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TV TechCheck



The Weekly NAB Newsletter for Television Broadcast Engineers

ATSC Hosts Symposium on Next Generation Broadcast Television

The ATSC DTV system has been in a constant state of evolution since the adoption of the first ATSC Standard, A/53, in 1995, including the recent creation of a system and standard for mobile DTV (ATSC A/153, available for download free-of-charge at www.atsc.org). By and large, one of the requirements for new additions and enhancements to the system has been that of *backwards compatibility*, such that any new feature or service does not “break” existing receivers or adversely impact services already included in the standards.

Recently, the ATSC formed a “Planning Team,” the Next-Generation Broadcast Television Team (PT-2), to explore potential technologies to be used to define a *future* terrestrial broadcast digital television standard, one that would not be constrained by the backwards compatibility requirement (see the [June 21, 2010 issue](#) of *TV TechCheck* for additional information on ATSC Planning Teams). As part of the PT-2 process, the first ATSC Symposium on Next Generation Broadcast Television (NGBT) was held last week in Alexandria, Va., focusing on new technologies that may have application for next generation broadcast content delivery systems.

Nine presentations on NGBT technology were made at this symposium; the speakers are shown in the photo below.



Speakers at the ATSC NGBTV Symposium (from left) – PT-2 vice-chair Yiyang Wu (CRC), Hyoungsoo Lim (ETRI), Stefan Meltzer (Fraunhofer), Christophe Chabanne (Dolby Labs), Lachlan Michael (Sony), James Johnston (DTS), Mark Eyer (Sony), PT-2 chair Jim Kutzner (PBS), Anthony Vetro (Mitsubishi Labs), Kinji Matsumura (NHK STRL), Kenichi Murayama, (NHK STRL)

A list of presentation titles and authors is given here along with a brief synopsis on the topics covered:

- Advanced Video Codecs: What’s On The Horizon?, Anthony Vetro, Mitsubishi Labs** – Mr. Vetro discussed current work being done in the area of video coding technology including the work of the Joint Collaborative Team on Video Coding (JCT-VC) and the High Efficiency Video Coding (HEVC) project which promises to reduce required bit rates for HD video up to 50% compared to existing MPEG-4 AVC technology.

- **Transmission Technologies for Next-generation Digital Terrestrial Broadcasting, Kenichi Murayama, NHK STRL** – NHK is researching and developing Super Hi-vision for a next-generation ultra-high-definition broadcasting system. In conjunction with this, NHK has successfully field tested transmission of broadcast data at around 60 Mbps on a single terrestrial television broadcasting channel (6 MHz bandwidth).
- **Latest Trends in Worldwide Digital Terrestrial Broadcasting and Application - Lachlan Michael, Sony Corporation** – Mr. Michael talked about trends in various areas of DTV technology, including modulation (continued focus on multipath resistance), forward error correction (FEC) trends (new techniques including Low Density Parity Check, LDPC, codes) and new technologies including 1024 QAM and Multiple Input Multiple Output (MIMO) antenna configurations.
- **Toward the Construction of Hybridcast, Kinji Matsumura and Hisakazu Katoh, NHK STRL** – a TV-centric broadcast and communications hybrid system was described and some features of this system were demonstrated including program customization, social network interaction on the TV screen, program recommendation and multi-device linkage.
- **Surround Demystified, Christophe Chabanne, Charles Robinson and Jeff Riedmiller, Dolby Labs** – Mr. Chabanne discussed features of the SMPTE S428-3-2006 standard which is the genesis of all existing surround formats, and offered “3D audio” as an area for development in next-generation surround sound. In this context, 3D audio refers to a system that provides a more immersive and realistic sound experience than currently available.
- **A Revolutionary Digital Broadcasting System: Making the Fullest Possible Use of Bandwidth, Mark Eyer, Sony Corporation** – Sony anticipates that the next generation broadcast system will be able to offer 10 HDTV channels in the same bandwidth that the legacy ATSC DTV system utilizes for a single HDTV channel, and presented a variety of “use cases” for this next-generation system.
- **Beyond Coding: Getting 3D Audio into the Home, James D. Johnston, DTS** – Mr. Johnston examined some of the important requirements for home reproduction of “3D audio,” how these requirements interact with the home playback system and how playback equipment can take stock of its own capabilities in order to get as close as possible to the content creator’s original intent.
- **Self-Organizing Broadcast Network, Hyoungsoo Lim and Heung Mook Kim, ETRI** – Self-Organizing Network (SON) technology could be applied to the next-generation broadcasting. A SON would require feedback from user equipment (a television or set-top box) regarding reception power and timing. With this information, the SON would in real-time adjust transmit signal power and antenna pattern to optimize reception over the broadcast coverage area.
- **MPEG-4 HE-AAC – The Audio Codec for the Next Generation Broadcast Television, Robert Bleidt, Harald Fuchs, Stefan Meltzer and Stephan Schreiner, Fraunhofer** – Audio requirements for NGBT include multichannel audio, 3D audio extension, parallel transmission of different language tracks, additional channels for the hearing and visually impaired, and the transport of metadata containing, for instance, dynamic range or downmix parameters. Mr. Meltzer discussed different approaches for fulfilling these requirements, including use of the existing MPEG-4 HE-AAC audio coding system.

A second symposium is scheduled for February 15, 2011 in Rancho Mirage, Calif., in conjunction with the Hollywood Post Alliance Technology Retreat. For additional information about the work of the ATSC PT-2 and this next Symposium, contact the PT-2 chair, Jim Kutzner at jkutzner@pbs.org.

NAB and Others Ask the FCC to Extend the 180-Day CAP Compliance Deadline

On Thursday October 21, 2010, NAB together with a number of other broadcast and cable organizations filed a petition with the FCC seeking an extension of the so called 180-day CAP compliance deadline.

That deadline, which is currently March 29, 2011, was established under the FCC's EAS regulations (See 47 C.F.R. § 11.56.) and was triggered because on September 30, 2010 FEMA published the technical standards and requirements for CAP-formatted EAS alerts to be used for their Integrated Public Alert Warning System ("IPAWS"). By that deadline all EAS participants must have acquired and installed equipment capable of receiving Common Alerting Protocol ("CAP") v1.2 formatted Emergency Alert System ("EAS") alerts. (See October 4, 2010 issue of *TV TechCheck*).

The petition asks that the FCC extend the deadline for at least an additional six months to September 30, 2011 or consider other appropriate relief, including, but not limited to, a longer extension as well as holding the deadline in abeyance until the FCC has completed its own CAP-related equipment certification process and has resolved its anticipated rulemaking proceeding concerning modifications to Part 11 of the Commission's rules necessary to reflect the implementation of CAP.

The petitioners are: NAB, a group of forty-six State Broadcasters Associations, the Society of Broadcast Engineers ("SBE"), National Public Radio ("NPR"), the Association of Public Television Stations ("APTS"), the Public Broadcasting Service ("PBS"), Association for Maximum Service Television ("MSTV"), the National Cable and Telecommunications Association ("NCTA") and the American Cable Association ("ACA").

A copy of the petition is available on NAB's webpage at:
<http://www.nab.org/documents/filings/EASCAPPetition102110.pdf>.

ATSC Digital Television Transmission System Seminar The Future of Terrestrial & Mobile Television

KNME-DT, Albuquerque, N.M.
Wednesday, October 27, 2010
8:30 a.m. to 5:30 p.m.

An updated one-day seminar will be presented on the ATSC's digital television vestigial sideband (VSB) transmission system. The seminar will cover the fundamentals of the new mobile DTV transmission standard and its relationship to the legacy 8-VSB system. It will also cover practical broadcaster recommendations for improved DTV service and viewer education as learned from last year's post June 12 field tests. The seminar is conducted by Gary Sgrignoli, DTV transmission engineer with [Meintel, Sgrignoli & Wallace](#). This seminar is for broadcasters, broadcast consultants, equipment manufacturers, translator/LPTV operators and cable operators. For more information at KNME-DT contact [Jim Gale](#) at 505 277 2049 or [Dan Zillich](#) at 505 277 1251. You may also contact the instructor [Gary Sgrignoli](#) at 847 259-3352.

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