technicolor R&D France

Wednesday, April 13, 2011

Implementing Regulatory Issues for Engineers
9:00 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S226

Chairperson: TBD

9:00 – 10:30 a.m.
Joint EAS Panel with Legal

Speakers: Harold Price, President, Sage Alerting Systems, Inc.; Matthew Straeb, Executive Vice President, Global Security Systems, LLC; William Robertson, Business Development Manager, Digital Alert Systems

10:30 – 11:00 a.m.
When the Inspector Comes Knocking
An unexpected visit from FCC enforcement can be a daunting experience, but it does not have to be feared. The FCC has broad authority to inspect broadcast stations unannounced to see if the station is in compliance with hundreds of rules and regulations. This is a presentation on ways to prepare for an FCC inspection with tips on how to organize the stations Public Files efficiently, ways to demonstrate compliance with complex EAS rules, properly post the station authorizations, and keep legible station logs. Some of the most common (and sometimes humorous) FCC infractions will be discussed along with the penalties incurred and practical ways these violations can be avoided.

Speaker: Jim Dalke, Contract Engineer, Dalke Broadcast Services

11:30 – 11:30 a.m.
FCC Broadband Plan the Potential Impact on Television Broadcasting
In 2009, The United States Congress directed the FCC to develop a National Broadband Plan. That plan was delivered on March 15, 2010. The Plan indicates that 500 MHz of additional spectrum will be needed for mobile use by 2020 with 300 MHz by 2015 and that 120 MHz is to come from the current UHF TV band. The plan offers a number of proposals for band clearing including allowing broadcasters to surrender spectrum in exchange for compensation derived from a spectrum auction. Other proposals call for existing stations to share channels, repacking the spectrum based on revised criteria for technical planning or some mixture of these proposals. This presentation will look at the implications of the overall proposal as well as those of the various proposed band clearing methodologies. It will identify the television markets that would be significantly affected and the impact on the viewers in those markets. It will also review proposed changes to the technical planning criteria, whether the changes are likely to produce the desired results of freeing up 120 MHz of spectrum, the expected impact on television service and whether the proposed schemes seem economically feasible from the standpoint of implementation. In addition, the presentation will also explore the work, both the technical planning and the physical construction, involved in repacking the television spectrum.

Speaker: William Meintel, Partner, Meintel Sgrignoli & Wallace

11:30 a.m. – 12:00 p.m.

Transforming Closed Captioned Television Video into Closed Captioned Web Video(To comply with the 21st Century Communications and Video Accessibility Act)

The new 21st Century Communications and Video Accessibility Act of 2010 requires closed captioning of webcasts that previously have been broadcast on television. The challenge is how to take a captioned broadcast video and transform it into a captioned webcast video without losing the closed captions. This presentation will describe the underlying technology used to transform a closed captioned television video into a video closed captioned for all web formats. Emphasis will be placed on the most effective and efficient workflows to accomplish this. Attendees will come away with a clear understanding of how to preserve closed captions from broadcast video to webcast video.

Speaker: Giovanni Galvez, Technical Developer, CPC - Computer Prompting & Captioning Co.

Wednesday, April 13, 2011

Technology Luncheon

12:00 p.m. – 1:45 p.m.

Las Vegas Hilton, Barron Ballroom

The Technology Luncheon is a celebratory event for technologists, engineers, technical managers and all technology fans that attend the NAB Show. The Technology Luncheon will also feature the presentation of the NAB Engineering Achievement Awards, the Technology Innovation Awards, created in 2009, which recognize organizations that bring technology research exhibits and demonstrations of exceptional merit to the NAB Show will also be presented at the Technology Luncheon and the NAB Best Paper Award honoring the author(s) of a paper of exceptional merit published in the NAB Broadcast Engineering Conference Proceedings.

Three-time national bestselling author, celebrated lecturer and technologist Steven Berlin Johnson will speak at the luncheon. Johnson's address will focus on the origins of ideas that lead to groundbreaking innovations, a key component of his latest book, *Where Good Ideas Come From:The Natural History of Innovation*.

Wednesday, April 13, 2011

Emergency Operations - Planning & Implementation

2:00 – 5:00 p.m.

Las Vegas Convention Center, Room S226

Chairperson: Jim Stagnitto, Director of Engineering, WYNC/WQXR Radio

2:00 – 2:30 p.m.

Case Histories in Lightning Protection and Grounding
This slide talk discusses the elements of a building's wiring and grounding systems (including lightning protection) that pertain to power quality at communications facilities. Proper wiring and grounding, beyond those minimal requirements of the NEC, can greatly alleviate power quality problems in broadcast facilities and public service facilities. These improvements are usually very cost-effective, usually simple in description, and can preventing costly downtime. The presentation concentrates on actual experiences at broadcast facilities where grounding and lightning protection were of paramount importance in maintaining system availability. Case histories of several communications facilities will be discussed as time allows with liberal use of on-site photographs to show what these systems and devices look like in actual installations. . Some discussion of general wiring techniques applicable to all facilities will be included.

Speaker: David Brender, National Program Manager, Copper Development Association Inc.

2:30 – 3:00 p.m.
Cellular Wireless as a Video Streaming Transport: Making the "One-Man-News-Crew" a Reality for ENG Applications
Historically cellular wireless data connections hasn't been fast and reliable enough for live video streaming applications until recently. The latest innovations in networking such as broadband bonding is now enabling reliable and high-quality live video streaming over bonded cellular data cards. Coinciding with the crowd sourcing of news and content in general, these types of inexpensive, light-weight broadcast technologies will enable one-man crews that can do the work of a satellite trucks. We will have a detailed look into the technology, applications and short, mid and long term implications of this technology in the broadcasting and video on the web verticals.

Speakers: Cahit Akin, CEO, Mushroom Networks, Inc.; Rene Cruz, CSO, Mushroom Networks, Inc.

3:00 – 3:30 p.m.
Keeping the Lights On - Business Continuity Planning for the 21st Century
Recent worldwide events only serve to highlight the vulnerability of technology rich environments to unforeseen outside influences. Disaster recovery is more than just having a diesel generator in the parking lot. In order to protect their revenue stream broadcasters and other content distributors are strongly recommended to consider, and instigate, some level of disaster recovery protection. Like an insurance policy, a DR plan really pays off when something goes seriously wrong.

Speaker: Keith Graham, Director, Solutions Development, AZCAR, Inc.

3:30 – 4:00 p.m.
Proactive Transmitter Service and Support Strategies
Proper maintenance and trained personnel are the number one factors in transmitter function and longevity. The objective of this paper is to demonstrate improvements that can be achieved to the broadcast signal, transmitter facility, and knowledge base of station engineers. Each year stations lose valuable

broadcasting time caused by reduced transmitter power, power failure, lightning strike, vermin infestation or engineering oversight. The cost of these disruptions is hard to recoup and offense is the best defense. Join Nautel's Director of Customer Service, Kevin Rodgers, as he explains how to proactively maintain a broadcast transmitter facility and the equipment contained there.

Speaker: Kevin Rodgers, Director, Customer Service, Nautel

4:00 – 4:30 p.m.
Master FM Antenna at the Empire State Building
It is rare that an iconic building and the country's largest FM combiner system team up to make the news, but this is exactly what happened when the Master FM antenna system at the Empire State Building failed for the first time since its installation in the early 1990s. This talk will concentrate on the circumstances surrounding this failure and the decisions and effort needed to return sixteen FM stations in the #1 market to return to full operating power as quickly as possible. Included in the talk are picture and technical data showing the damage and the repair work to the system.

Speaker: Joe Giardina, CTO/CEO, DSI RF Systems

4:30 – 5:00 p.m.
Implementation of N+1 Technology for Improved Cost Efficiency While Maintaining Service Integrity
Transmission reliability while reducing cost is now in the minds of station owners and maintainers more than ever. Implementation of N+1 technology enhances infrastructure consolidation by reducing the standby transmitter requirements while maintaining on-air integrity. These systems have been common fare in the United Kingdom, Europe, Africa and the Middle East and are now gaining popularity in North America due to consolidation of services. An N+1 configuration is simply the utilization of a single transmitter to back-up several services instead of the conventional standby transmitter for every service. Like any well designed system, the devil is in the details. A properly designed system monitors the broadcast of each service and intelligently switches in a standby frequency agile transmitter with the correct frequency, power level and program feed while providing extensive feedback to all stakeholders through advanced remote control networks. This paper discusses various levels of N+1 system configurations from both the economic and technical points of view using real world examples with the hope broadcasters gain insight to improve their transmission facility.

Speaker: Wendell Lonergan, Sales Manager, Middle East, Nautel

Wednesday, April 13, 2011

Internet Enabled Radio and Television
2:00 – 4:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Steve Davis, Clear Channel

2:00 – 2:30 p.m.

Implementation Example for Use of Smooth Streaming and Adaptive Streaming Technology

The transcoding/transmuxing of large, low-resolution media repositories is a very time- and resource-consuming process. As new media, storage, networking and computing platforms emerge — such as HTTP adaptive streaming (smooth streaming from Microsoft and HTTP live streaming from Apple), SSD, caching, 10GbE, GPU/CUDA, and clusters of many-core systems — it becomes increasingly viable to perform real-time, partial transcoding/transmuxing/serving of small media chunks only (up to 2-10 seconds). Transcoded media chunks can be cached for an indefinite Amount of time; as an effect, the most "popular" part of the low-resolution media repositories will become transcoded/transmuxed after a while, without spending precious resources on processing the "unpopular" parts. To achieve real-time (a few milliseconds) performance, low-resolution media repositories need to be continuously indexed in the background. The index should be very small and efficient, fitting entirely into memory. It should record all information required to efficiently locate and process media chunks from very large repositories (billions of video assets). Such a system would intelligently predict what chunks are likely needed and perform background "read-aheads" (transcoding/transmuxing).

Speakers: Mark Darlow, Product Line Manager, Harris Corporation; Peter Tanko, Research Developer, Harris Corporation

2:30 – 3:00 p.m.

An Advanced Hybrid Broadcast and Broadband System for Enhancing Broadcasting Services

NHK is developing an advanced hybrid broadcasting and communication system called HybridcastTM to integrate broadband technology with broadcast. Hybridcast provides many features, including precise synchronization of content from different delivery channels, support for third party applications, and program presentation by seamless interaction using multiple types of devices, including the mobile terminal. In addition, Hybridcast is designed to simplify the implementation of receivers by involving server-side cloud computing technology. Backward compatibility with existing digital broadcasting systems is provided as well. NHK has been providing interactive data broadcasting services on its communications network since 2000, and video-on-demand (VOD) services for connected TVs since 2008. This long experience is fully exploited in the design of Hybridcast. This paper discusses the technical and service aspects of Hybridcast. The technical aspects described include the system concept, requirements, basic architecture, and brief technical specifications. The service aspects include examples of new kinds of services possible with Hybridcast, such as social networking on TVs and content recommendation based on the viewer’s profile.

Speaker: Akitsugu Baba, Principal Research Engineer, NHK (Japan Broadcasting Corporation)

3:00 – 3:30 p.m.

Weather in a Multi-Channel, Multi-Screen World

“If you lead in weather, you win in news.” The old broadcast mantra requires re-

evaluation in today's environment. With the rise of the digital tier and the explosion of mobile and online screens, broadcasters find themselves in uncharted content waters. This session will explore methods for generating the greatest value from weather content. It will look particularly at the means of leading in weather by driving content across multiple distribution channels without creating multiple silos of equipment and staff. Particular emphasis will be placed on how to take advantage of technologies such as MOS and file based content management to enhance integration between the newsroom and weather systems. The session will look at how these technologies can be used to eliminate workflow redundancies. A full examination of the requirements for weather information delivery across TV, Internet and Mobile channels and how to make the most of each without incurring significant cost or additional resource requirements. The paper will integrate case study material and highlight the integration of multiple disciplines, from weather data, to mobile and web service, and advertising streams.

Speaker: Terry Casey, VP, Media, Weather Central

3:30 – 4:00 p.m.

Tapping into the Blu-ray Potential

In the past, set-top boxes were the primary means for bringing content to the TV and the incumbent telco or cable provider was the only means to receive premium content. But with the recent explosion of Internet enabled devices like game boxes, Blu-ray players, and TVs, consumers are accessing and watching content on multiple devices, each of which can bring content to the TV. The once closed ecosystem is opening up to new devices and new deployment scenarios. In particular, both operators and content owners are enthusiastic about the Blu-ray platform. Blu-ray devices are purchased by the consumer, eliminating the need for operators to build and maintain costly set-tops. Plus they require limited support costs for the operator. Content owners like Blu-ray devices because of the robustness of advanced access content system (AACS) security. The problem today is that operators have no way to utilize this latent device in the consumer home. This presentation focuses on two key aspects: How to tap into the latent and growing Blu-ray population and how they can enable a seamless and secure OTT and managed TV platform.

Speaker: Steve Oetegenn, Chief Sales and Marketing Officer, Verimatrix

Wednesday, Apr 13, 2011

RDS Implementation
4:00 PM – 5:30 PM
Las Vegas Convention Center, Room S228

Chairperson: Steve Davis, Clear Channel

4:00 – 4:30 p.m.
Maximizing the Potential of the RDS Bandwidth
Many FM broadcasters are using the Radio Data System (RDS, rechristened RBDS in the US), but most are using only a fraction of the potential of the system. In today's economy, exploiting the revenue and promotional potential of this system makes good sense. However, as more services are deployed on the RDS subcarrier, the broadcaster must take special care to manage the various demands upon the RDS bandwidth. This paper will explain how the various RDS capabilities work, and how best to integrate them to reduce the chances of conflict that could make one service or another perform below expectations. Services examined will include the Traffic Message Channel (TMC), alert messaging, Open Data Applications (ODAs), RT+ song tagging and more.

Speaker: Tony Peterle, Technical Support Manager, WorldCast Systems Inc.

4:30 – 5:00 p.m.
Understanding and Optimizing RDS for a New Generation of Receivers
Expanding on my series of articles in Radio World, I propose a paper on RDS that focuses on practical implementation techniques engineers can use to improve the performance of RDS on their stations. Often people take the encoder out of the box and put it on the air, but successfully implementing RDS is more involved. The goal is to provide a better experience for the listener. With new RDS enabled radios in both the portable and automobile marketplace, RDS is becoming the face of radio in this digital age. It's important that we make sure our RDS encoders are set up properly and we adapt to focus on these new receivers. An important international RDS standard called RT+ is now supported in new receivers, and adds to the user experience. Few radio stations support this standard, and it can be relatively simple to implement. In detail, I will briefly cover some of the new receivers that support RDS on the market, some of the technical basics of RDS (PS vs. RT), correcting some common confusion engineers have regarding RDS, some encoder and software optimizations, implementing RT+, and some common mistakes and pitfalls I've seen on stations across the country.

Speaker: Alan Jurison, Regional IT Manager/Broadcast Engineer, Citadel Broadcasting

5:00 – 5:30 p.m.
The Latest RDS/HD Datacasting Trends & Developments
Jim Roberts gives an update of datacasting developments, trends and ways broadcasters can take advantage of emerging technologies to remain competitive in the face of new challenges. As the foremost industry authority on

new media with The Radio Experience, he will cover datacasting implementation methods and provide an insider's view of emerging applications such the Artist Experience and other enhanced data applications. He will detail new developments in song tagging, and give working examples of how RDS/HD Radio text can generate revenue based on his experiences in the field working with station groups such as Emmis and CBS. Finally, he will update broadcasters on the latest trends in datacasting for reaching out to listeners through social networks such as Twitter and Facebook, or through crowdsourcing, with applications that let the listeners pick the music.

Speaker: Jim Roberts, Product Manager, Datacast Systems, The Radio Experience (TRE)

Wednesday, Apr 13, 2011

Amateur Radio Operators Reception
6:00 – 8:00 PM

Las Vegas Hilton, Ballroom B

Don't forget about the Amateur Radio Operators Reception on Wednesday, April 13. Always one of the most popular events at the convention, this reception draws hundreds of attendees from company CEOs to shop technicians for a relaxed evening talking shop, enjoying the fellowship of the radio amateur community and wining fabulous door prizes. The reception will be sponsored by Heil Sound, Broadcast Supply Worldwide and Turner Engineering.

Thursday, April 14, 2011

The Impact of Consumer Devices
9:00 a.m. – 10:00 a.m.
Las Vegas Convention Center, Room S226

Chairperson: Joe Snelson, VP & Director of Engineering, Meredith Local Media

9:00 – 9:30 a.m.
Time to Get Serious with Interactive TV
Mainstream ITV has been an unfulfilled promise for over 30 years, but we now have a perfect storm to drive ITV into next generation media and supporting CE devices. In the multi-channel video industry set-top-boxes and delivery platforms are incorporating middleware and talk back mechanisms. The new ATSC/MH over-the-air broadcast standard supporting video delivery to cellphones incorporates presentation level standards and a backchannel for interactivity. Switched digital video and audience measurement systems are facilitating targeting advertising and could lead to synthetic channels personalized down to the household level. Audience participation shows such as American Idol have demonstrated the consumer appeal of ITV and with the perfect storm of new infrastructure rolling out, we should soon see near term rapid deployments of ITV having the potential of transforming the old advertising business model for broadcasters with a very positive upside.

Speaker: Stuart Lipoff, President,IP Action Partners Inc.

9:30 – 10:00 a.m.
The Evolution of the Gateway in the Connected Home
Residential gateways have long played a critical role in service delivery to the home. Data delivery standards have been a core ingredient to the home services delivery equation. Ethernet and Wi-Fi® have also played key roles in enhancing the value of broadband services. But what's next? This presenter will discuss current consumer and technology trends as they relate to the role of the residential gateway and how it is evolving to delivery solutions that help subscribers get & share relevant content – Any Time, Any Place, Any Way, Any Device. The presentation will also discuss media sharing enabled by the standards being defined by the Digital Living Networks Alliance (DLNA) and Multimedia over Coax Alliance (MoCA®) enable the gateway to evolve to a media-enabled device. The presentation will review the steps service providers can take to leverage emerging industry standards and enable exciting services within the home that captivate subscribers, increasing their Average Revenue Per User, building customer loyalty and minimizing churn.The presenter will review end-user needs and will discuss the business opportunities—enabled by the ‘new’ residential gateway—to provide seamless interaction Among various in-home consumer electronics, mobile handsets and PC devices.

Speaker: Chris Kohler, Senior Director of Engineering, Motorola

Thursday, April 14, 2011
Green Technology
9:00 a.m. – 12:00 p.m.
Las Vegas Convention Center, Room S228

Chairperson: Joe Snelson, VP & Director of Engineering, Meredith Local Media

9:00 – 9:30 a.m.
Facility Planning R & R: Case Studies and Strategies for Maximizing Profit During a Recession and Recovery
Efficient energy conscious design, new media, content delivery, communication through IP devices, off-site hosting, and facility acoustics all significantly affect the bottom line in cost of operations. How do experienced architects leverage the knowledge gained to help maximize profits during times of recession and plan for times of recovery? What are the strategies employed by successful operations around the country in creating facilities to keep talent, attract business, and run efficiently? How do facilities capitalize on unique factors such as an election year? These are issues faced and tackled every day by leading architects and acousticians to the Broadcast Industry and through this seminar we'll provide some practical directives.

Speakers: Bruce Lawson, Principal, Lawson & Associates/Architects; Christopher Pollock, LEED AP, Senior Associate, Shen Milsom Wilke, LLC; Robyne Hamilton, AAIA Associate, Shen Milsom Wilke, LLC

9:30 – 10:00 a.m.
Do You Have it in Green? Points to Consider When Choosing Production Hardware
We probably all feel we should be doing more for the environment, but when it comes to choosing production equipment how many of us look beyond the power consumption of the choices on our final shortlist. A big step forward would be to think green when specifying the project – when the White House briefing room was modernized Litepanels LED lighting was used, which slashed power consumption and heat by 95%. Saving power is not the only way to think green. What is the product made of? Is the construction, and the packaging, sustainable? What is the likely lifespan of the product – something that will give 20 years excellent service is not just a good investment, it saves mining new materials to make replacements. If it is to be used on location, what does it weigh? Choosing a lighter device will cut down the carbon footprint for all those hundreds of shipping movements. Joop Janssen, CEO of the Vitec Group, will introduce the issues around best environmental responsibility without compromising performance, illustrating the paper with real-world success stories.

Speaker: Joop Janssen, Divisional Chief Executive, Vitec Group, Videocom Division

10:00 – 10:30 a.m.
Dynamic Carrier Control
Rural Alaska electrical costs are now at an all time high with some transmitter sites consuming electricity at $0.50/KwHr. This threatens the existence of our 10 KW AM rural stations, six in number. Dynamic Carrier Control (DCC) is a well accepted technology used throughout the world to reduce he cost of AM

transmission. DCC is not allowed in the United States because of FCC regulations. We have received experimental authorization for two stations to test this technology and tests will begin this week. Both Nautel and Harris are providing equipment for this test. It has the possibility of significantly reducing electrical cost for AM transmitters. I think this would be a great presentation for this technology, showing how hard pressed AM operators might realize significant savings in electricity consumption.

Speakers Chuck Lakaytis, Director of Engineering, Alaska Public Broadcasting, Inc

10:30 -11:00 a.m.
Going Green and Seeing Black: Mainstreaming Green Technology into Broadcast Engineering and Programming
As energy costs rise, and pressure increases to maintain the bottom line, 'going green' is becoming a mainstream activity for broadcasters. A green perspective also provides numerous promotional opportunities and ways to differentiate your station's news operations and programming.

Speakers: Tom Vernon, Radio World; Ashleigh Elson, Senior Producer, Earthbeat, Radio Netherlands Worldwide (RNW);
Brad Hockmeyer, Owner, KTAO; Gary Cafe, Engineer, Broadcast Australia Energy Systems; Jamie Field, Media Relations, Entercom Communications Corp.

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Thursday, April 14, 2011
Improving Mobile TV Reception
10:00 a.m. – 11:00 a.m.
S226

10:00 – 10:30 a.m.
Developing a Service Prediction Model for ATSC Mobile DTV
Television broadcasting to mobile, handheld and desktop devices has now become a reality in the United States. A significant number of stations have either already begun operation using the ATSC Mobile DTV (A/153) standard or plan to do so in the near future. Extensive field testing of A/153 by my firm indicates that there is a serious need for a new service prediction model. Reliable service is paramount to the success of this new service and a dependable prediction model is critical to planning the service. Reliable propagation models depend on extensive inclusion of empirical data due to the very large number of factors that affect service. This paper will discuss the development of a new service prediction model for ATSC Mobile DTV based on inclusion of an extensive Amount of field data integrated with propagation theory, receiver specifications, terrain data, land use data and available local environmental data.

Speaker: William Meintel, Partner, Meintel Sgrignoli & Wallace

10:30 – 11:00 a.m.
New Advertisement Opportunities in Mobile Environments
In order to create a new segment dedicated to people who use public transportation in Brazil, Globo TV creates a mobile HDTV receiver, to permit the reception of HD signal besides additional information and advertisements. This paper will describe the solution developed in São Paulo city, that create a four branch diversity receiver to improve the reliability of HD reception in mobile environments and with the capability of receive additional data and advertisement content thru digital signal, using the HD service available bitrate, without any need of additional telco provider. The diversity usage increased the full-seg coverage by up to 17% depending on the vehicle speed. This paper will present the results of tests on buses in São Paulo city in order to demonstrate the coverage and new marketing opportunities.

Speaker: Carolina Novaes, Project Engineer, TV Globo