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ATSC 3.0 News

ATSC 3.0 Gets High Marks
in Shanghai Testing

BTS Symposium Tries Out Florida Venue

ATSC 3.0, spectrum auction/repack, digital radio high on agenda

ORLANDO, FLA.

In keeping with the practice in recent years of taking the annual Broadcast Technology Society's Fall Symposium on the road, this year's event opened to sunny Florida skies in this vacation capitol. The Oct. 14–16, 2015 conference attracted some 120 attendees and was hosted by the Caribe Royale Hotel, with sessions taking place in the hotel's adjacent convention center.

Symposium co-chairs Roz Clark and Jim Stenberg shared their thoughts on the gathering.

"The 2015 BTS Symposium was a resounding success," said Clark. "The Orlando location afforded a unique opportunity to provide a regional flavor to the annual event while still retaining the long standing tradition of delivering sessions of broad interest. Attendees commented that the sessions were interesting and covered a wide variety of subjects pertinent to radio, TV and common broadcast engineering challenges. As we were so close to Cape Canaveral and the Kennedy Space Center that we wanted to include a "space" theme. The NASA VIP tour put together by Paul Shulins and Jim Moody was a big part of this, as was obtaining a NASA partner manager working with SpaceX, Jon Cowart, as a luncheon keynote speaker."



Roz Clark (L) and Jim Stenberg (R) welcome Symposium attendees.

"This year's Symposium was a success by all measures, and Roz and I couldn't be happier with how it turned out," said Stenberg. "From our behind the scenes tour at NASA Kennedy Space Center on Tuesday to the excellent cyber security keynote on Wednesday, Jon Cowart's lively lunch presentation on Thursday and the awarding of the first Jules Cohen

engineering award to Tom Silliman, all reports indicate that attendees found the information useful, entertaining and timely. The symposium prides itself on being a place where the purely technical aspects of our industry can openly be debated and discussed, and we felt that was definitely true this year."

First Day Tutorial Session



Bill Hayes

Society president Bill Hayes formally opened the 63rd BTS Symposium Wednesday morning with a welcome message and then turned proceedings over to Roz Clark who chaired the initial presentations of the traditional first-day tutorial session. This year's topic was "Advanced RF Technology for Radio. Kicking off the day's presentations was Nautel's Phil Schmid who touted the advantages of interleaving HD

radio signals. He was followed by Dielectric's John Schadler who offered suggestions and techniques for dealing with increased IBOC transmission power levels.

The remainder of the morning was filled out with an update by David Layer on the work being undertaken by the recently

established NAB Labs entity and a report by Hal Kneller on the implementation of a Florida radio (WSUN) single frequency network operation. Following a very different and startling luncheon keynote address by computer and smart device hacking expert Frank Artes, tutorial day proceedings continued with a briefing on cybersecurity measures by George Walters, and an in-depth presentation on grounding concepts and techniques from Tom Silliman.



Hal Kneller

The session also included a look at advanced audio technologies for broadcasters with a focus on the latest coding advancements and immersive audio. Presenters included Fadi



Deep Sen

Malak from DTS, Jeff Riedmiller from Dolby, and Deep Sen from Qualcomm. Wednesday session chairs included Roz Clark, Glynn Walden, James O'Neal, and Milford Smith.

Day Two: ATSC 3.0, Emergency Alerting, Content Delivery and AES 67

The Symposium's Thursday morning sessions focused on the "next-gen" digital television broadcast standard, ATSC 3.0, with several of those who are close to its development offering information about its workings. The NAB's Skip Pizzi led off with a top-down overview of the standard and was



Youngkwon Lim

followed by Sony's Luke Fay who provided information on the physical layer which was recently been elevated to "Candidate" status (see "ATSC 3.0 Physical Layer Elevated to 'Candidate' Status" elsewhere in this issue). Youngkwon Lim from Samsung was next with a description of the standard's management and protocols layer and their role in allowing ATSC 3.0 to deliver content to over-the-air broadcast and Internet channels. Following Lim was Madeline Noland, a consultant representing LG Electronics, who described the ATSC 3.0 applications and presentation layer.

The morning sessions wrapped up with a presentation on the ATSC 3.0 security layer from PBS's Seton Droppers,



Pete Sockett

and a look at advanced emergency alerting technology from Capital Broadcasting's Pete Sockett.

Thursday sessions continued after a break for the joint BTS/AFCCE lunch, with presentations on IP delivery availability delivered by Vitor Olivera from Brazil's Mackenzie Presbyterian University. He was followed by Geiza Caruline Costa from Brazil's Federal University of the ABC region who discussed interactive second screen applications relating to the ISDB-Tb platform.



S. Merrill Weiss

A paper on broadcast service for mobile and OTT was scheduled at this point, but it was withdrawn shortly before the conference got underway and S. Merrill Weiss graciously stepped in to fill the breach. [If the BTS ever decides to offer an award for the speediest paper preparation, it will have

to go to Merrill, who put together a very credible presentation on STL issues—complete with graphics—in just a matter of hours! Good show, Merrill!]

The remainder of the afternoon session was devoted to the comparatively new Audio Engineering Society's AES67 standard for audio-over-IP interoperability. Speakers included Greg Shay from The Tellos Alliance, Al Salci from SAS, Keyur Parikh from GatesAir and Phil Owens from Wheatstone. Following the individual presentations,



(L-R) Phil Owens, Greg Shay, Al Salci and Keyur Parikh

a roundtable discussion and Q&A session was convened to round out the day. Wednesday session chairs included Rich Chernock, S. Merrill Weiss and Paul Shulins.

Day Three: The TV Repack, Spectrum Issues, Watermarking, and ATSC 3.0 Implementation

The final day of conference proceedings focused largely on the “repacking” of television stations in the United States following next spring’s “incentive spectrum auction.” Lead-



Sid Shumate

ing off was Sid Shumate from Givens and Bell, who presented “Using an Improved Two-Ray Calculation to Determine the Source of Fresnel’s Constants.” Shumate noted that the two-ray calculation is the ‘Swiss Army knife’ in the Longley-Rice propagation toolkit.” Next up was Joe Davis from Chesapeake RF Consultants who advised the audience of important deadlines and procedural constraints that would accompany the TV station repacking process.

RFS World’s Benedikt Scheid followed Davis with a presentation on “advanced passive components” in connection with changes mandated by the UHF spectrum reallocation.



Keith Pelletier

The program continued with a look at the workings of the upcoming ITU World Radiocommunication Conference (WRC-15) presented by the Harris Corporation’s Christine Dilapi. Rounding out the morning’s presentations was Dielectric’s Keith Pelletier who offered information and suggestions about methodologies for making the inevitable repacking channel changes a bit easier.

After a break for the annual BTS Awards luncheon where ERI’s Tom Silliman was awarded the first-ever Jules

Cohen Outstanding Engineering Achievement Award, and the NAB’s David Layer, received the Matti S. Siukola Memorial Award, Symposium proceedings continued with a presentation on audio watermarking in broadcasting by Barry Blesser of the Tellos Alliance. He was followed by Nielsen’s Arun Ramaswamy, who spoke about his company’s PPM (portable people meter) technology for determining radio and television audiences.

The ATSC 3.0 DTV standard was the focus of the remaining hours of the Symposium, with Louis Libin, senior director of new technology for the Sinclair Broadcast Group,



Louis Libin

describing the flexibility built into the standard. Mark Corl, Trivini Digital’s senior vice president of emergent technology development, spoke about the interactive capability available in ATSC 3.0, and Zenith’s Tim Laud completed the afternoon’s proceedings with a look at initial field testing of the new standard’s physical layer. [The complete paper “First Field Testing of Proposed ATSC 3.0 Physical Layer Technologies,” co-authored by Laud,

Wayne Luplow, Sung-ryong Hong, and Joe Seccia, is published in its entirety elsewhere in this issue of **Broadcast Technology**. Ed.] Friday session chairs included Jim Stenberg, Paul Shulins and Guy Bouchard.

BTS president Bill Hayes formally closed the 2015 Symposium by thanking all participants who helped to make it a success and invited everyone to start making plans to attend the 2016 Symposium which will be held in Hartford, Conn. Oct.12–14 at the Hartford Marriott Downtown Hotel.

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