Radio TechCheck
The NAB Labs Newsletter for Radio Broadcast Engineers
NAB LABS
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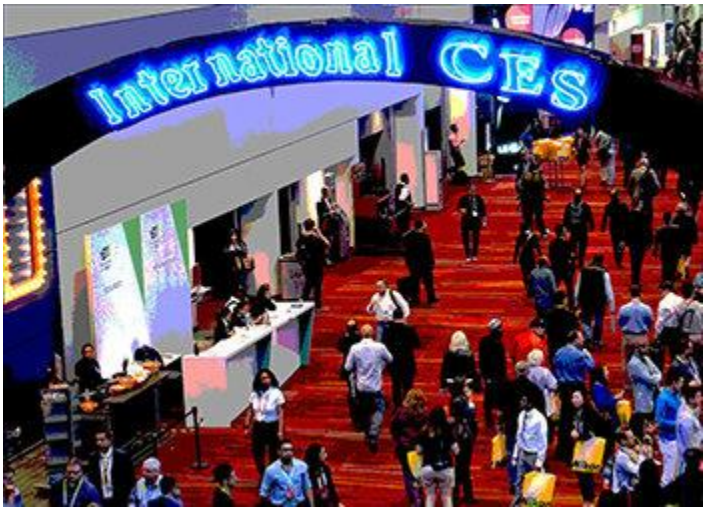
New Technologies on Display at 2015 International CES

Once again, Las Vegas was the center of the consumer electronics world as host to the 2015 International Consumer Electronics Show (CES), held from January 6-9, 2015. Tech categories that were especially hot at this year's show included Ultra-HDTV (also known as "4K", especially curved-screen sets), drones, "smart home" devices, wearable devices, wireless charging, and high-tech autos. This week's Radio TechCheck offers a brief summary of some of the exciting radio-related devices and developments from this year's Show.



NextRadio and iBiquity Unveil Hybrid Radio Dashboard Technology

Last September at the Radio Show, iBiquity Digital Corporation, the developer of digital HD Radio technology for AM and FM audio and data broadcasting, and TagStation, the developers of the NextRadio hybrid radio platform, announced a partnership to develop connected radio devices for the automobile. At the 2015 CES, just four months later, a prototype of their first joint product demonstrating the benefits of interactive digital radio in a connected car was on display.

The demonstration platform being shown was the first combination of both analog and HD Radio broadcasting with NextRadio services, and showcased the benefits of the "connected car" combining free over-the-air broadcast radio services with the visual and digital capabilities of the NextRadio app. The pictures below show (from left to right) the HD Radio booth at CES, NextRadio director of product development Ben Husmann and iBiqutiy vice president, commercial applications Ashruf El-Dinary with the connected car prototype, and a close-up of the "live guide" connected car radio prototype which shows real-time album art and song information (for stations subscribing to TagStation interactive services).

TagStation's NextRadio innovative, cross-platform technology extends from smartphones, tablets, and now to the automotive dash transforming radio broadcasts into a visually engaging and interactive experience. "The joint development agreement between TagStation and iBiquity provides automakers and broadcasters the opportunity to develop solutions that ensure radio listeners have the optimal, modern experience with all broadcast radio programming," said Paul Brenner, SVP for TagStation. "By adding connectivity to broadcast radio, both analog and digital, for the built-in connected car and paired smartphone car we have been able to provide a rich suite of interactive services that connect people with radio like never before."

An iBiquity press release on these developments is available here.

New HD Radio Receiver Technology

A number of new prototype portable and tabletop HD Radio receivers were on display in the HD Radio booth at the Show. It was announced that Roberts Radio and iBiquity Digital Corporation have partnered together to launch the iconic "Revival Radio" with HD Radio technology and Bluetooth for the North American market. Also announced was a partnership between British-based manufacturer View Quest to incorporate HD Radio technology into a number of View Quest radios. The photos below shows the Roberts Revival Radio (black unit at left) as well as a number of View Quest and other models.

The Roberts Revival RD70HD (pictured above) is both flagship of the range and the biggest selling model, available in a variety of colors and finishes. Equipped with HD Radio technology for the North American market, the first Roberts Radios will ship for sale in the US in May (estimated) with an MSRP of $399. For more on the Roberts Radio announcement visit the iBiquity website.

iBiquity also announced at the Show that aftermarket auto radio manufacturer Pioneer has shipped three new HD Radio models, DEH-X5700HD, DEH-X5710HD, and DEH-X8700BH, all equipped with the new Emergency Alerts Feature. Emergency Alerts work in conjunction with the Federal Emergency Alert Services to provide consumers more advanced messaging during emergencies or disasters. Radio stations across the country are deploying HD Radio Emergency Alerts at an accelerated pace to

offer this service nationwide, with special initial emphasis in tornado alley states. These Pioneer HD Radio receivers are the first car products to launch in model year 2015 providing the Emergency Alert Services feature.

NRSC meets, DRB Subcommittee adopts NRSC-R208, Characteristics of Location-based Services Transmissions Using Local Radio

Three meetings of the National Radio Systems Committee (NRSC) were held in conjunction with the 2015 International CES. The NRSC is co-sponsored by NAB and the Consumer Electronics Association, producers of the annual International CES. Groups meeting at the show were the AM and FM Analog Broadcasting (AFAB) Subcommittee, the Radio Broadcast Data System (RBDS) Subcommittee, and the Digital Radio Broadcasting (DRB) Subcommittee.

Shown in the photo below (taken at the start of these meetings) are Gary Kline, Cumulus Broadcasting, Stan Salek, Hammett & Edison Consulting Engineers, David Layer, NAB, Dan Mansergh, KQED, Mike Bergman, CEA, Don McMillan, Private Consultant, Canada, E. Glynn Walden, CBS Radio, Jackson Wang, e-Radio, Paul Rotella, RIAA, Dennis Wallace, MSW Inc., Al Shuldiner, iBiquity, Matt Straeb, GSS, Jeff Detweiler, iBiquity, Ched Keiler, Private Consultant, Ralph Hogan, APRE, Tom Silliman, ERI, Inc., Alan Jurison, iHeartMedia, and Ashruf El-Dinary, iBiquity.

The DRB Subcommittee adopted a new NRSC Report, NRSC-R208, *Characteristics of Location-based Services Transmissions Using Local Radio*. This Report is intended to inform interested parties regarding the potential for location-based services to be associated with radio broadcast program content. At this time, radio broadcaster-provided location-based services are minimally deployed with a limited number of users. Dedicated traffic and travel information services use the broadcast (and other) media to communicate traveler information to end-users, which typically employ dedicated or supplemental services that are not directly associated with the specific broadcast content. It is a goal of this NRSC Report to provide insight and suggested best practices for enabling radio broadcaster-provided location-based services.

This newest NRSC Report is the work product of the Location-based Services Working Group (LBSWG), a subgroup of the DRB Subcommittee, chaired by David Maxson, Isotrope, LLC. This report will soon be posted on the NRSC website and available free-of-charge.

e-Radio Shows RDS-based Load Management, Wins CES Award

A Radio Data System (RDS)-based technology used for controlling power usage by consumers was the recipient of a 2015 CES Innovations Award in the "Tech for a Better World" product category. This technology was developed by Canadian company e-Radio Inc. whose products are focused on residential, commercial and small industrial customer electricity demand management programs using the global FM-RDS technology as the communications platform.

e-Radio was also an exhibitor at this year's show. Shown in the photo at right is their booth, being staffed by Jackson Wang, President and CEO of e-Radio, and Mike Starling, former CTO of NPR (now retired). In the inset at lower left, e-Radio's patented P2D 2045 module is shown connected to a hot water heater. The P2D 2045 uses FM RDS technology within the CEA-2045 standard to send real time electricity pricing directly to appliances, enabling them to buy their energy more intelligently, materially improving the efficiency of the grid. When the e-Radio P2D 2045 module is connected to the host appliance, it will enable the device to comply with emerging "connected" appliances Energy Star performance specifications from the EPA.

Appliance addressability as facilitated by the e-Radio P2D 2045 module has the potential to save billions of dollars and millions of tons of carbon dioxide emissions annually. In addition, the e-Radio module can work seamlessly within energy home management systems to provide greater convenience and flexibility. This creates significant user value through continuous energy optimization combined with a never before possible degree of convenience, control and flexibility in the home environment.

Additional information is available on the e-Radio website.

Hyundai, Audi Display New Automotive Dashboard Technology

Many of the major automobile manufacturers host exhibits at the annual CES, highlighting advancements in automotive technology. This year's featured technologies included autonomous driving systems, advanced headlight designs, new dashboard display technologies and, of course, "connected car" information and entertainment systems that make use of wireless broadband Internet connectivity.

One of the more impressive connected car demonstrations was hosted by Korean auto manufacturer Hyundai, who showcased a new "Display Audio" system with no CD player or embedded navigation system. Display Audio is a high resolution seven-inch color touch-screen display that has been optimized specifically for enhanced smartphone integrations and the latest generation Blue Link system, and on some car models will also include HD Radio receiver technology.

The Hyundai Display Audio system supports both Apple CarPlay and Android Auto as shown in the photos below: the Hyundai booth is shown on the left; in the center are screen shots of the Display Audio system when an iPhone is connected to the system (note the iPhone-like app icons on the lower center photo); and, on the right, screen shots from the same Display Audio system when an Android phone is connected, showing in the lower right photo a typical "Google Now" display.

Display Audio launches on select 2016 Hyundai models and will eventually be available in entry-level models as well. Display Audio will have navigation capability through smartphone integrations and will also offer entertainment apps for music, news, sports, and Podcasts. Apple CarPlay offers third-party audio app support, such as Beats Music, iHeart Radio, MLB At Bat, Spotify, Stitcher, CBS Radio News and Podcasts, among others. Android Auto's initial app roster includes iHeart Radio, MLB At Bat, Spotify, SoundCloud, Pandora, TextMe and WhatsApp. Each partner plans to add additional third-party apps in the future and these will not require any vehicle software updates. Additional information about Hyundai Display Audio is available here.

Shown in the Audi booth was the Audi "virtual cockpit." With the Audi virtual cockpit, all information appears directly in front of the driver's eyes using a 12.3-inch LCD display with a high resolution of 1,140 x 540 pixels and is powered by a Tegra 30 chip from partner Nvidia's Tegra 3 series. This ensures that readouts such as the speedometer and rev counter are depicted with adequate precision.

In the Audi booth, the virtual cockpit was being demonstrated in an Audi TT sports car. Shown in the photo below is a picture of the vehicle cockpit (at left) and at right, a close-up of the virtual cockpit display. Notice how this display is the only one on the dash of the vehicle, there is no second display for navigation and entertainment as is common on other vehicles.

With the virtual cockpit, the driver has a choice of two views. In the classic view, the round speedometer and tachometer dials dominate the layout, whereas in the "infotainment mode" the navigation, telephone, Audi connect or media functions are brought more to the fore. For example, in the photo above, at left, the navigation display is dominant with smaller tachometer and speedometer dials visible in the lower corners. The displays for the outside temperature, time, mileage as well as warning and information symbols have a fixed position along the bottom edge of the cockpit in both modes. Additional information on the Audi virtual cockpit is available here.

Last Call for Engineering Achievement Awards Nominees

This is your last opportunity to nominate an individual for the 2015 NAB Engineering Achievement Awards. Established in 1959, the NAB Engineering Achievement Award is presented each year to an individual for outstanding accomplishments in the broadcast industry. In 1991, NAB began giving awards separately for achievements in radio and television. The award winners will be recognized at the Technology Luncheon at the 2015 NAB Show on April 15 in Las Vegas, Nev.

The nomination form is available on NAB's Engineering Achievement Award website, and the deadline is **January 16, 2015.**

NAB Seeking 2015 Technology Innovation Award Nominees

NAB is currently accepting nominations for the 2015 NAB Technology Innovation Awards. First presented at the 2009 NAB Show, NAB presents the award to organizations that bring advanced technology exhibits and demonstrations of significant merit to the NAB Show. The nominated exhibit should present advanced research and development projects in communications technologies that have not yet been commercialized.

Candidates for the Technology Innovation Awards must be organizations who are currently exhibiting at the NAB Show. The size of the organization is not a determining factor. Nominated projects may not be commercial products that have been offered for sale prior to or at the NAB Show. The merit of the technology exhibit is the sole factor to be taken into account. The entry deadline is February 20, 2015. The awards will be presented at the NAB Technology Luncheon on April 15, 2015 at the NAB Show in Las Vegas.

Here is a summary of the award winners from the past two NAB Shows:

2014 Award Recipient: Ericsson Television Ltd.

The 2014 NAB Technology Innovation Award went to Ericsson Television Ltd for its demonstration of a live real-time contribution feed of 4K Ultra High Definition Television coming from Europe directly to the NAB Show exhibit floor. While we've seen beautiful 4K consumer television sets in retail showrooms, they will just be high tech furniture until enough 4K content is widely available. The Ericsson demonstration showed a clear path for broadcasters to overcome the first and most important hurdle — acquisition of high quality and truly immersive live 4K content. This demonstration showed the professional industry that it is possible to start building the ecosystem and a library of Ultra HD content now, as broadcasters consider rolling out commercial 4K services in the coming years.

2013 Award Recipient: Cisco Systems, Inc.

Cisco Systems received the 2013 NAB Technology Innovation Award for its Future of Video concept. Future of Video (formerly called Project Fresco) presents a future of television that breaks out of the "box in the corner of the room," showing how television will harness new display technology and an immersive layout engine to become unobtrusive, frameless, ultra-high definition and ambient. Future of Video demonstrates that television's future is both collective and personal, and exemplifies a new relationship between large screens and companion devices.

Additional information and a nomination form are available on NAB's website. The deadline for nominations is February 20, 2015.

Planning and Designing the IP Broadcast Facility

Planning and Designing the IP Broadcast Facility provides a comprehensive understanding of the technology architecture, physical facility changes, and the new media management workflows and processes to support the entire lifecycle of the IP broadcast facility from an engineering and workflow perspective.
Buy it from NABStore.com.

Important Dates and Upcoming Events

Hollywood Post Alliance (HPA) Tech Retreat
February 9 - 13, 2015
Indian Wells, Calif.

Audio Engineering Society (AES) 57th Conference: The Future of Audio Entertainment Technology
March 6 - 8, 2015
Hollywood, Calif.

2015 NAB Show
April 11 - 16, 2015

Las Vegas, Nev.