NAB Radio TechCheck

The Weekly NAB Newsletter for Radio Broadcast Engineers

September 28, 2009

2009 NAB Radio Show Highlights

Last week's annual NAB Radio Show™, held in Philadelphia, Pa. (www.nabradioshow.com), was a showcase for the latest in radio technology and host to some exciting and informative conference sessions. Listed below are some of the highlights of this year's show.

Portable Radios Galore – This show marked the first time that commercially-available portable HD Radio receivers were on display, including the brand new Microsoft Zune HD as well as the Insignia NS-HD01 which went on sale in July. Add to that the recently-announced iPod nano, which now includes an analog FM radio receiver, and the result is a portable radio bonanza. Portable radios were a popular giveaway item as can be seen from the posters in the photo below.

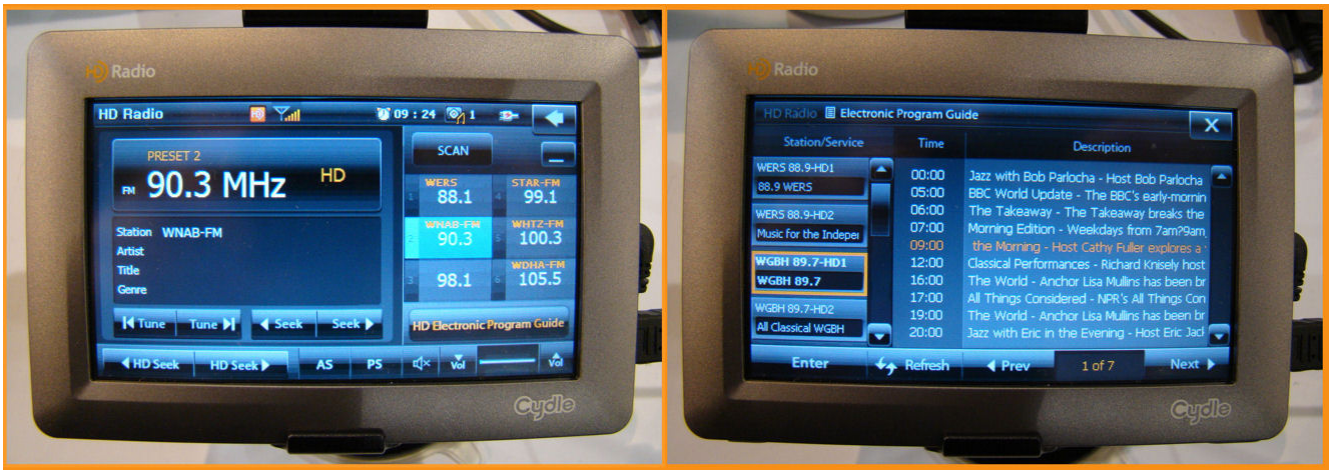
The Zune HD was on display in the HD Radio booth hosted by iBiquity Digital Corporation (see photo at right) and was a popular show-and-tell item among attendees, many of whom had already purchased a Zune HD for themselves. This new portable radio has an organic LED display which is clearer and brighter than most portable displays on the market. In addition to HD Radio reception, the Zune HD has Wi-fi capabilities, a "well-featured" Web browser, and the ability to tag songs heard on the radio for later purchase. The Zune HD will also support purchase or rental of high-definition movies through the Zune marketplace online store. For more information on the Zune HD go to http://www.zune.net/en-us/products/zunehd/default.htm.

FM Digital Booster Technology Advances – iBiquity Digital Corporation and NAB FASTROAD announced at the NAB Radio Show on Wednesday that the first two stages of a project to develop on-channel digital booster technology for FM in-band/on-channel (IBOC) digital radio have now been completed. This work has been undertaken by iBiquity Digital Corporation, developers of the HD Radio IBOC system used by U.S. broadcasters to transition to digital radio, and is being co-funded by iBiquity and NAB FASTROAD.

On-channel digital booster technology is one of several techniques proposed for improving FM IBOC digital radio coverage. The boosters, strategically located within the coverage area of a radio station, would transmit only the digital portion of the hybrid IBOC signal. The approach to digital booster development being undertaken by iBiquity is aimed at a booster design that is interoperable among the various transmission equipment manufacturers. The technology is reverse-compatible with existing receivers and supportable by existing FM IBOC broadcast products, such as exciters, through upgrading.

A technical report describing the results of laboratory testing of this new digital booster technology is available online. The full text of the report and information on the NAB FASTROAD technology advocacy program are available at www.NABFASTROAD.org.

FASTROAD HD Radio Electronic Program Guide (EPG) Exhibit – Prototype EPG hardware and software was demonstrated on the show floor in the FASTROAD HD Radio EPG exhibit. In the photo at right, EPG team member Adrian Cross from Unique Interactive discusses the display with incoming NAB President and CEO Gordon Smith and NAB Joint Board Chair Steve Newberry. Below, a demonstration of the EPG technology on a prototype combination HD Radio/navigation receiver developed by Cydle Corporation is shown. The image on the left shows the default radio tuner display which includes, in the lower right-hand corner, an "HD Electronic Program Guide" button. When that button is pressed, the screen shown on the right appears, which lists the stations included in the EPG database, and when one of the stations is selected, the EPG for that station is displayed. For more information about this exhibit see the September 14, 2009 issue of *Radio TechCheck*.



New Quality Measurement Technique for FM IBOC Developed – A new, standardized method for determining the transmission quality of an FM IBOC signal called Modulation Error Ratio (MER) has been developed by a group of technologists that promises to offer broadcasters a new, standardized technique for

verifying the quality of FM IBOC transmissions. As a result of this development, transmission and signal measurement equipment manufacturers will be able to offer the industry new and improved devices for making FM IBOC signal quality measurements.

This development effort resulted from the National Radio Systems Committee (NRSC) drafting of *NRSC-G201, NRSC-5 RF Mask Compliance: Measurement Methods and Practice*, which was adopted by the NRSC in April 2009. The NRSC is a technical standards-setting body co-sponsored by the National Association of Broadcasters and the Consumer Electronics Association.

The MER measurement technique is described in a new iBiquity Digital Corporation "reference document" entitled *Transmission Signal Quality Metrics for FM IBOC Signals*. At last week's meeting of the NRSC's Digital Radio Broadcasting (DRB) Subcommittee, held in conjunction with the NAB Radio Show, iBiquity submitted this document to the group, which will now consider incorporating this new technique into the NRSC-5 IBOC Digital Radio Broadcasting Standard as well as the NRSC-G201 Guideline document.

The selection of MER as the HD Radio transmission signal quality metric for the FM IBOC signal and the method of measuring MER on the FM IBOC signal was developed by a working group of technologists representing iBiquity Digital, Broadcast Electronics, Continental Electronics, Harris Broadcast, Nautel Ltd., and other interested participants from the U.S. radio broadcast industry. This group of technologists reached full consensus on the standardized method for FM IBOC signal MER measurement described in the document submitted to the NRSC today.

Geoff Mendenhall, VP Transmission Research and Technology at Harris, and Harris' representative to the NRSC, led the team developing the MER measurement standard. He said that "The development of transmission signal quality metrics for FM IBOC signals will give broadcasters confidence that their HD Radio transmission system is truly delivering a high quality signal to their listeners. It is now possible to fully characterize the performance of the complete HD Radio transmitter facility."

2010 NAB Show Call for Speakers

Call for Technical Papers – NAB Broadcast Engineering Conference

The 2010 NAB Show will host the 64th Broadcast Engineering Conference. This world-class conference addresses the most recent developments in broadcast technology and focuses on the opportunities and challenges that face broadcast engineering professionals. Each year hundreds of broadcast professionals from around the world attend the conference. They include practicing broadcast engineers and technicians, engineering consultants, contract engineers, broadcast equipment manufacturers, distributors, R&D engineers plus anyone specifically interested in the latest broadcast technologies.

Do you have something to share?
If you feel qualified to speak at the NAB Broadcast Engineering Conference, we invite you to submit a technical paper proposal. Not all acceptable submissions can be included in the conference, due to the large number of submissions that are received and the limited number of available time slots.

The deadline for submitting your proposal is **October 23, 2009.** If you have any questions, contact John Marino, VP Science and Technology at 202 429-5346.

PLAN TO ATTEND!

The IEEE Broadcast Technology Society
59th ANNUAL BROADCAST SYMPOSIUM
14 -16 October 2009
The Westin Alexandria
Alexandria, VA, USA
www.ieee.org/bts/symposium