

◆ NEWS WATCH ◆

U.S. Electronics: Past Compliance Matters

WASHINGTON U.S. Electronics said it would probably appeal an FCC decision denying disclosure of many documents the company had sought.

The manufacturer filed Freedom of Information Act requests that relate to Sirius and XM's compliance with commission rules.

It believes all relevant documents should be made part of the public record

before the commission acts on the proposed satellite radio merger, it said in a commission filing.

U.S. Electronics formerly made devices for Sirius; the companies are now involved in a legal dispute.

While the Enforcement Bureau released some documents to the company, U.S. Electronics seeks more; the documents have to do with the licensees' compliance record regarding interoperable radios, terrestrial repeaters and FM modulated devices.

The documents are germane to the public record in the deal, the company stated, "because of the possibility that the merger, if approved, would seek to

impose conditions upon the surviving network service provider."

U.S. Electronics advocates appointment of an independent monitor to ensure compliance with conditions should a merger be approved. Sirius/XM should be barred from engaging in or interfering with the design, manufacture and distribution of satellite radio receivers or other digital devices that can access the satellite radio network, according to U.S. Electronics.

"The merged entity should also publish and make available the technical requirements and specifications of its network, including reasonably advanced notice of any changes to any qualified

partner," states the company.

Georgetown Partners, which wants to be a satellite radio provider should Sirius and XM merge, agrees that past compliance is relevant to the case.

In a meeting in April with FCC staffers, it stressed antitrust concerns regarding the Justice Department decision not to block the deal. In a filing, Georgetown stated that the Justice decision rewards Sirius and XM for their failure to honor the commitment they made to develop and market an interoperable radio capable of receiving both DARS signals.

"The public interest requires that a viable competitor be established in the market if the commission decides to approve the merger," Georgetown stated.

More Groups Support 'Open Device' Proposal

WASHINGTON Several organizations, including Ibiquity Digital, U.S. Electronics and Public Knowledge, say if the satellite radio companies are allowed to merge, an "open device requirement" should be a condition of approval.

Diversity in the number of manufacturers making satellite radios would encourage chip, receiver and component makers to continue to produce radio product and compete on price and features, proponents say.

Ibiquity met with FCC staffers in April about the merger and reiterated a proposal to condition the merger upon the inclusion of HD Radio receive capability in future

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ROOTS OF RADIO

Not Enough Time? A History of WWV, WWVB

by Thomas R. Ray III

I told you last time about my visit to WWV and WWVB (RW, April 23). But how did those services come about?

The National Institute of Standards and Technology, known at the time as the National Bureau of Standards, has been involved with radio and radio frequency research since 1901. During World War I, NBS established its radio section, which worked with the military to develop radio techniques for defense and navigation.

The letters WWV have no specific meaning; the calls were assigned to the NBS in October of 1919. A station was established in May of 1920 in Washington, operating with 50 Watts on a wavelength of approximately 500 meters (around 600 kHz).

Keep in mind that these broadcasts occurred at least six months before KDKA, arguably the first commercial radio station, went on the air on Nov. 2, 1920.

In December of 1920, WWV started assisting the Department of Agriculture by broadcasting market news and farm reports. These 500 word reports, broadcast daily on 750 kHz, were transmitted using a 2 kW spark transmitter and "telegraphic code."

It was decided in December of 1922 that the purpose of WWV would be to transmit standard frequency signals as an



One of the three hallways in the 'transmitter horseshoe' at WWV. Each of the frequencies has a main and backup transmitter. Main transmitters are modified CCA transmitters, backups are Technical Materiel Corp. Each frequency is auto switched to its backup in the event of failure of the main.

ments, and ionosphere bulletins.

A fire destroyed WWV on Nov. 6, 1940, but it was possible to salvage the frequency equipment, and WWV returned to the air five days later from an adjacent building and 1 kW. An act of Congress in

On Aug. 13, 1991, WWV stopped using the mechanical drum recorders that had been used for the time voice announcements and switched to digital storage devices.

WWVB, meanwhile, first went on the



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aid to other broadcasters.

At the time WWV went on the air as a frequency standards station, the national frequency standard was a wavemeter, and WWV's operating frequency was set by a wavemeter that was calibrated against the national standard wavemeter. Shortly before WWV commenced this operation, the quartz crystal oscillator was invented.

Standards

By 1927, a 50 kHz quartz crystal oscillator was located at WWV and used as the frequency standard. With the number of radio stations increasing quickly, WWV was welcome as the nation's frequency standard.

In January of 1931, the first broadcast of 5 MHz commenced from College Park, Md., with WWV operating on Tuesdays for two hours in the morning and two hours at night with 150 Watts. Within the year, the power of WWV was increased to 1 kW.

By April of 1933, WWV was operating on 5 MHz with 30 kW, and by 1935, was also operating on 10 and 15 MHz with 20 kW.

In June of 1937, the tone A above middle C, or A-440 Hz, was added to the WWV transmissions, along with second pulses, standard time interval announce-

1941 allocated \$230,000 to build a new WWV in Greenbelt, Md. It went on the air in January 1943 and remained in this location until 1966, when the operation was moved to the present location in Fort Collins, Colo.

In June of 1944, WWV was ordered to synchronize its frequency standards to those of the U.S. Naval Observatory. In 1945, WWV was transmitting time announcements in code every 5 minutes. Voice announcements of time started on WWV in 1950.

In 1960, WWV started experimenting with the transmission of time code, which became part of the normal broadcasts in 1961. The time code was known as the NASA-36 bit code, and is believed to be the first digital time code broadcast in the United States. This allowed the development of "self-setting" clocks. The current version of the time code was adopted and first broadcast on July 1, 1971.

Colorado

The Fort Collins location of WWV went on the air Dec. 1, 1966 at 0000 UTC. WWV began broadcasting Greenwich Mean Time in 1967, changing to Coordinated Universal Time in 1974. The station broadcast the first "leap second" in history in June of 1972.

air as KK2XEI in July 1956 in Boulder, Colo. The station transmit on 60 kHz using 40 Watts. The LF signal proved to be far more stable and reliable than the WWV HF signals, and WWVL, operating at 20 kHz, went on the air in 1960.

WWVB went on the air from its present Fort Collins location on July 5, 1963, with 5 kW. This was increased to 7 kW, then 13 kW, and in 1997, power was increased to 25 kW. WWVL, meanwhile, went off the air in July of 1972.

Time code was added to WWVB in 1965. This allowed the development of self setting clocks and watches tuned to 60 kHz.

On Feb. 7, 1994, a heavy mist froze on the WWVB antenna. The control system could not compensate for the resultant change in antenna parameters, and the station was off the air for 30 hours. This prompted a redesign and modernization of the system. The station was rebuilt in stages, using LF transmitters and equipment that had recently been decommissioned at Navy sites.

Power on WWVB was increased to 25 kW in 1997, and to 50 kW in 1999 when the renovation work was complete.

This information is compiled from <http://tf.nist.gov/timefreq/general/pdf/1969.pdf>.

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Bits and Pieces Picked Off the Floor



Jim Peck

Musings and mutterings, as I walked the floor of the NAB Show ...

"Radio Heard Here" is the new pitch for the industry.

I was delighted to see the word "radio" on a big banner outside of the NAB convention. How many times have we begged here for more (and more aggressive) national marketing of radio?

If this really will be a "comprehensive, multidimensional, multiyear initiative" as promised by NAB, RAB and the HD Digital Radio Alliance, I'm all for it. As David Rehr put it, "The sleeping giant has awakened." Let's hope so.

The phrase "Radio Heard Here" tries to underscore the ubiquitous nature of our medium. However, as one executive told me in the aisles, "What does that mean, 'Radio Heard Here'? I know I can hear radio all over the place, I'm not a Luddite. Call it 'free radio,' for cryin' out loud, that's what sets radio apart." What exactly is the "value proposition" implied in "radio heard here," he wonders.

("Free" is a good alternative, though I suspect an executive sitting in a corporate radio suite doesn't want to tie his or her hands too much by building the main pitch around "free." Managers are always hopeful of the promise of pay services, and at least some will be drawn to the conditional access concept for that reason. But my observer dismissed that, saying conditional access didn't work that way in other industries either.) ...

★ ★ ★

The vibe on the radio equipment floor

was positive. That was pleasant, given the economy and worries over the impact of major companies not exhibiting on the TV side like Apple and Avid. ...

Corporate Clear Channel wasn't attending, but you saw Clear Channel people nevertheless, and CBS badges. ...

What could be more affecting than a gruff man sincerely touched by emotion?

That was Tom Silliman of ERI as he talked to me of his feelings about receiv-

ing the NAB Radio Engineering Achievement Award. His eyes seemed to glow — with pride, certainly, but even more with warmth and sadness when he thought of his late father Robert, the engineer and teacher who died in 2001. How cool it would have been to have both of them up there on the podium together. ...

International is where business is best these days; and manufacturer after manufacturer told me they are seeing the most activity abroad. "The dollar is the new peso," one reiterated. China, the Middle East and the new commercial FM marketplace in India are particularly hot. ...

I find myself appreciating our publisher John Casey's foresight all the time and again at this convention.

John started pushing me seven or eight years ago for more coverage of Internet Protocol and how it would change broadcast product design. We came out with a special supplement on the topic in 2002 (plus two more since then) and have spent a good deal of space on IP-related coverage.

From the Editor



Paul J. McLane

IP products and systems have proliferated, and you can hardly walk the convention aisles without seeing a new introduction with IP in the name...

"More control and more screens" is another trend in product design. Manufacturers are quick to incorporate tools to enhance the functionality of their products in today's Internet/browser culture...

Also of note are how many features
See MCLANE, page 11 ▶

Kudos for Tucker

Radio World saluted our friend and colleague Dale Tucker with a champagne toast for his service to the industry and 17 years with the company as our regional sales manager.

Founder and former owner Steve Dana, a resident of Las Vegas, took part along with Publisher John Casey, shown in the RW booth at top. During the ham reception, Sarah and Bob Heil, below, warmly congratulated Dale.

"I got into radio while working in the toy department at Higbee's department store in downtown Cleveland," he told me. "I was a radio junkie and recognized the voices of many local radio personalities as they were Christmas shopping for toys.

"I met Bill Jorgensen in 1960 when he was the primary newsman at WERE Radio in Cleveland. I recognized his voice and after a few minutes asked how I could 'get into radio.'"

Jorgensen took him aside and told him to apply at small-market Ohio stations. "He pulled out the Broadcasting Yearbook and circled the info, which I copied. One station I contacted invited me down for an audition. I was a complete and scared-to-death rookie but was hired at WILE, Cambridge as a staff announcer."

Dale Tucker has worked in management and programming at several stations including KSPN(FM) in Aspen, KOA(AM) in Denver and WRKO(FM) in Boston, among others. He also worked in manufacturing sales for Broadcast Audio and Cetec Broadcast, and for Radio Resources, David Green and Pulse of Broadcasting magazine.

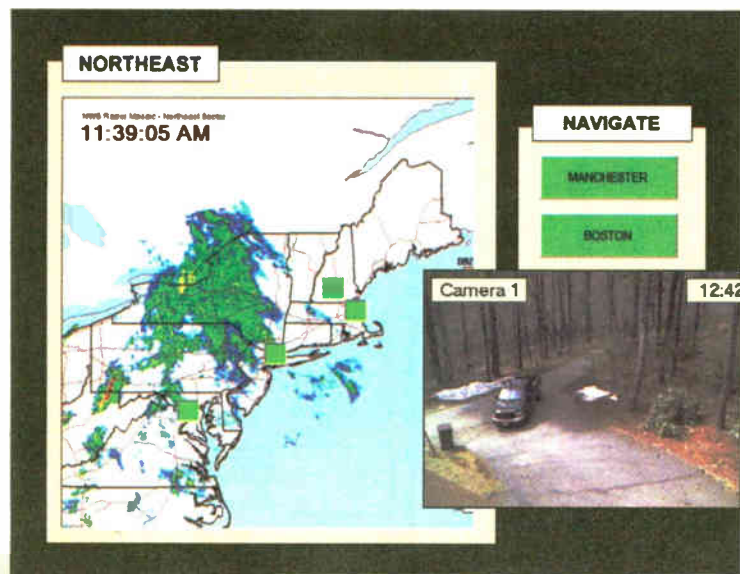
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Photos by Jim Peck

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2008 Radio Engineering Achievement Award Winner Tom Silliman of ERI, center, with David Rehr and Lynn Claudy of NAB. Silliman's father Robert received the honor in 1993.



Radio Systems makes a point about the direction of audio technology with its giant neon connector.

Caroline Beasley of the NAB Radio Board. NAB unveiled the results of a partnership with Ibiqity Digital and four equipment manufacturers to accelerate development of products based on next-generation HD Radio exporter technology.



Steve Johnston of Wisconsin Public Radio listens to a demo of Inovonics processing from Tom Pittenger.



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Globe

► Continued from page 1

the Globe” brand in February 2007. The station, formerly classic rock WARW(FM), earned a 1.5 share in the Arbitron Fall 2007 report for listeners 12+. That is the exact same performance the station had in the fall of 2006 before it went triple-A.

“Everyone wants to be number one and we’re no different; but more importantly, I think our timing on this was perfect. Our messaging has been very well-timed and executed,” said WTGB Vice President/General Manager Michael Hughes. “We are on the good side of a bell curve and seeing progress in some key demos.”

The Globe staff has added “a lot of depth” to the station environmental efforts since its launch, Hughes said. Examples include helping to spearhead the city’s Green Festival last fall, assisting with the Potomac River Watershed Cleanup Day and striking a strategic alliance with the Chesapeake Bay Foundation.

Being green is “more than just a fad” to WTGB, Hughes said, with the station committed to promoting environmental causes and reducing its own impact on the environment.

‘Energy efficient purchases’

“We are trying to make as much impact locally as we can. It’s a social movement. This is a very personal thing and people want to see the effect of their efforts locally,” Hughes said.



Morning man Weasel at Climate Crisis Action Day, March 2007, in Washington.

The radio station benefits by being in the nation’s capital, “where policy is shaped and opinions are shaped,” he added.

“The Globe targets a highly influential audience one that advertisers are eager to reach.

There are a number of companies doing advocacy advertising with the station. “These clients have a message to get out and we are a natural outlet for that,” he said.

While its transmitter is yet to be powered only by solar and wind or its staff clothed in bamboo fiber, Hughes says the Globe is making strides to reduce its own

carbon footprint.

The facility is using alternative energy credits from Pepco Energy Services to partly power its 50,000-watt transmitter in nearby Bethesda, Md. In addition, the station uses low-voltage studio lighting and has put most office equipment on timers to conserve energy.

Jeff Loughridge, engineering market manager for CBS Radio, said he focuses on making “energy-efficient purchases” when adding new broadcast equipment.

“Technologically we are limited a bit as to how far we can take the green theme. We are fairly boxed in from a transmission standpoint on how much we can cut back our energy consumption.

“One of the more significant changes we’ve implemented is our reliance on filtered air at the transmitter site as opposed

to cooled air,” Loughridge said. “We have relied exclusively on large volumes of filtered air since last fall with no ill effects.”

Fans draw air into the transmitter building through filters that cleanse it of dust particulates, leaving cleaner air for the transmitter air intakes.

“Once we hit summer we will need air conditioning again,” he continued.

His limitations include powering an HD-R transmitter, which requires more energy than an analog transmitter, Loughridge said. The Globe converted to HD Radio in 2006 and broadcasts main and secondary IBOC channels. The HD2 channel, called “The Jam,” plays a mix of classic rock and classic hits.

How green is green?

Loughridge said he had long been an advocate of the thinking that “the cooler you keep your building, the happier your tubes are,” but has since re-thought that position.

“As long as the building remains reasonably cool, I don’t want to run the A/C,” he said.

The Globe, which moved to new studios in 2005, has a main studio and several for production and imaging, Loughridge said. All feature SAS Rubicon consoles with BE AudioVault automation systems.

The station is currently working with an outside firm to analyze its carbon footprint, Hughes said. The analysis will measure the station’s power consumption and offer recommendations on which environmentally friendly products to purchase, from buying refurbished office equipment to the paper towels.

“We have been forthright with our audience, telling them that we are not green but going green. Ideally, we will be carbon-neutral someday. We are ready to go to the next level,” Hughes said.

CBS Radio is sharing the Globe’s story with managers of the group’s other 143 stations, Hughes said, but to his knowledge no other stations have picked up the green theme.

Karen Mateo, a spokeswoman for CBS Radio, said, “We don’t have any other stations doing what the Globe is doing. There will be something coming soon from one of our stations in Chicago, but exact plans haven’t been announced.”

We are on the good side of a bell curve.

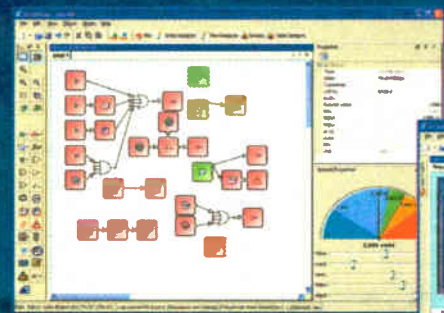
— Michael Hughes

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SEALEVEL

NEWS WATCH

Just Say No to ‘Ad Dictates’

WASHINGTON Discrimination in placing station ad buys “has no place” in today’s media market.

So say the NAB, RAB and the Television Bureau of Advertising. They joined forces in opposition to “urban dictates,” a practice in which companies refuse to place ads on radio and television stations with formats that attract African-American, Latino and Spanish-speaking audiences.

The groups sent a letter to 4,200 advertising agencies, signed by NAB President/CEO David Rehr, RAB President Jeff Haley and TVB President Chris Rohrs, urging the agencies to join them in working towards free and fair competition in the market for broadcast ad time.

“Although it has not been the subject of an empirical study, there is significant anecdotal evidence of ‘dictates’ or policies against the purchase of advertising time on stations with formats that attract African-American, Latino and Spanish-speaking audiences,” NAB, RAB and TVB state in the letter.

“Under these policies, regardless of whether a station or its sales representative could show that the station’s viewers or listeners met the target criteria that the advertiser sought, the advertiser or its agency refuses to buy time.”

The policies curtail the amount of ad dollars that an affected station can generate and hamstring stations seeking to serve communities while delivering to advertisers audiences who spend hundreds of billions of dollars per year, the group added.

“Discrimination against broadcasters based on racial, gender or ethnic stereotyping has no place in today’s media marketplace,” wrote NAB, RAB and TVB.



Above: Rays broadcasters **Andy Freed** (left) and **Dave Wills** (right) interview Rays' star third base prospect **Evan Langoria** on the "The Hot Stove Radio Show."

Top: **Larry McCabe**, Tampa Bay Rays Senior Director of Broadcasting and **Rich Herrera**, broadcaster and Director of Radio Operations are shown on the field during spring training.

Impossible Remote? Nah...You've Got ACCESS!

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Fans of the Tampa Bay Rays baseball team are intimately familiar with Dave Wills and Andy Freed, play-by-play announcers and hosts of "The Hot Stove Radio Show." Offering the inside track on all things Rays, the show kicked off its 2008 season with the "Countdown to Opening Day" series. While at a remote from a well-known sports bar, ACCESS showed its true worth. Two minutes before the broadcast, the ISDN line that was supposed to be used for the broadcast failed to connect. Luckily, they had the ACCESS running on Wi-Fi provided by the restaurant. The broadcast got on the air and was flawless for the entire one hour show.

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NewsWatch

► Continued from page 2
satellite radios — within one year for non-OEM devices and within three years for OEM tuners. The specifics are designed to meet the production cycles of OEMs and non-OEMs, according to a filing.

Sirius and XM meanwhile submitted to the FCC what they are calling "Sirius-XM Greatest Hits: Collection of Broad Merger Support," consisting of more than 200 pages, including supportive comments from the NAACP, the Family Research Council, Circuit City, NASCAR, GM, Ford and The American Trucking Association.

Clear Channel Begins iTunes Tagging

SAN ANTONIO, Texas More than 340 Clear Channel Radio stations have begun iTunes Tagging for HD Radio. The technology lets listeners purchase and download Apple iTunes music.

The company has 440 HD Radio stations and 340 HD2 outlets.

In March, Greater Media and Jump2Go signed a deal to include Apple iTunes tagging capability. That agreement involved

about 25 streams and uses technology from both Apple and Jump2Go. CBS Radio, Entercom and Cumulus have also been involved in tagging tests.

The Clear Channel system uses Apple and the company's own technology to accomplish the tagging.

Clear Channel had announced last year its plan to air broadcasts compatible with Apple's implementation of HD Radio tagging.

Polk I-Sonic ES2 Offers Apple iTunes Tagging

COLUMBIA, Md. Consumers can

now purchase the first HD Radio that includes Apple iTunes tagging.

Polk Audio's I-Sonic Entertainment System 2 is available at 170 brick and mortar Apple Stores as well as the Apple Online Store ([storeapple.com](http://store.apple.com)), and the Polk Audio Web site (isonic.polkaudio.com). Ibiquity Digital said the unit will be available at select Best Buy stores in June.

The Polk Audio I-Sonic ES 2 is the first unit to allow listeners to buy songs heard on HD Radio broadcasts using Apple iTunes Tagging technology. Alpine, JBL and Sony have also said they will incorporate the technology in upcoming radios.

Apple iTunes tagging allows consumers to mark audio content while listening to an FM HD Radio broadcast, either the main digital channel or multi-

free 24-hour trial. While listening to one XM Radio Mobile channel, users can see song title, artist and album, as well as what's playing on other XM Radio Mobile channels. The companies said subscribers can multi-task, letting XM run in the background while the user accesses other data applications.

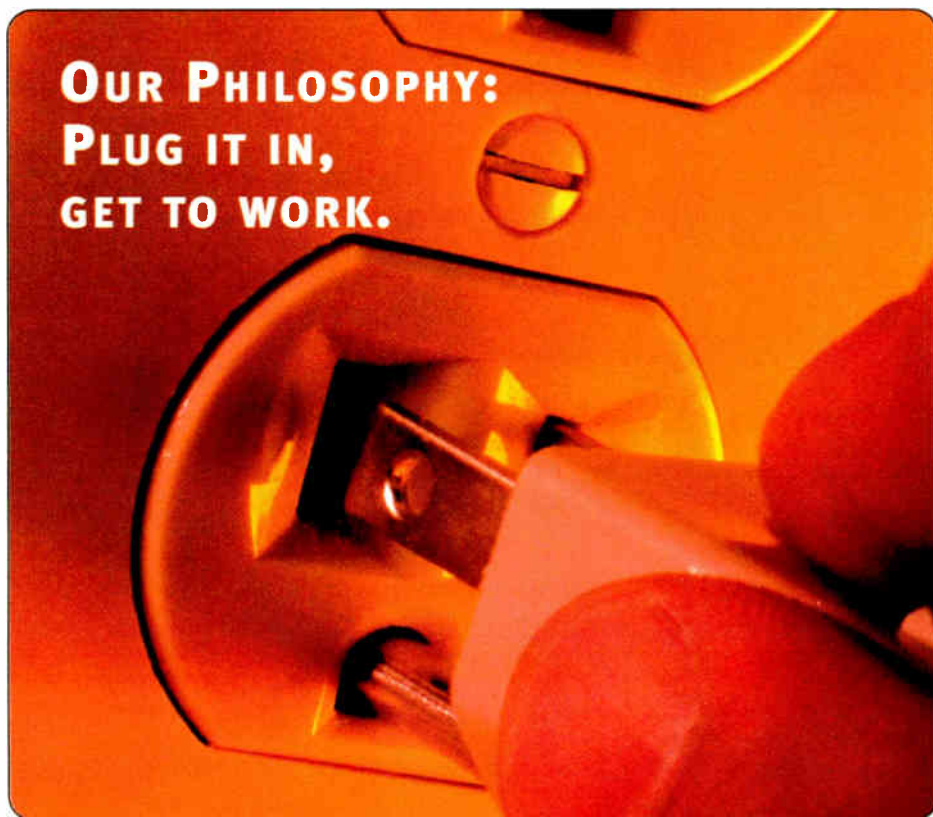
BOARD: New board members begin their terms on the NAB Radio Board starting in June. Here are the results of the recent elections; terms are for two years. Asterisk (*) indicates incumbent: District 2 (N.Y./N.J.), Joseph Bilotta*, Buckley Radio; District 4 (Del., D.C., Md. and Va.), Joel Oxley*, Bonneville; District 6 (N.C./S.C.), William McElveen, Citadel; District 8 (La., Miss.), Bob Holladay*, Holladay Broadcasting; District 10 (Ind.), Rick Cummings*, Emmis; District 12 (Mo., Kan.), John Beck, Emmis; District 14 (Iowa, Wis.), Mary Quass*, NRG Media; District 16 (Colo., Neb.), Eric Brown, Nebraska Rural Radio; District 18 (South Texas), Ben Downs, Bryan Broadcasting; District 20 (Mont., Idaho, Wyo.), Ron Davis*, Butte Broadcasting; District 22 (Ariz., Nev., N.M. and Utah), Paul Gardner*, Elko Broadcasting and District 24 (SoCal, Guam and Hawaii), Howard Anderson*, KHWY.

WIMAX: The WiMAX Forum, an industry group that promotes compatibility and interoperability of broadband wireless products, thinks there will be 133 million WiMAX users in the world by 2012. It said its forecast is based on the results of an independently commissioned research study. The study estimates that 70 percent of forecasted WiMAX users by then will use mobile and portable WiMAX devices to access broadband Internet services. The group said the first Mobile WiMAX Certified products are expected to achieve certification by mid year.

There's No Comparison

Features	Polk Audio I-Sonic	Polk Audio I-Sonic 2	Beats Wave Music System	Boston Acoustics Micro System CD	Boston Acoustics Receptor Radio HD	Cambridge SoundWorks Radio CD 820HD	Tivoli Satellite Combo #154
AM & FM HD Radio*	✓	✓			✓	✓	
Plays CDs	✓	✓	✓	✓			✓
Plays DVDs	✓	✓					
Satellite Radio	✓						✓
Video outputs	✓	✓					
Integrated iPod Dock	✓	✓					
iTunes Tagging for HD Radio	✓	✓					
Consumer Editors Rating*	8.0 out of 10	Not yet rated	7.3 out of 10	7.7 out of 10	6.8 out of 10	7.0 out of 10	Not yet rated

Polk makes HD Radio a top comparison point in its marketing of the I-Sonic ES2.



AUDIOSCIENCE: IT JUST WORKS. Getting audio products to function shouldn't be a struggle.

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cast channels, and to later preview and purchase that content after syncing their iPod to iTunes.

News Roundup

PRISM BUYS SADIE: Prism Sound acquired the business and intellectual property rights of SADiE, formerly owned by Studio Audio and Video Ltd. Terms were not disclosed.

D&M+A&H: D&M Holdings completed its acquisition of Allen & Heath Holdings, Pro Sound News reported. A&H is a manufacturer of audio mixing consoles for pro sound, live sound installations and DJs. D&M is the parent of Denon Professional, Marantz Professional and Denon DJ.

BLACKBERRY: Terrestrial radio may soon be heard on BlackBerries. Radio Companion is an application that now allows BlackBerry smartphone users to track what's playing on certain stations. The companies involved hope to add direct streaming later this year. Mediaguide and Nobex Technologies launched the free, downloadable application, which they say operates on several Blackberry models. Mediaguide will allow its users to see what's playing on certain stations; they can choose a music track and have its details sent to their e-mail account, with a link to purchase the song online. Users must direct their BlackBerry browser to the Nobex site and click a link to download.

BLACKBERRY II: Using QuickPlay's OpenVideo, BlackBerry users can now stream 20 channels of XM music and comedy content through major U.S. cell phone providers. Open Video is the first media management platform to make XM Radio Mobile available on certain BlackBerry smartphones. The service costs \$7.99 a month, with an option for a

'THE TAKEAWAY': Promotion is underway for public radio's newest morning news show. WGBH(FM) in Boston for instance told listeners they can hear "The Takeaway With John Hockenberry and Adaora Udoji" starting in late April. This is the new hour-long program co-produced by PRI and WNYC Radio, with editorial collaboration by WGBH, The BBC World Service and The New York Times. The goal of the show is to "expand and enrich the American dialogue on key local, national and global issues." Liberty Mutual is the exclusive corporate broadcast sponsor.

NAVIGATION: XM NavTraffic will expand into 22 General Motors vehicle models this year. Among the vehicles to offer XM NavTraffic in the 2009 model year will be navigation-equipped versions of the Chevrolet Tahoe, GMC Sierra, Buick Enclave, Saturn Vue and Hummer H2. All XM Radio and XM NavTraffic-equipped GM models come standard with a three-month free subscription.

Write to RW

Send e-mail to radioworld@nbmedia.com with "Letter to the Editor" in the subject field; fax to (703) 852-4585; or mail to Reader's Forum, Radio World, 5285 Shawnee Road, Suite 100, Alexandria, VA 22312-2334.

Axia consoles come with 24/7 support.

(Because radio is a 24/7 business.)



Broadcasting doesn't take time off for holidays and weekends. So why do all the other console companies only provide support from 9-to-5? This doesn't make much sense to us.

That's why Axia clients get **24/7 support**, 365 days a year (366 days in leap years, wise guy).

Axia consoles are engineered to deliver years of trouble-free use. They're so reliable, they carry a **5-year warranty** (the industry's best). Chances are, you'll never need assistance, but if you do, we'll be ready for you.

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Wheatstone's Kelly Parker, left, discusses the Evolution 6 Console with Marc Lehmutz of WNNX(FM)/WWWO(FM) in Atlanta.



Jeff Orr visits Gillian Wylie in the APT booth. The manufacturer launched an audio codec designed for HD Radio applications, the WorldCast Horizon HD.



Setup in the ERI booth, with new employee Jim Hauptstueck climbing the corporate ladder and Myron Fanton at left.



Crystal Radio recipients. Rear: Gary Buchanan, Three Eagles Communications, KFOR(AM), Lincoln, Neb.; Francis Nash, WUGO(FM), Grayson, Ky.; Scott Robert Shaw, WIZM(AM), La Crosse, Wis.; Scott Taylor, WAWZ(FM), Zaraphath, N.J.; Jerry Schnacke, WDRV(FM), Chicago. Front: Travis Moon, WUBE(FM), Cincinnati; Sylvia Cariker, KUZZ(FM), Bakersfield, Calif.; Marianne Coppock, Sr., KSTZ(FM), Des Moines; Janae Jontry, WJBC(AM), Bloomington, Ill.; Tony Coloff, KCVM(FM), Cedar Rapids, Iowa.

Wheatstone booth photo by Mary Ellen Dawley; APT and ERI booths by Jim Peck; Crystal Radio and Tim Robbins ©INAB

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Tim Robbins criticized media consolidation, conservative talk radio and the Bush administration's Iraqi war policies. 'You, the broadcasters of this great nation, have tremendous power, and the tremendous potential to effect change. You have the power to turn this country away from cynicism. You have the power to turn this nation away from the hatred and the divisive dialogue that has rendered such a corrosive effect on our body politic.'

N BSHOW

McLane

► Continued from page 4

and how much power companies can pack into each product. "It's amazing what you can get in one box for \$10K," one attendee told me. ...

And how about this one: jocks playing content off their iPods into automation systems. Sure, why not? If you can't get radio into the iPod, put the iPod into your radio station. ...

★ ★ ★

Rich Redmond of Harris and I chatted about radio's traditional mindset of building its systems and business models for a 10- or 15-year life cycle and how this approach can handcuff a manager in a time of rapid technological change.

He thinks many people, or at least radio's smartest executives, are now embracing a different approach, trying various solutions more frequently and with a different set of expectations.

These managers are more willing to experiment, to test several projects knowing that some will fail, building the cost of such attempts into their thinking at the outset. Even ideas that succeed may not remain in place for 10 or 20 years, but rather for two or three before it's time to try something different.

I think we see this in the many online and new media initiatives that radio companies now explore regularly, and it's an insightful discussion with implications for how RF and studio plants will be constructed in the future.

Also proliferating are video services and other products intended to help radio stations populate their visual channels. Plenty more of that on the way. ...

★ ★ ★

Expect more emphasis from the Society of Broadcast Engineers on training, thanks to a new series of "online, on-demand" courses coming soon.

An early goal of this content is to help IT-savvy radio employees get up to speed on RF.

Such training is a super fit for the SBE. Cris Alexander of Crawford Broadcasting, who contributes to RW, is among those playing a leading role in making that happen. ...

I was also pleased by the news (which RW first reported) that the SBE will phase out of providing frequency coordination to the NFL. SBE did the right thing by setting that relationship up, and it's doing the right thing now by recognizing that the arrangement has grown to the point where the football industry can afford to hire frequency coordinators. ...

Are any FM IBOC stations cranking their digital signals up by 10 dB, not waiting for regulatory action? We hear that it's happening in some instances, confident that the commission won't respond. What are the consequences if it is happening?

(Then again, one processing expert says bluntly, some stations regularly run 140 percent modulation.) ...

★ ★ ★

Kudos to NAB planners for a small, but helpful touch: giving out badge lanyards with clamps on two ends of the string rather than one. That avoids the nagging problem of badges flipping over. ...

Bigger thanks are due to the NAB for getting four transmitter manufacturers and Ibiquty together to help bring down the cost of HD Radio infrastructure through their embedded exporter announcement.

HD-R is still an expensive proposition for many stations but this is the kind of cooperation we want and should expect from our industry's leaders. ...

As I walk the floor I find myself more optimistic than I've been in some time about digital radio. Stepping back from debate over timetables and rollouts, what I see is that the industry is succeeding at building an infrastructure. Those with HD plants will now begin to put them to use in powerful new ways.

The combined effect of new services and proliferation of portable devices will start to tell. Within a year I believe we'll see a stronger business model for HD Radio that

will encourage more stations to adopt it, and the rollout will resume vigorously. ...

I also like what Bob Pittman, formerly of MTV Networks and AOL, had to say about radio: "It's frustrating for me ... to hear people talk about radio as if there's something wrong with the business. In my mind, when you look at radio, you're looking at the future. All you have to do is look at the consumer." He says consumers treasure convenience and branding, two core strengths of radio. ...

Tim Robbins certainly made an impact in Vegas. The actor/activist had plenty to say about broadcasters' responsibility in our culture. Reaction online was all over the place: was it "a profanity laced-tirade from a left-wing kook" or "a keynote speech laced with wry irony and winking sarcasm," or "a brilliant speech" or "a little windy, but it's pretty amazing some-

body said this to a NAB audience."

One NAB official told me in private, "I promise you, that's the first time anyone has spoken the word c***s***** from the NAB podium." ...

But my favorite moment of the show took place away from the LVCC.

I was out for a dawn run along the Strip, dodging drunks and hookers, listening to the casino audio systems blaring their nonstop messages of consumerism to empty sidewalks.

As I ran under the marquee of Planet Hollywood, the sound system blared "Big Yellow Taxi":

"They paved paradise and put up a parking lot, with a pink hotel, a boutique and a swinging hot spot. Don't it always seem to go that you don't know what you've got till it's gone? They paved paradise and put up a parking lot." 🌐



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Radio World, May 7, 2008

Past columns are archived at radioworld.com

Secure Ceiling Tiles and Transmitter Keys

by John Bisset

Fig. 1 looks more like the track of a Busch Gardens roller coaster than an AM tower, and it brings to mind how important quarterly tower inspections are.

At the recent Oklahoma Association of Broadcasters SBE Engineering Conference, R. Dale Gehman, principal of Gehman Compliance and Consulting, spoke about the importance of keeping towers maintained — particularly through conducting a quarterly tower inspection. Dale performs the Alternative Broadcast Inspection Program for several states.

Although he did not supply the picture shown here, it's typical of some of the poorly maintained sites he's witnessed.

He's also seen a lot of well-maintained sites, too. Head to Dale's Web site www.gradiotv.com for more information on his services.

Dale also provides a link to a useful site, OnlineConversion.com, which converts just about anything into anything else. Dale Gehman can be reached at dgehman@gradiotv.com.

As for Fig. 1, its source is anonymous!

Mike Manley of Amick Sound replies on our topic of remote-control toy trucks being used to pull cables across grid-tile ceilings (*Workbench*, Jan. 2).

It's been Mike's experience that the "off-road" type trucks handled most obstructions pretty well, and only encountered trouble with the larger light fixtures.



Fig. 1: A new carnival ride?

Although he did not witness it personally, a coworker told him about using a small dog for the same purpose. The telephone contractor attached a pull string to the leash, put the dog up through the trapdoor, closed it and went to the other end of the hall and called, "Here, boy!"

Mike offers two other suggestions for dropping wires down walls with insulation:

First, use a 102-inch CB whip antenna. It works well, and you can't beat the length. The second suggestion is to use the metal backing strip from WireMold 500 or 700 raceway. This is a 1/2-inch-wide strip of sheet metal that can flex up into the wall, but won't bend left or right to

The telephone contractor attached a pull string to the leash, put the dog up through the trapdoor, closed it and went to the other end of the hall and called, 'Here, boy!'



Fig. 2: Small animals may lurk above those studio ceiling tiles, hard at work.

wander off course.

Of course, the fiberglass screw-together push rods work well, but at a higher cost. If they aren't on site, they're not much use!

Recently, Mike was pulling cables for a CCTV installation at a VA hospital into a secure IT room. The contractor's escort was watching Mike and his crew use the fiberglass pushrods and commented, "You guys have all the fancy equipment. Here's what our IT guys use to fish wire." He held up a straightened coat hanger.

I guess what you have on hand and that solves the problem is the proper tool for the job.

Mike Manley can be reached at mdmanley@amicksound.com.

See KEYS, page 14 ►

NEW! Our Ingenious 'Quad Leveler'

Four independent channels of intelligent audio gain control

Inovonics has packaged four channels of smooth-sounding audio leveling into a single rack space. The four channels may be used separately for microphone and phone-line leveling, or may be selectively linked for dual-stereo or split mono/stereo program audio control.

A unique combination of peak and average response to program dynamics combines the gain-riding utility of a gated AGC with the tight peak control of a fast limiter. This

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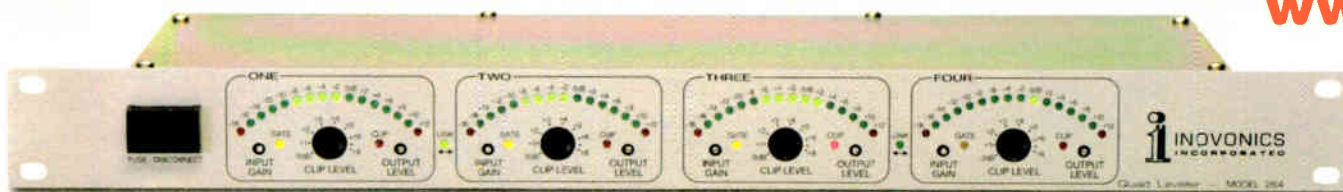
Operation of the 264 is entirely program controlled, and user adjustments have been restricted to a bare minimum for quick, set-and-forget installation. Operating entirely within the analog domain, the 264 utilizes colorless Class-D

(PWM) technology for stable and transparent operation.

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Model 264

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attached a picture in white contact me for more info. big_plans #221542

STEADY SEEKING LADY

I am looking for a male partner (38-50) who is willing to be exclusive with me for a long term relationship. Not asking for marriage. I am of average build, dark hair, brown eyes and am an Indian female. I have a wonderful job and attend some classes a couple of nights a week. I have two kids who stay at home with me. They are very precious to me. And they are not going to be a hindrance to our dating. I have a full and busy life. Therefore, the expectation is to see each other on a steady basis, and at the same time, being flexible. precious_me #331252

I LOVE MUSIC. YOU LOVE ME

I'm an indie/hipster girl who adores music and going to clubs and shows. Some of the bands that I'm into are Interpol, The Arcade Fire, Blonde Redhead, Bauhaus, The Smiths, Morrissey, etc. I'm into indie rock, electronica, punk, pretty much anything. I drink and smoke occasionally. I'm 21, 5'8", light-skin, dark brown hair/eyes. I work, am well-educated, funny, spontaneous, nice. #2215234

HANDSOME RAKE

Out of work leaf raker/bagger seeks whimsical beauty with un-kempt auburn or chestnut hair, cool coarse hands and a penchant for ~~writing~~. mellow_mo, 28, #101318

LET'S CONNECT

Radio engineer seeks stable long distance relationship. Need to connect immediately. Everywhere I go, I see broadband internet, but I just never hook-up. I need to meet that special someone that will plug me in so I can be heard. Must be reliable, connect easily, forgive errors and adapt to change. Should come from a good family. easy_going #101352

SIMPLICITY HERE

Simply put, I'm looking for a fun, casual relationship with only one person. That means one person for me and one person for you. :-). Every woman wants to feel safe with a partner, whether it's serious or not. It's key to her feeling comfortable to express her more intimate nature. I don't ask for much other than to hang out, enjoy your time with me and be available to chill.

MR. RIGHT

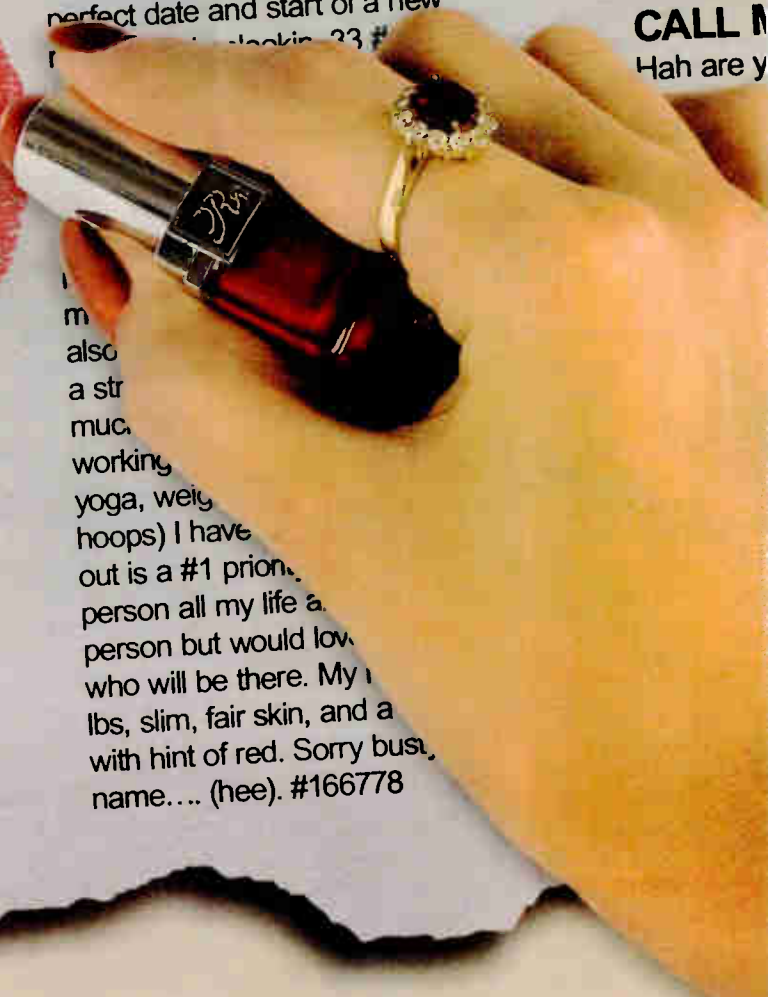
I'm actually posting this on behalf of a friend. Since she's been single she hasn't found the right guy and I'm doing this in hopes of helping her find Mr.Right. After you and I talk, if you are chosen then you will get to go on a date with her and who knows, it could be the perfect date and start of a new

IN LOVE

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NEW "AAC-ELD" (ADVANCED AUDIO CODING-ENHANCED LOW DELAY) CODEC: Z/IP introduces a new codec technology invented by the experts at Fraunhofer Institute, the people who brought us MP3 and AAC. Optimized for interactive IP applications, AAC-ELD combines features from MPEG AAC-LD and the Spectral Band Replication technology used in AAC-Plus. It's the most powerful audio coding tech on Earth, offering outstanding bitrate efficiency, low delay, and support for packet loss concealment.

NEW TELOS ACT (AGILE CONNECTION TECHNOLOGY): Z/IP brings automatic on-the-fly bitrate adjustment to IP codecs - a first. The Z/IP constantly monitors the network and sets its bitrate to the optimum value. A dynamic adaptive receive buffer also responds automatically to network conditions, minimizing the effects of the varying bandwidth and jitter that occur on real-world networks.

EFFECTIVE PACKET LOSS CONCEALMENT: The Internet usually has packet loss on audio streams, often ranging up to a few percent. The new AAC-ELD codec combined with ACT can conceal this loss, making for smooth audio even with rough network conditions.

TELOS-HOSTED Z/IP SERVER WITH DIRECTORY SERVICES: Enables you to look up, view the status and connect to other Zephyr/IP users worldwide, even through the toughest firewalls.

A STATE OF THE ART USER INTERFACE: And so you don't feel like you are on a blind date, we give you all of the status information you need on a sharp-looking color LCD which shows live network statistics and trace-route maps in an easy-on-the-eyes graphical interface.



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Newman

► Continued from page 1

Keillor's "A Prairie Home Companion," which airs on almost 600 stations and is distributed by American Public Media.

When I spoke with Newman on the phone, he exuded the excitement of a kid putting on a show for the family, only a lot funnier.

During our conversation he peppered his comments with gunshots, explosions, animals choking and other even more unlikely effects, all created spontaneously using only his mouth. Listening to Newman is like changing the TV channel every three seconds.

Let me start with a technical question. What kind of microphone do you prefer?

Well, that's not so important because once the sound leaves my mouth it is someone else's responsibility. When I'm doing live shows like "Prairie Home," I trust Sam Hudson, the mixer and technical director. He has great ears. All I need is accurate monitoring. When I'm doing footsteps or NASCAR effects, usually Garrison is talking in his whisper so I have to take that into consideration and adjust what I do.

Last week we were doing a Civil War sketch and I had to create bugles, swords (using silverware), horses and artillery sounds. I had to slip them under and around Garrison's voice.

My associate, Tom Keith, has been with Garrison for 30 years, and he is



Fred Newmann

more of an old-time radio sound effects guy. I come from a tradition of storytellers and I'm more interested in that.

How much of what you do on "Prairie Home" is ad lib?

There is a basic script but things change.

I remember I was set to use a prop door to make a rusty hinge noise, but just before the show Garrison asked me to make the sound with my mouth instead. He wanted it to be more organic.

Radio is so much more intimate than TV. Garrison's voice is one inch from your eardrum. In fact, the only person who talks that closely to you is maybe your lover, someone you're in bed with. Our show is so close-mic'd that you can

hear Garrison's nose hairs as he breathes.

The show is kind of slow-paced so we can tell our stories and let imaginary images form in your mind. Most shows today are cut up and jump-cut all over the place.

Can you give me an example of the ad libs?

Garrison came up to me and asked [imitating Keillor's voice], "Can you come up with the sound of a man having his back cracked by a chiropractor?" This request came five minutes before air.

I thought about all the things in my world backstage that I could use to make that sound but none of them were quite right. You have to feel that noise internally.

I grabbed one of those ribbed water bottles and put some water in it. I then put some tape over the outside so it wouldn't crackle and wrapped it in a tow-

el. When my cue came I just twisted it and everyone in the audience groaned and twisted in their seats. It was a great feeling.

When did you start with the show?

I first came on stage in 1980 to promote the original version of my book, "Mouth Sounds." [The book has been rewritten and is now available as a book/CD and CD-ROM.] I went out on stage and did this baby voice and played a harmonica, and Garrison was so cool and he just went with it.

Over the years he would call me to come on and do special shows with Tom Keith. In fact I thought about having Tom Keith "taken out," you know, kind of a Tonya Harding job. One quick chop to the throat would do it and I could have the job all to myself.

See NEWMAN, page 16 ►

Keys

► Continued from page 12

The man who provided the "Smoke on the Water" photo for our recent caption contest, Contract Engineer John Ramsey, sent a note asking how other contract engineers handle the storage of client keys.

An excellent question for our readers, John, especially when one considers the liability of the keys falling into the wrong hands.

out of sight.

It may have been luck, but we never had an instance of stolen or missing keys. But John's question is a good one.

Do you label the keys with a code, or the call letters? Do you keep the keys at your office, and just take the sets with you for the clients you will visit that day?

And if so, what about emergencies? Contract engineers don't always know where they will be from one day to the next. If you store the keys in your vehicle overnight, what are your thoughts about the best way to secure the keys?

With site security such a concern, I'd

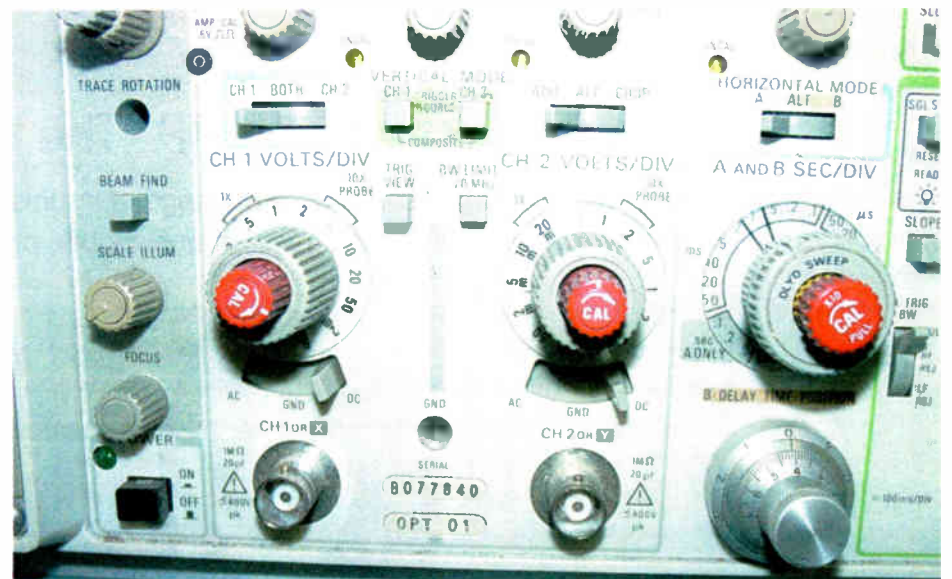


Fig. 3: All those knobs on exposed electronic test equipment scream, "Take me!"

I'd like to get your thoughts; in the meantime, I'll share mine.

When I had a contracting business, we copied the keys so each employee had complete sets for each client. We had the locksmith stamp "do not duplicate" on the keys, and billed each station for the key duplication. We informed our clients we were going to do this, and they had a choice: pay for the copies or leave a master set at the studio.

If they chose to leave a set at the studio, the additional time that they were off the air while our engineer drove to pick up the keys was enough incentive to pay to have the keys copied.

Standardizing keys, and using resettable Master combination locks, helped keep the key count per station low; but we still had a lot of keys on various key rings.

Each engineer kept the keys in an old plastic Sennheiser or metal Electro-Voice microphone case; either will store a lot of key rings. The box usually was kept under the seat of the engineer's vehicle,

like to touch a bit on that last question.

Although having a vehicle with your company logo on the side looks professional, it also alerts thieves. To them, engineering equals money! Better a magnetic sign that you can remove, or no sign at all.

Just as important is a trunk or covered storage so tools aren't openly exposed. Tool boxes, scopes, a GPS or cell phone (and visible open box of keys) can prove to be just too tempting.

So my 2 cents is to keep things out of sight. I'll look forward to sharing your comments with readers in a future column.

John Bisset has worked as a chief engineer and contract engineer for 39 years. He is the northeast regional sales manager for Broadcast Electronics and in 2007 received the SBE's Educator of the Year Award. Reach him at (571) 217-9386 or jbisset@bdcast.com. Faxed submissions can be sent to (603) 472-4944.

Submissions for this column are encouraged and qualify for SBE recertification credit. 🌐

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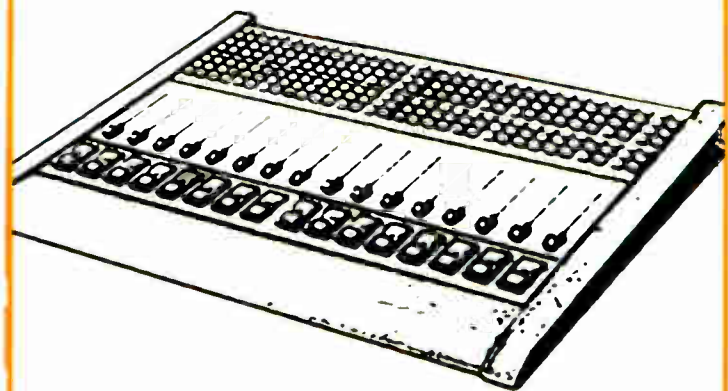
Comdial Executech® PBX phone, ca. 1996. Comdial was one of the leading PBX companies in both sales and technology, with a million-square-foot assembly facility and over \$7,000,000 in reported earnings. Comdial continued with traditional PBX tech and declining sales until filing for Chapter 11 bankruptcy protection in 2005, when all assets were acquired by **Vertical Communications**, a VoIP company.¹



Cisco® 7970 IP Phone, ca. 2006. Founded in 1984 as a manufacturer of multi-protocol routers, Cisco began, in 1998, to promote VoIP technology to Fortune 500 companies as a more cost-efficient, feature-rich alternative to PBX phone systems. In just 10 years, VoIP effectively killed the traditional PBX; VoIP revenue is projected to reach \$48 billion by the end of 2010.² Cisco annual revenue reached \$35 billion in 2007.³



Axia Element broadcast console, ca. 2008. Founded in 2003, Axia is a division of Telos Systems, worldwide leaders in broadcast audio equipment. Axia was launched with the mission of bringing proven technology from the computer world – switched Ethernet, audio routing via IP, distributed network architecture – to radio. Using open standards and bulletproof Cisco routing technology, nearly 1000 Axia consoles have been built in just 5 years, making Axia the fastest-growing console brand in radio.



Generic TDM console, ca. 200x. Some radio consoles and routing systems are still based on Time-Division Multiplexing, developed in 1962. TDM was once the basis of most (if not all) digital PBX telephone systems. Consoles and routers based on TDM employ centralized “card cages” that require all inputs and outputs to be wired to a single location. Like traditional PBXs, TDMs typically rely on closed, proprietary code, and cannot be easily or economically changed or expanded when new operating criteria arise.

Santayana famously noted “Those who cannot learn from history are doomed to repeat it.” Some people change when they feel the heat; others when they see the light. With that in mind, a quick comparison of telecom and broadcast technology reveals some common trends that broadcasters are finding hard to ignore.

Nearly 1000 Axia studios are installed around the world — more are added every week. And while our clients probably don't think too much about the technology inside our consoles, they know they won't have to worry about it in the future.



AxiaAudio.com

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References: 1. TDC, 18/05/2006. 2. Business Week, 12/05/2007. 3. Business Week, 12/05/2007.

Newman

► Continued from page 14

You jest.

I do. We're actually good friends. I've been with the show on a regular basis for about eight years. Tom has expert timing and uses props to great effect.

Can you tell me a little more about working with Garrison Keillor?

One can't know how brilliant he is without seeing him work, and he's been doing it for 33 years. He is so facile with words that the show becomes one big piece of word jazz. It's moving, changing all the time. The show is almost never what we practiced during the rundown.

Your bio says that you worked with Jim Henson of Muppets fame.

True. I was writing material for his characters, Dr. Bunsen Honeydew and his assistant, Beaker. I also was doing some puppeteering, but I could never quite get the hand/mouth thing coordinated.

One day Henson said to me, in a very

nice way (imitating Henson's voice), "You do great voices but you're a lousy puppeteer," and he was right.

I played a young Jim Henson on camera in a CBS pilot called "Puppetman" and worked with Jim right up until his death.

I see you do voice mimicry as well!

To duplicate someone's voice is all about listening, getting the voice in your head first. I love grabbing an aspect or a vocal tick but I'm really more interested in creating characters than doing impressions. I can't really nail them like (Prairie Home voice man) Tim Russell.

I worked for a year on the "CBS Morning Show" and came up with a 300-pound home economist, sort of a trailer park Martha Stewart voice. She was based on women I heard when I was growing up.

It seems like you would be a natural for cartoons.

I did a lot of cartoons when I was in California. I'm the one the movie guys call when they get stuck. There's usually some soundman trying to cut something together on a computer and he realizes he needs it to sound more organic.

One time I got a phone call at 9 a.m.

and it was someone from Warner Bros. He said [in character] "I'm working on a Nicole Kidman movie and we need the sound of a frog swallowing a wedding band and then throwing it up. Can you do that?" I gave him an instant audition on the phone and he said [in character again], "Uh, can you be here at 10:30?"

Who were some of your idols?

Certainly Mel Blanc.

The first movie I worked on was "Gremlins," directed by Joe Dante. And it also was the first time anyone had access to the Warner Bros. cartoon library of sound effects.

Joe wanted a specific classic sound, the sound of a duck being caught by the throat (making the noise perfectly), but we didn't know what it was called so we couldn't look it up on the file cards they had. I had to recreate it.

Later an old sound effects guy heard it and told us it was called "trombone garble," and sure enough, we looked it up and there it was. Mel Blanc did it himself into a trombone!

The energy of those sounds is incredible. If seeing is believing, hearing is feeling. I tell people that, in a movie, the

information is on the screen but all the emotion is on the soundtrack.

When you get the sound right, the emotion is there, and that is the beauty of radio sound too. It enters the lower brainstem, below the level of intelligence. It's primal and subliminal.

What was your childhood like?

I grew up as a dyslexic, odd kid but I loved radio and I loved sound.

I worked a little at a radio station but I had reel-to-reel recorders and made my own radio station. I put up this antenna and broadcast over the top of some FM station.

When I was about eight years old, I'd hear these old guys sitting around telling stories. One would pick up a loaf of bread and hit it to make his point. They'd improvise sound effects to go along with the stories.

When did you first hear stereo sound?

I discovered our home system was wired wrong and all we had was mono. I re-wired it and suddenly heard stereo and thought, "This is what we have been missing."

I had tears in my eyes because I could hear the room, the very space!

You worked for Disney for a while, didn't you?

Yes, I worked on "The New Mickey Mouse Club" and there was this relentless cheeriness, but it allowed me to do characters.

They had a huge wardrobe and make-up department and they could make an outfit for anything I could think of down in Orlando. If I wanted to be a fat, balding politician, boom! They could make it happen.

The thing I remember is that it took about 150 people to put on a show like that. At "Prairie Home" we have exactly 13, including everyone on stage, and it goes out to 4 million people, live.

TV is such a juggernaut and has so many compromises, and there is so much money at stake and people are shooting each other. In radio, you just clear your throat and walk out. If you want to make a dwarf into a pterodactyl, you just do it.

Rich [pianist Rich Dworsky] can change the music instantly. Garrison can react quickly. In TV you have to plan it all in advance. Radio is a nimble medium. It's so stripped down, so essential, so clean. It is very much "in the moment." You don't have all those monkeys on your back.

Have you ever thought about what will happen after "Prairie Home" goes off the air?

[Cast member] Sue Scott answered that question recently, saying that Garrison doesn't seem to be tapering off; he's ramping up. He is relentless, traveling more than ever. I've seen him at book signings and he not only signs the books, he writes a limerick for everyone! I imagine he doesn't want to become insular so he's always out there meeting people.

With a guy like that, I go into my job happy and excited to be there because I know I'll do stuff I never thought of before. It is a gift.

Hear more from Fred Newman at www.mouthsounds.info. Learn about "A Prairie Home Companion" at www.prairiehome.org.

Ken R. Deutsch is a former broadcaster and frequent contributor to Radio World.

PEOPLE NEWS

Journal Broadcast Group, Springfield Operations, hired **Valorie Knight** as operations manager for the five-station cluster of KTTS(FM), KSGF(AM-FM), KZRQ(FM) and KSPW(FM). Knight had previously worked in Springfield, Ill., as operations manager for WQLZ(FM) and WLCE(FM) (Mid-West Family) and Capitol Radio Group (Saga Communications).

Steve Weed joined **Main Line Broadcasting** as operations manager for its five-station Dayton, Ohio, cluster, and also is programming the market's new Adult Hits station, WGTZ(FM), Fly 92.9.



Steve Weed

Weed comes to the company after a nine-year stint with Entercom/Sacramento as station manager and CHR format captain.

Jim Williams, senior vice president of Global Broadcast, who presided over revenue growth in AP's global broadcast division, retired from AP.

Neural Audio appointed **James D. "JJ" Johnston** chief scientist. Johnston joins Neural Audio from Microsoft Corp., where he was audio architect.

Entercom appointed **Joe Harrington** vice president/general manager of WEEI(FM) Sports Radio 103.7 in Providence, R.I. He joined Entercom



Gerardo Vargas

Providence as station manager of WEEI in 2004.

Nautel added **Gerardo Vargas** to its sales team, and announced sales management promotions. Vargas was tapped to head the company's Latin America sales

efforts. He comes to the company from AEQ where he worked as a manager for several years, establishing its business in United States and in Latin America. He also previously worked for CRL as international sales manager.

Nautel also promoted **Chuck Kelly** to director of sales, and **Wendell Lonergan** to sales manager, Europe.

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Trading Spaces, Shifting Gears

The Move to New Platforms Is Important, But It Must Be Done Thoughtfully

By now you may have heard about a recent study indicating that most radio users favor radio's convenience over its content.

Some observers have remarked that this spells trouble for radio as other competitive services become increasingly more convenient.

Let's think about what this really means, however.

First, radio is considered so convenient because of its high service availability and the low cost — and resulting broad deployment — of its receivers.

This advantage cannot be easily dismissed. With about 14,000 stations in the United States (not counting translators and boosters) and estimated billions of radios in use there — with tens of millions more sold each year — radio has a formidable penetration that will not soon be matched. So the convenience of radio is clearly well established, and cannot be easily overtaken.

Note also that the "availability" metric doesn't just mean "service area."

It also includes the cost of service, and any other inconvenience the listener

might have to bear. Thus to become truly equivalent in convenience, any new competitor would also have to match terrestrial radio's other attributes, such as free service, instant on, no external antenna, and so on.

So does this mean that radio need not be concerned? Certainly not.

Any entity that allows its users to be actively dissatisfied with its service, using it only for lack of a viable alternative, does so at its peril. This condition creates pent-up demand, which can eventually cause quick and devastating change.

And while radio appears to have a nearly insurmountable lead in the penetration race, there are indicators that even this

The Big Picture



Photo: Gary Hayes, BBC

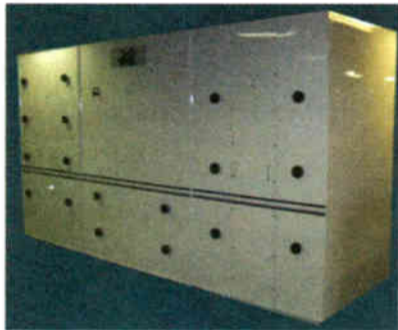
by Skip Pizzi

trend may have already started downward.

One example appears in CEA's tracking of "home radio" sales (tabletop, portable/handheld and clock radios, with no other audio source built-in), which have shown a dramatic decline from their historic peak in the 1970s and '80s.

Annual U.S. unit sales in this category today are at about a quarter of what they were back in those glory days. Even more telling is that 2007 sales in this category are half of what they were in 2001 — unmistakable evidence of new media's impact.

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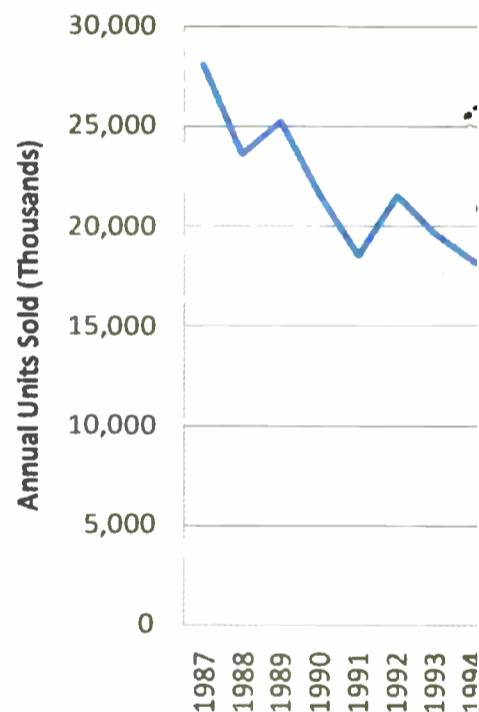
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SINCE 1963

Home Radio Sales

(Source: CEA)



Listening levels are down, too, but not by nearly as much. One might conclude that consumers are biding their time — still listening to the radio almost as much as before, but not investing in many more receivers.

They are thereby poised for change. If a truly equally available service were to emerge, radio listeners might switch to it in droves.

Worlds apart

We've spoken here before about how easy it is for radio stations to get themselves onto new platforms like the Internet, while Internet radio services cannot do the reverse.

So if listeners really do switch to Internet radio (and/or new devices don't include terrestrial radio receivers), radio stations have little difficulty making their content accessible on the new devices.

But on this new platform, stations will be competing with a far larger set of players, many of which are happy to work under very different rules (i.e.,

much lower cost structures, non-commercial operation, and willingness to be satisfied with audiences that are tiny fractions of what most broadcast stations attract today).

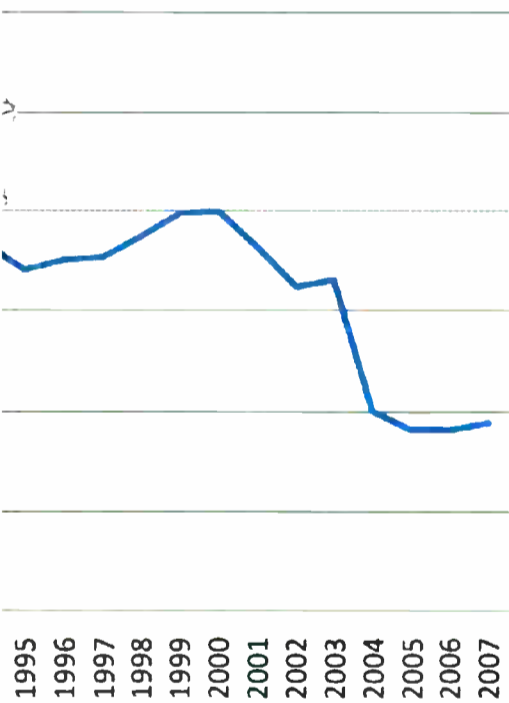
For radio stations to keep anything like the shares they are used to in the broadcast world will be next to impossible on an Internet radio platform.

Moreover, even if a radio station were to match its over-the-air audience in the online world, this is also a losing proposition, since the cost of serving each listener is higher. Of course, this analysis also requires some nuanced understanding,

If a truly equally available service were to emerge, radio listeners might switch to it in droves.

Sales, 1987-2007

(Market Research)



especially given that such a transition would likely not happen overnight.

Consider that for over-the-air broadcasting, the cost of service delivery is all front-end loaded. This is because the cost of delivering the first listener is several million dollars — the capital cost of initially establishing the radio station — after which each additional listener essentially is delivered for free. Put another way, the marginal cost of adding a new listener to a radio station is zero.

On the other hand, it is relatively easy and inexpensive (in terms of capital cost) for such a facility to add Internet radio service, and grow it gradually.

Thus in this case, there is relatively low fixed cost to reach the first online listener, but a continuing marginal cost added for each listener thereafter.

Given this cost and relative-value differential, it seems wise to think of these two service delivery venues with different metrics, not as a simple 1:1 trade or crossfade over time.

Of course, the best of both worlds for

radio stations is to maintain as much of their on-air audience as possible, while adding new online listeners (not simply trading on-air for online listenership).

Tweaking your game

Let's stipulate the following, then:

1) Listeners have shown an interest in moving to new platforms, and many prefer the content they receive there over typical broadcast radio fare.

2) Nevertheless, listeners will largely stay with radio as long as it maintains its current large lead in convenience.

3) Meanwhile, radio broadcasters can continue to operate their legacy channels while trying out service on new platforms.

4) Finally, broadcast and online service models exhibit almost reciprocally opposing service-cost-per-listener models.

What coherent conclusions can be drawn from this mixed set of circumstances?

One might be that broadcasters should evaluate each new platform over which they can deliver content (from both technical and business perspectives), and consider how to format that content optimally for the platform.

This implies that just copying the on-air signal to the new platform may be a poor choice. After all, if listeners are just waiting for a better delivery service to quit listening to the radio, why would that same radio content do well on the new platform? Yet that content may continue to be appropriate on the legacy service.

Consider that a good tennis player plays a different game on grass, clay or artificial courts, trying to optimize his or her intrinsic skills to the venue at hand (i.e., same engine, different drive chain).

A similar approach should be taken by broadcasters as they present their wares on different platforms. You can't compete the same way in a finite (i.e., licensed), local environment as you can in an infinite (i.e., unlicensed), global one. Yet the skills, acuties and resources developed in one venue may serve you well by repurposing them for another. The key lies in assessing the differences, and understanding how to adapt to them.

Next time, more on platform adaptation, as we consider other coping skills for the new media evolution.

Skip Pizzi is contributing editor of Radio World.

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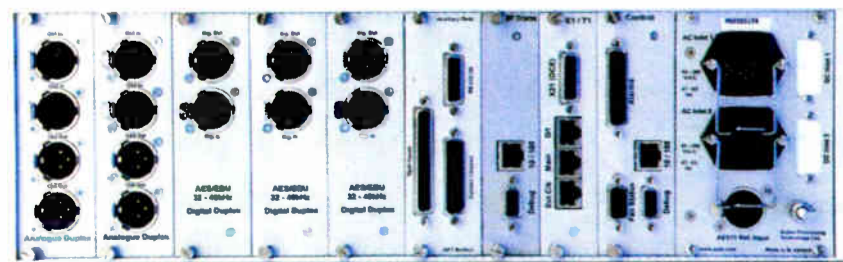
The WorldNet Oslo offers both linear PCM and Enhanced apt-X coding options. Enhanced apt-X will deliver the same audio quality as linear with under 2ms delay and at a fraction of the data rate. Other options include MPEG L2, J.57 and J.41 companding. With four channels of audio per plug-in module, up to seven audio modules per unit, and a choice of over 20 different audio modules, each WorldNet Oslo has the capacity of up to 28 mono channels / 14 stereo pairs.

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Ira Flatow of 'Talk of the Nation: Science Friday' spoke to the Technology Luncheon.

Tom Woods tells Marc Lemuth of Cumulus about BSI's Stinger Automation software.



Judy Mueller of DSI RF Systems talks to Hisashi Katagiri of Hitachi Kokusai Electric America. DSI showed its RF~IPMax microwave system.



Dan Dickey of Continental Electronics speaks during the press conference announcing the embedded exporter initiative, which was backed by the NAB with cooperation from Ibiquity Digital. Ted Lantz of Broadcast Electronics, left, and Tim Anderson of Harris listen; Nautel's Scott Martin is off-camera at right.

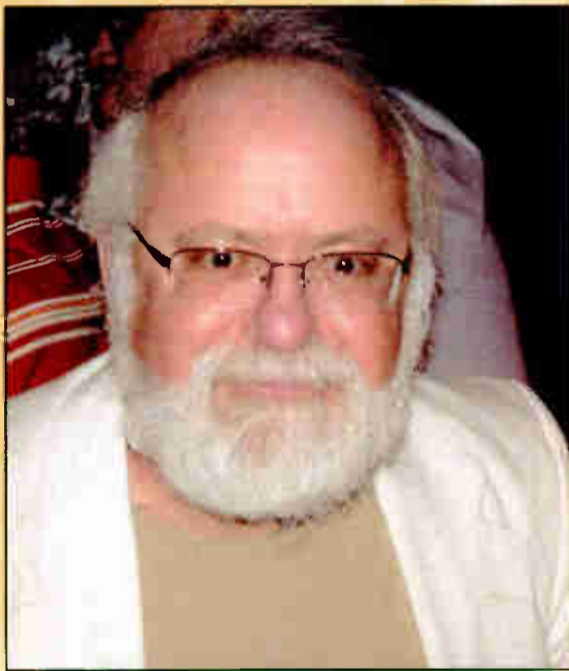


More than one in four NAB attendees now comes from outside the United States. International attendance was 28,300, a record.



Greg Ogonowski of Orban/CRL tells BEC conference attendees about requirements for delivering high-audio quality with bit-rate-reduced streams in a digital listening world.

Nautell's Chuck Kelly proudly shows off his tube lamp. Cool Stuff? Maybe next year!



Neural Audio presented its Broadcast Brain Award to Rich Parker, Vermont Public Radio director of engineering, citing his commitment to audio quality and audio processing for HD Radio.



Waiting for the bus.



ENCO Systems was founded by MIT engineers Eugene Novacek and Judy Kane Novacek in 1983. The company noted its 25th birthday during NAB. Nick Mues, left, and Dave Turner, right, celebrate with Gene Novacek.



Greater Media hits the floor: Larry Paulausky, Milford Smith and Paul Shulins listen intently to Christophe Poulain of Audemat.

HD Radio News

Radio World

Covering Radio's Digital Transition

May 7, 2008

FIRST PERSON

Can You Get Tuners in the Big Apple?

*We Find HD-R Product Availability Good
But Demo Experiences Lacking in New York*

by Thom Moon

NEW YORK In an earlier article (March 12), I wrote of my experience searching out HD Radios in Cincinnati. The bottom line: The radios were available, but most salespeople were not particularly knowledgeable about HD Radio, nor were the tuners in most cases situated as to be able to receive HD-R signals.

As I conducted my search, I wondered if the situation would be any better in a larger market — say, New York City. So I decided, with the editors' blessing, to do similar research in the Big Apple during a pleasure trip there.

I decided my best bet was to concentrate on home units, as most of the places I was to visit don't sell car units. My experience recalled some of what happened in my home town, but I found different issues as well.

On a beautiful February day, I set out to check several businesses mentioned as "Regional Retailers" on the HD Radio Web site, plus a couple I'd done business with in the past or wanted to visit.

The sojourn began at Park Avenue Audio at 425 Park Avenue South at 29th Street. The staffer with whom I spoke was friendly but said they didn't stock the unit.

Fuzzy HD-R facts

He also offered incorrect information about HD Radio, saying that they didn't have any receivers in stock — though I believe I spied a Marantz SR8002 THX Select2 Surround Receiver, which includes HD-R as a feature, in one of the demonstration rooms.

"HD is just like SCA," he told me. "If

you can pick up analog, you can pick up HD."

He said the problem of availability is largely due to the chip manufacturers, but, he said, "Soon everyone will be doing" HD-R.

My next stop was J&R Music World at 23 Park Row in Lower Manhattan, just across from New York's pleasant City Hall Park.

I knew J&R was a big operation, but I had no idea how big until I walked the near-city block it inhabits.

A helpful staffperson guided me to the audio showroom on the second floor, where I was left undisturbed for nearly 45 minutes. However, I was hopeful when I found the Denon S-52 and the Cambridge SoundWorks Radio 820HD Radio table units. Both picked up HD-R signals nicely.

On further inspection in the demo rooms, I came across the Sangean HDT-1X home theatre component tuner (my unit of choice), but while connected to AC, it was not connected to an antenna. Nearby sat the new Onkyo T-4555 home theatre tuner that includes HD-R — a unit I have been interested in trying.

Not only was it not connected to an

antenna, it wasn't connected to AC or an amplifier. Not a great way to sell a \$500 piece of gear.

Although they're mentioned on the J&R Web site, I didn't see any evidence of the Sony XDR-S3HD table radio, the Polk I-Sonic ES1 or ES2 or the upscale Denon, Onkyo or Yamaha A/V receivers; though on the upscale products, I may not have investigated the store completely enough.

Still, I was able to hear HD Radio as WCBS(FM), New York HD1 and HD2 came in best on both the Denon S-52 and the Cambridge SoundWorks Radio 820HD. But help? That was problematic as there were too few sales people in the audio department trying to handle too many customers.

I strolled uptown a ways to 627
See TUNERS, page 24 ▶



Some of the models the author sought: Denon S-52, Cambridge SoundWorks Radio 820HD and Rotel RT-1084

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Radio World's HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled by Radio World using information supplied by iBiquity Digital Corp., the HD Digital Radio Alliance, BIA Financial Network and other sources. Data reflect best information as of early April. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

HD Radio in Los Angeles

Station	Frequency	Class	Format	Licensee	HD Radio	Multicasting	Station	Frequency	Class	Format	Licensee	HD Radio	Multicasting
KLAC	570	B	Sports	Clear Channel	Yes		KPCC	89.3	B	Nws/Tlk/Inf	Pasadena Comm Coll	Yes	Yes
KAVL	610	B	Sprts/Talk	Aloha Station Trust			KCRW	89.9	B	Educa/News	Santa Monica C C	Yes	
KFI	640	A	News/Talk	Clear Channel			KBPk	90.1	D	AC	Buena Park Sch Disi		
KIRN	670	B	Eth/Tlk/Spt	Lotus Comm Corp			KSAK	90.1	D	Alt/T40/Rym	Mt San Antonio Comm		
XEWw	690	A	Spn/Nws/Tlk	W3 Concesionaria			KPFk	90.7	B	Nws/Tlk/Ecl	Pacifica Foundation		
KSPN	710	B	Sports	ABC/Disney	Yes		KUSC	91.5	B	Classical	U of Southern CA	Yes	
KBRT	740	D	Chrst/Talk	Crawford Bcstg Co	Yes		KHHT	92.3	B	Urban/RhyBl	Clear Channel	Yes	Yes
KABC	790	B	Talk	Citadel/ABC	Yes		KJLL-FM	92.7	A	Adult Hits	Amaturo Group Ltd		
KLAA	830	B	Talk/Sprts	LAA 1 LLC	Yes		KCBS-FM	93.1	B	Jack	CBS Radio	Yes	Yes
KRLA	870	B	News/Talk	Salem Comm Corp			KDAY	93.5	A	Urban	Magic Bcstg LLC		
KALI	900	D	Variety	Transition Radio			KMVN	93.9	B	Rhymc/HotAC	Emmis Communications	Yes	Yes
KHJ	930	B	Mexican	Liberan Bcstg Inc			KEBN	94.3	A	Mexican	Liberan Bcstg Inc		
KFWB	980	B	News	CBS Radio	Yes		KBUA	94.3	A	Mexican	Liberan Bcstg Inc		
KTNO	1020	B	Spn/Nws/Tlk	Univision	Yes		KTWV	94.7	B	NAC/Jazz	CBS Radio		
KNX	1070	A	News	CBS Radio	Yes		KLOS	95.5	B	AOR	Citadel/ABC	Yes	Yes
KDIS	1110	B	Family Hits	ABC/Disney	Yes		KFSH	95.9	A	ChrsContemp	Salem Comm Corp		
KTLK	1150	B	Talk	Clear Channel			KXOL-FM	96.3	B	Regat/HpHop	Spanish Bcstg System	Yes	
KXMX	1190	B	Ethnic	Salem Comm Corp			KWIZ	96.7	A	Span/Varty	Liberan Bcstg Inc	Yes	
KHTS	1220	B	FuSvc/AC	Jeri Lyn Bctsg Inc			KLSX	97.1	B	Talk	CBS Radio	Yes	Yes
KWKU	1220	B	Span/Sprts	Lotus Comm Corp			KLYY	97.5	B	Span/Trpcl	Entravision Comm Co	Yes	Yes
KYPA	1230	C	Korea/Asian	MultiCultural Radio			KTPI-FM	97.7	A	Country	Aloha Station Trust		
KGIL	1260	B	Talk	Mt Wilson FM Bcstrs	Yes		KLAX-FM	97.9	B	Mexican	Spanish Bcstg System		
KFRN	1280	B	Religion	Family Stations Inc			KRCV	98.3	A	Span/Oldes	Univision	Yes	
KAZN	1300	B	Asian	MultiCultural Radio			KVSR	98.7	B	Modern AC	Clear Channel	Yes	Yes
KWKW	1330	B	Span/Sprts	Lotus Comm Corp			KKLA-FM	99.5	B	Chrst/Talk	Salem Comm Corp		
KLTX	1390	B	Span/Reign	Hi-Favor Bcstg LLC			KRBV	100.3	B	Urban AC	Bonneville Intl	Yes	
KMRB	1430	B	Variety	MultiCultural Radio			KRTH	101.1	B	Cisc Hits	CBS Radio	Yes	Yes
KTYM	1460	B	Relgn/Ethnc	Trans-America Bcstg			KSCA	101.9	B	Mexican	Univision	Yes	Yes
KUTY	1470	B	News/Talk	Point Bcstg Co			KJLH	102.3	A	Urban	Taxi Prod Inc		
KVNR	1480	B	Asian	Liberan Bcstg Inc			KIIS-FM	102.7	B	Top 40	Clear Channel	Yes	Yes
KIEV	1500	B	Variety	Royce Intl Bcstg Co			KDLD	103.1	A	Alternative	Entravision Comm Co	Yes	Yes
KMPC	1540	B	Korean	P&Y Broadcasting			KDLE	103.1	A	Alternative	Entravision Comm Co	Yes	Yes
KBLA	1580	B	Talk/Varty	MultiCultural Radio			KOST	103.5	B	AC	Clear Channel	Yes	Yes
KAHZ	1600	B	BNw/Eth/ASt	MultiCultural Radio			KRCD	103.9	A	Span/Oldes	Univision	Yes	
KFOX	1650	B	Korean	Chagal Comm			KBIG-FM	104.3	B	Hot AC	Clear Channel	Yes	Yes
KCRY	88.1	B1	Educa/News	Santa Monica C C	Yes		KKGO	105.7	B	Country	Mt Wilson FM Bcstrs	Yes	Yes
KKJZ	88.1	B	Jazz	Calif State Univ	Yes		KVVS	105.5	A	Top 40	Clear Channel		
KCSN	88.5	B1	Clsc/Amerc	Calif State Univ	Yes		KBUE	105.5	A	Mexican	Liberan Bcstg Inc		
KSBR	88.5	A	Jazz	South Orange Cnty CC			KPWR	105.9	B	Rhymc/CHR	Emmis Communications	Yes	Yes
KISL	88.7	A	Variety	City of Avalon			KALI-FM	106.3	A	Variety	MultiCultural Radio		
KSPC	88.7	A	Alternative	Pomona College Radio			KGmX	106.3	A	Bright AC	Point Bcstg Co		
KTLW	88.9	A	RlgMs/Educa	Life On The Way Comm			KROQ-FM	106.7	B	Alternative	CBS Radio	Yes	Yes
KUCI	88.9	A	Variety	Univ of California			KSSE	107.7	A	Span/CHR	Entravision Comm Co	Yes	Yes
KXLU	88.9	A	Educational	Loyola Marymount U			KLVE	107.5	B	Spanish AC	Univision	Yes	Yes
							KWVE	107.9	B	Christian	Calvary Chapel CM	Yes	

Source: Data above is from BIA Financial Network's data service MEDIA Access Pro™ and also includes iBiquity information. Visit www.bia.com

HD Radio at Regent

Total stations: 60



Legend:
■ Licensed by iBiquity and on the air
■ Licensed by iBiquity and not on the air

The HD Radio Bottom Line

Total Licensed

2,104

Last Month: 2,095

Last Year: 1,791

On the Air

1,660

Last Month: 1,647

Last Year: 1,236

FMs Multicasting

863

Last Month: 849

Last Year: 565

Tuners

► Continued from page 22
Broadway, the site of Stereo Exchange. It's a nicely laid-out store, but not a center for HD Radio. The gentleman behind the counter said their only HD-R unit was the \$899 Rotel RT-1084 tuner. (He mentioned the price twice as if to say, "You want to spend \$900 on a tuner?")

Getting a signal

Did they have one for demo, I asked? In a story to be repeated at another Rotel dealer, he said no — but he'd be happy to order one for me. I demurred and continued the search.

Another jaunt up Broadway took me to Harvey Electronics located within the ABC Carpet & Home store at 19th and Broadway. Harvey is located on the mezzanine, well inside the six-story ABC building, so I was dubious that any HD Radios on display would receive enough signal to pick up digital, despite the mere 0.6 miles to the Empire State.

However, I was encouraged by the presence of a "Hear HD Radio Here" poster; it was one of three I saw during my travels in the city. Harvey was featuring two units: the Sangean HDR-1 and the Cambridge SoundWorks Radio 820HD table units.

The most helpful salesperson went out of his way to demonstrate both to

me. He had to find the remote for the Sangean to get past the opening set-up menu, but did so.

And he apologized for their location by saying, "It's hard to pick up FM inside this building, let alone HD Radio." But he placed both radios in as advantageous a location as possible and let me play.

The most helpful salesperson went out of his way to demonstrate both to me. ... He placed both radios in as advantageous a location as possible and let me play.

Both units received analog FM (with some multipath) and both eventually locked into HD-R signals. Again, those that came in best were WCBS(FM) HD1 and HD2.

In my evaluation, the Sangean was the better unit; the Cambridge would lock, then lose the digital signal and have to go through the acquisition process several times.

The gentleman at Harvey wins my vote as most helpful salesperson. He knew the basics of HD-R at least, he didn't try to lay a line of bull on me and he made certain I could sample HD Radio under the best circumstances possible in his store.

Back to the subway I went, in order to visit two Upper East Side retailers.

First on that docket was Cosmophon Sound, 1622 First Avenue at 84th. I had helped a friend buy some speakers there a number of years ago and liked the way we were treated. So I thought they might be a good place to go.

They had only one unit on display, the Cambridge SoundWorks Radio 820HD. This radio seems to be readily available in the Northeast; I never saw one in Cincinnati. It was placed next to another of the "Hear HD Radio Here" posters.

High-end audio

Unfortunately, the store is in the middle of a block-long retail complex that forms the base of a multi-story condo complex, so signal strength was inadequate for me to experience HD Radio.

The older gentleman who took over handling me from a far younger man made all the right soothing noises about not being able to let me listen to HD Radio.

He knew a bit about the process, that it was a digital signal that was piggybacked on the analog; that it offered the possibility of several channels of alternative programming. He was good at schmoozing the customer — making him or her feel more comfortable. He was up there with the salesperson at Harvey in my estimation, but in a different way.

The final stop of the day was the high-end Lyric Hi-Fi at 1221 Lexington, between 82nd and 83rd. Another friend

said he once went into the store and was treated like so much dirt. Not so with me on my visit.

The store carries lots of fine gear — ARCAM, McIntosh, Mark Levinson — but no HD Radio.

This was the second place where I was told they could order me a Rotel RT-1084 tuner, again, at \$899. The salesperson said he'd sold "three or four," including one to a board member of public radio WNYC(AM-FM), but that they don't carry them in stock.

However, for those of you who are interested in broadcast/hi-fi history, Lyric currently has an original, mid-1970s Sequerra One FM tuner complete with oscilloscope for a mere \$7,000. As the guy put it, "There are better FM tuners today, but when it came out, it set records."

The lessons I learned in the Big Apple were that HD Radios are a bit easier to find there, and the model selection, at least at J&R, is far better than I experienced in Cincinnati. But education of salespeople about HD Radio technology and the ability of potential customers to sample real HD-R broadcasts are still problematic.

If the HD Radio Alliance and Ibiquity want to sell HD Radios, it's my suggestion they concentrate as much on educating retailers on HD Radio technology and what customers can expect as on their "It's Time to Upgrade" customer-oriented ad campaign.

And HD Radios — car or home — need to be available for demonstration and capable of receiving HD-R signals, lest the technology go the way of AMAX and C-Quam AM stereo.

Radio World welcomes other points of view and experiences. Write to radioworld@nbmedia.com.

Moon has spent more than 30 years in radio, mostly developing and analyzing audience research; he describes himself as an even longer-term, all-around radio geek. Reach him at tsmoon@zoomtown.com.

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DIGITAL NEWS

Alliance Shifts Consumer Focus To Purchases

ORLANDO, Fla. The HD Digital Radio Alliance is shifting its campaign focus to get consumers to buy HD Radios.

Ideas came out of an industry summit in March in Orlando for broadcasters and industry executives preparing the second generation of HD2 programming.

The new message is "HD Radio — It's Time to Upgrade!" Gone is "HD Radio — Discover It!"

New messaging, logos and radio ads have begun in a campaign airing in 100 markets on about 700 stations.

Consumer awareness of HD Radio stands at 77 percent, according to a survey of radio listeners from Critical Mass Media, the alliance said. It adds that in a separate study of current or likely auto buyers by J.D. Power, 31 percent said they want HD Radio in their next vehicle.

Now is the time to convert consumer awareness into purchasing action, said Alliance President/CEO Peter Ferrara, who added that while the alliance members feel good about where HD

Radio stands, it's not great, and "We want to make it great."

He said the industry will see "unparalleled numbers of receivers in cars and at retail, new data applications and new investments in HD2 and HD3 programming from broadcasters."

Also available is an expanded marketing resource package for broadcasters on HDRadioAlliance.com. Alliance Executive Vice President Diane Warren said that while the group provided a lot of support advertising materials in the past, "stations weren't ready to use them. We've updated those."

More Venture Capital for Ibiquity?

COLUMBIA, Md. Ibiquity Digital is raising \$15 million more in venture capital, according to VentureBeat.com.

Grotech Partners, JP Morgan, New Venture Partners and Pequot Private Equity Fund, which already own stakes in the company, are providing the funds. Ibiquity didn't comment on the report; however the company has raised an estimated total of \$115 million in three earlier rounds, we've reported.

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DIGITAL RADIO ABROAD

SWR Tests Digital Radio Future

*DAB+ and DMB? FMeXtra and HD Radio?
DVB-T, DVB-H and T-DMB?*

by Michael Lawton

COLOGNE, Germany Public station Südwestrundfunk, or SWR, is leading a project to find out what kind of content will be attractive to digital radio listeners in this country.

It is an expression of faith in digital radio, which counters the general pessimism in Germany after the virtual collapse of interest in DAB.

"But," said Michael Reichert, who is coordinating the project for SWR, "we do not want to reactivate DAB as we knew it." He said that things have moved on since DAB first went on air more than 10 years ago. "We want to use content, which we know from the Internet."

The KEF, an organization that determines how much money public broadcasters here need, pointed out in a report in January that when DAB was under development, nobody thought about the possibility of Internet radio, satellite radio, radio via DVB-T, mobile broadcasting, MP3 players and podcasts.

Bearing in mind disastrous adoption of DAB by German consumers so far, it

announced a cut in money for DAB but held open the possibility of new money for new technologies.

However, the KEF appeared to reject DAB derivatives, such as DAB+ and

DMB, as inappropriate technologies for the future, and seemed to favor DVB-T, DVB-H and T-DMB, which, it admitted, still require optimization for radio use.

The SWR project, which goes by the name Radio der Zukunft, or Future Radio, is about content but will use DAB as the means of getting it to the listeners. "DAB is the only technology we have right now," said Reichert, "but it may not be what we use in the end."

SWR, the public broadcaster for

southwestern Germany, is cooperating with LfK, the private broadcasting regulator for the state of Baden-Württemberg, and will bring a number of private stations onboard. It is also working with the U.K. technical development company, The Technology Partnership.

TTP is helping define an open service

The LfK has been exploring digital radio options, with pilot projects for HD Radio, FMeXtra and DAB+.

delivery specification that enables new visual, interactive and download services on any digital radio receiver.

Possible successor

The LfK has been exploring digital radio options, with pilot projects for HD Radio, FMeXtra and DAB+. According to Axel Dürr, spokesman for the LfK, there is "euphoria" among Baden-Württemberg broadcasters for DAB+ as a possible successor to DAB.

DAB+ uses AAC coding technology instead of MPEG 2, allowing some four times the frequency capacity and improved audio quality.

The new project will consider what digital radio might look like in the future and what technological strategies could be adopted.

Reichert talks for example about "podcast via broadcast" — listeners register their interests and receivers will accordingly automatically download the latest related news or a comedy spot or a sports report for use on demand.

Some of these options — e.g., hourly news — may be best served by automatically recording the item directly from transmission. In other cases, it may be better to send the data in the background.

"We would use an electronic program guide, like with a video recorder, so that recordings would be made while the receiver was on standby," said Reichert.

Radio ideas

Part of the project is a pilot in the biggest city in the area, Stuttgart, in which some 500 young people will get portable DAB receivers and a choice of radio ideas for them to select or reject.

The receivers are likely to be Lobster phones, taken from the failed British Telecom Movio Mobile Phone movie project. The handsets include a clever DAB receiver designed by TTP.

TTP is also providing the project with its new nanoDAB receiver, based on the DAB receiver element in the Lobster. It is a mobile phone Bluetooth headset with DAB reception.

"The advantage," said Reichert, "is that it is independent of the hardware used." Unfortunately, the nanoDAB will probably not be available in time for the pilot in summer, but it represents a new and interesting development in digital radio mobility.

According to Nick Piggott, head of creative technology at U.K. operation GCap Media, DAB has so far come

mainly in the form of traditional radios because developers lacked the imagination to "think outside the box."

"But a mobile phone," he said in his blog, "well, it is a nirvana — handheld, color screen, embedded browser, pots of storage, performance microprocessors, and a real, genuine, programmable operating system. . . . nanoDAB is the future of DAB."

Different chip

According to Martin Orrell, general manager, digital media at TTP, his company has been developing both mobile phones and DAB equipment for years, and realized that, in order to move things on, it would have to think unconventionally.

"Big companies have long road maps," said Orrell, "and to put a DAB chip into a phone, they need a worldwide mass market. Until that happens, we can add DAB with a mobile phone accessory, bearing in mind that accessories have taken off as a result of hands-free."

Though the nanoDAB is currently restricted to DAB, there is no reason why it cannot have a different chip to make it compatible with another digital radio system, he said.

Whatever the technology, the nanoDAB will connect a broadcast channel using DAB, with a back channel using Global System for Mobile communications standards. "There are some exciting concepts being suggested," said Orrell. "You can do location-based adverts or deliver times of buses from a particular stop. You can carry massive amounts of data on DAB."

One advantage is that the broadcaster can choose whether to use broadcast or GSM to deliver data.

"For example, if a station wants to distribute a voucher to all its listeners, it can broadcast it in the form of a barcode," said Orrell. "But if it wants individuals to buy something, it can get them to press a button and the voucher will come by GSM, with the invoice appearing on the phone bill."

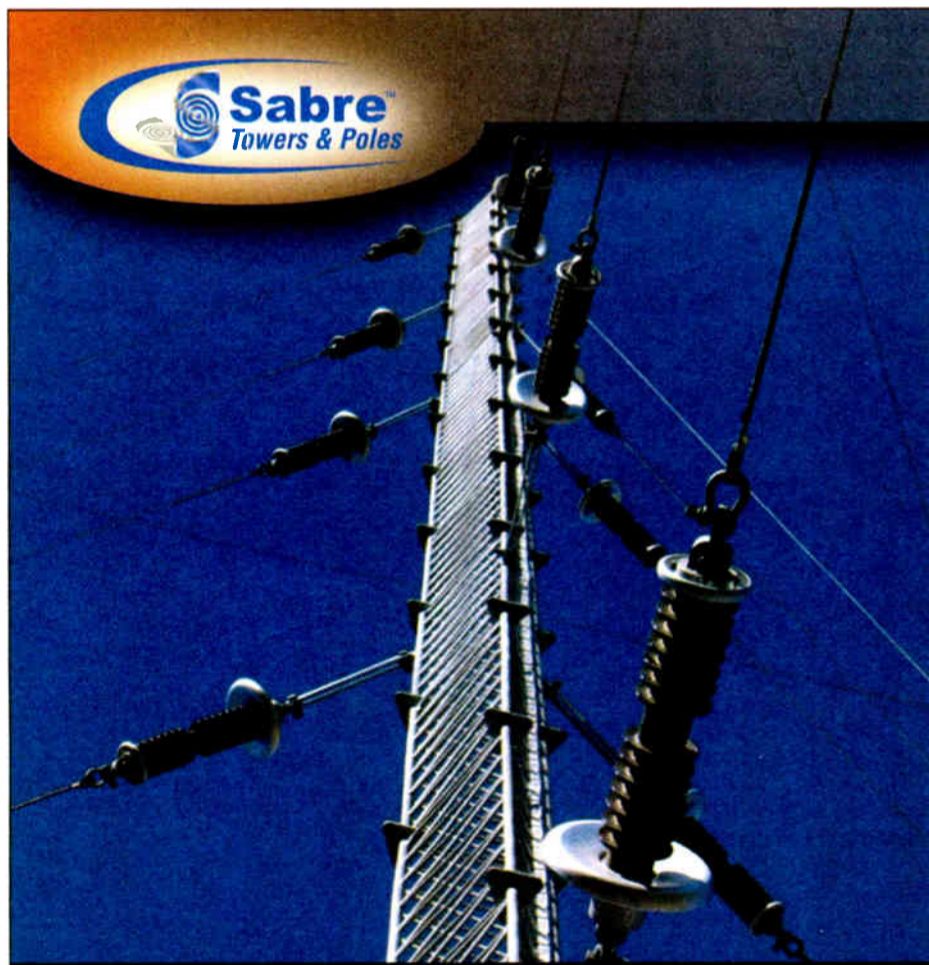
Back channel

That is of little interest to SWR. "The back channel is not a priority for us as public broadcasters. Our interest is in distributing our public radio content as effectively as possible," said Reichert.

According to Dürr of the LfK, the back channel is of considerable interest to the private stations, even though it will not be part of the Stuttgart pilot.

"It will allow the stations to address themselves directly to their listeners and will allow the listeners to communicate with them," said Dürr. "In the medium term, it could provide new sources of income but, in any case, it will allow the stations to build relationships with their listeners."

Michael Lawton, a free-lance broadcast journalist, reports on the industry for Radio World from Cologne, Germany.



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Radio World's HD Radio Scoreboard is published in alternating issues. Selected data is from BIA's MEDIA Access Pro™; the scoreboard also uses information supplied by sources including iBiquity Digital Corp., the HD Digital Radio Alliance and RW's own research.

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World Radio History

PRODUCT EVALUATION

Audition 3.0: Digital Audio Band-Aid

Editing Software Adds Tools to Clean Clips, Remove Disturbances, Leaving Audio Unaffected

by Read G. Burgan

Since acquiring Cool Edit and renaming it Audition, Adobe has consistently invested resources that have taken it from a modest digital audio editor to a first-rate audio editing suite, including both two-track and multi-track capability. Adobe 3.0 continues that tradition.

One of the new features is the "On Clip Gain Control," which becomes visible when you select a portion of the WAV file in the edit mode. As you drag the on-screen volume control up or down, it raises or lowers the volume visually.

Once the level is where you want it, releasing the gain control automatically re-scales the amplitude to the new level. This is a great time-saver, allowing you to compare the level of the selected area

with the rest of the WAV file while adjusting the gain control.

Fade away

The new "On-Clip Fade Controls" show up at the extreme ends of the Audition on-screen display. By dragging one of the controls with the mouse, you can fade the beginning or end of the WAV file. Depending on how you drag the fade control, you can have a linear, logarithmic or an S-curve fade. Again, this is a time-saver, as it eliminates having to open up a fade menu and select various options.

Instead, simply click on one of the fade controls and start dragging it. As you do the on-screen display visually changes the WAV file to match the fade, and also represents the type of fade with

a yellow line.

Audition 3.0 offers a new noise reduction tool for removing broadband noise: Adaptive Noise Reduction (ANR). ANR follows the current trend to eliminate taking a noise sample. ANR does not even offer an option for creating a noise print. Just adjust the on-screen sliders of the six parameters while previewing the result in real time. Once you are satisfied with the effect, click "OK" and ANR does the rest.

As with other adaptive types of noise reduction software, I found that I could still get better results by using a noise reduction tool that uses a noise print. When you can't take a noise print, ANR provides an effective means for removing broadband noise.

Adobe has brought its experience with photo software to the original Cool Edit

Product Capsule:
Adobe Audition 3.0
Digital Audio Editing Software

Thumbs Up

- ✓ On-Clip Gain Control provides visual display as volume is changed
- ✓ On-Clip Fade Controls provide fast, easy means of fading in and out
- ✓ ANR effect removes noise without using noise print
- ✓ Spot Healing Brush quickly removes unwanted noise

Thumbs Down

- ✓ ANR not as effective as noise print-based noise reduction
- ✓ Some processes may take longer than with Audition 2.0

PRICE: Packaged or Downloaded: \$349
Upgrade From 1.0, 1.5, 2.0 or Adobe Production Studio Premium: \$99

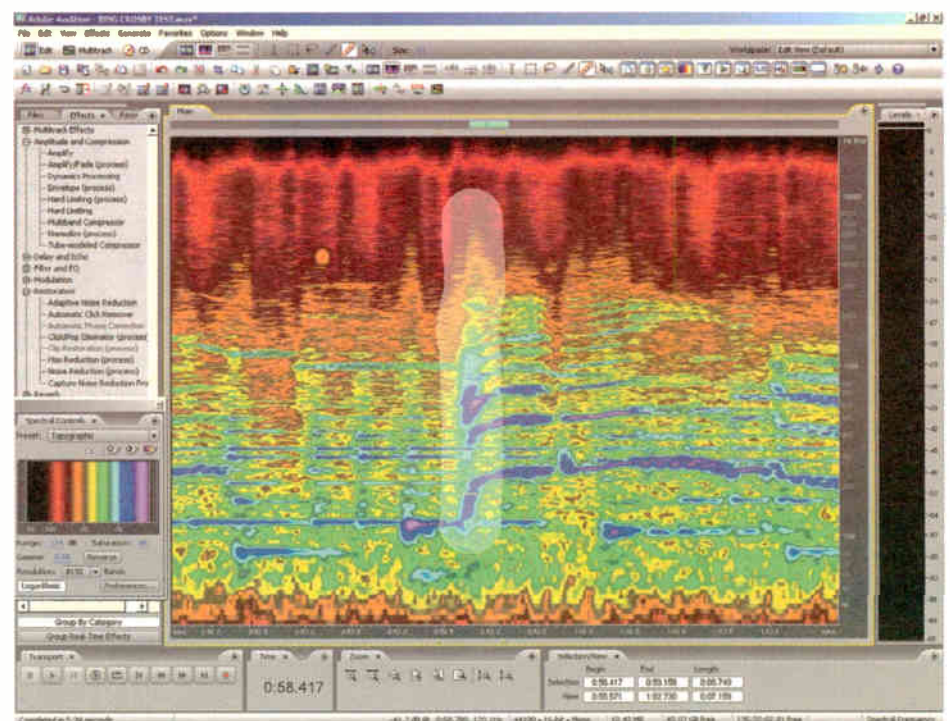
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To remove noise, select the Spot Healing Brush and drag it over the noise as displayed in the spectral view.

program, beginning with Audition 1.5. It has done this by adding a "spectral" view.

The spectral view displays the WAV file's frequency over a period of time. The display shows the frequency of the signal on the Y-axis and the amplitude with color. Dark blues are low amplitude and bright yellows are high.

At first glance this may seem like an insignificant change. But I think it is one of the most revolutionary improvements since digital audio editing software was first introduced. It provides the means to remove noise and disturbances that were impossible to remove in the past.

The reason the spectral view is so revolutionary is that you can now see a representation of the disturbance. To do so requires experimentation with the spectral preferences including FFT resolution and range. But once you learn how to

recognize the various kinds of noise, there is almost no limit to the kinds of noise you can remove.

Healing touch

Audition 3.0 has added two new tools to the spectral view. For me, the crown jewel is the Spot Healing Brush. If you need to remove disturbances like coughs and doors slamming, this feature alone is worth the price of the software. And if you have used any of the Adobe Photoshop/Elements software, you already know how it works.

See AUDITION, page 29 ▶



PRODUCT EVALUATION

MicroTrack II Adds Record Time, Fast USB

Journalists Will Like 'Speedy' File Transfer, 2 GB Recording, Location Markers, Analog Limiter

by John Gatski

Despite the abundance of more expensive (and flashier) CompactFlash-based stereo recorders, and a few lower-cost ones as well, the M-Audio Micro Track is suitable for recordists, musicians and journalists.

The MicroTrack II sports features and upgrades that address most of the negatives of the original, while coming in at the same \$399 list price.

The MicroTrack II comes in black plastic, which houses the familiar pin-sized recorder. The new model sports most of the same features, including recording to CompactFlash, up to 24 bit/96 kHz WAV or MP3 encoding, a T-electret stereo microphone, internal battery power, TRS 1/4 inch input for mic or line, and a handy S/PDIF digital input for use with other converters.

Menu functions are accessed via a left-side button, the right-side Enable

button and front-panel buttons for channel gain, line/headphone output gain, record and track delete. The tiny GUI blue screen shows the various input/output options, as well as track time, bit/word length, gain meters and battery strength. Toggling through the menu items reveals various settings and system modes.

The new features that will interest most professional recordists include a revised input gain structure that does not overload as easily as the original, faster USB 2.0 file transfer to the editing computer,

longer recording capability (more than 2 GB), 48 V phantom power for larger condenser mics, location
See M-AUDIO, page 31 ▶



Audition

▶ Continued from page 28

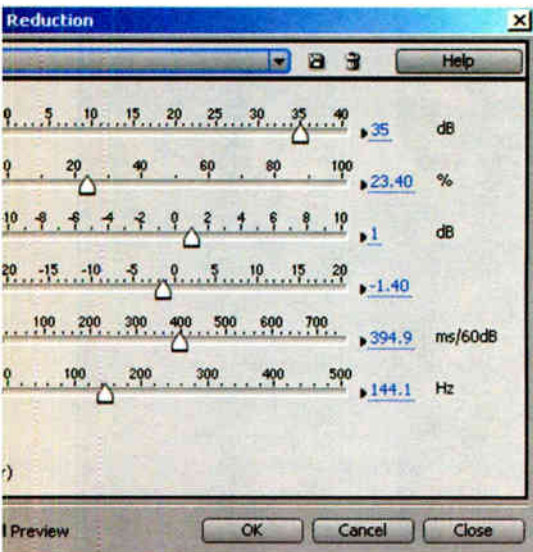
I have used this tool on a daily basis for over two months and I continue to be amazed at the wide variety of noise it can remove. This is the kind of tool that those of us who regularly work in digital audio restoration have dreamed about but never expected to actually see. Adobe deserves high praise for bringing this feature to Audition 3.0.

Also new in the spectral toolbox is the Effects Paintbrush. Like its counterpart in the Adobe PhotoShop series, it allows you to "brush" over an area in the spectral view, and then control the degree to which an effect is applied by adjusting the opacity setting or increasing the number of brush strokes over the area. It adds still more options to the spectral view.

In addition, Adobe has added an option that lets you hear the sound that has been selected in the spectral view.

Adobe says that "Audition is now fully multi-core compatible, splitting up processing among any number of cores." And for most processes I found the processing time was improved over Adobe 2.0.

The packaged version of Audition 3.0 contains a Loopology disc with lots of music clips that could be used to create sound beds for spots, newscast themes, etc. The material is royalty-free for regular broadcast use but there are some restrictions for other uses that might affect Internet streaming. The packaged version also contains a Video Workshop DVD with information on other Adobe products. 🌐



The Adaptive Noise Reduction VST plug-in removes noise in situations where obtaining a noise print is not an option.

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Relaxing after a busy day at the convention in the pools at the Flamingo.



Steve Fluker of Cox Radio hosted a session about new technologies for radio listening.



Audio-Technica introduced the AT2020 USB Cardioid Condenser mic, which plugs into a computer's USB port, and new ATH-M50 studio monitor headphones. Manya Wang of Linkyo Corp. listens to Jeff Simcox of A-T.



Paul Pengate, Lyndon Cox and Colin Urquhart of Prime TV Canberra hear from Tag Borland about the concept behind Logitek's planned JetStream Mini.

David Jablonski, right, talks about the Axia Element with Ryan Horn, left, and Doug Watson of Motor Racing Network.



Ed Bukont poses a question.

Flamingo photo by Brett Moss; Steve Fluker, Audio-Technica, Logitek and Bukont by Jim Peck; Axia by Mary Ellen Dawley

NAB SHOW

M-Audio

► Continued from page 29
 markers for Broadcast WAV files, and an analog limiter with bypass.

Other new features are customizable file folders, CF memory test, adjustable backlight and the ability to monitor the S/PDIF input while recording.

Those familiar with the original will notice there is no longer a right-side sensitivity switch for line in or microphone inputs — just the phantom power switch, hold switch, screen brightness and menu switches.

The MicroTrack II package includes the T-mic, earbuds, a small carrying case, adapter, USB cable and manual, and can be found on the street for close to \$300.

In use

The original MicroTrack took some getting used to — with its various button pushes to get it to record, play and stop — and the new one's basic operation is the same.

What I really liked about the MicroTrack II was its ability to take

ty high-resolution audio. The 24 bit/96 kHz files played back via computer with the Lavry DA10 or the Benchmark DAC1 revealed nicely separated, smooth transients that were close to more expensive separate A/D recordings of the same music.

Our bench tests of the original MicroTrack showed dynamic range and signal-to-noise measurements well above 90 dB, plus good low-level converter linearity down to -100 dB: it wasn't true 24 bit, but in the real world those are good numbers for a \$300 recorder. According to the manufacturer, the MicroTrack II posts even better specs. And this can certainly be heard, as the overall sound through headphones is quite revealing, with pleasant, welcomed warmth.

Other functions I like on the MicroTrack II included the defeatable ana-

log limiter that works pretty well for those who need a safety for eliminating any harsh digital clipping. And USB 2.0 now eliminates the need for an external card reader for speedy transfers to computer.

The MicroTrack II still maintained an internal rechargeable battery-powering scheme, which runs down in about 45 minutes in the 96 kHz recording mode. But the MicroTrack II now allows recording and charging simultaneously, and allows USB power at any time.

I would like to see M-Audio change the power system to user-replaceable, like the Sony D50 or the Zoom H4. For about \$50, however, you can connect the MicroTrack II to those external USB battery packs and more than triple recording time.

Summary

Despite stiff competition among

CompactFlash-based recorders on the market, I still have to recommend the MicroTrack II for those who don't want to spend more than \$350 for a handheld recorder.

It's not the sturdiest feeling recording device, but its converters sound good and it is easy to learn how to use. The TRS-balanced input capability is a better way to bring outside analog in, and the T-mic is quite good for recording those rehearsals or even a real gig.

PAR's original MicroTrack, despite some loss of battery resiliency and the paint peeling off from repeated removal from its case, still works fine, and the MicroTrack II should show equal hardiness.

John Gatski is publisher/executive editor of Radio World's sister publication Pro Audio Review and founder of Studio Sessions.

Product Capsule:
M-Audio MicroTrack II
Mobile Digital Recorder

Thumbs Up

- ✓ User-friendly
- ✓ 2 GB recording capability
- ✓ Overall sound is revealing, with pleasant, welcomed warmth
- ✓ Various settings, system modes and I/O options
- ✓ 'Defeatable' analog limiter
- ✓ Fast USB 2.0 file transfer

Thumbs Down

- ✓ Not the sturdiest recording device
- ✓ M-Audio should change the power system to user-replaceable

PRICE: \$399

CONTACT: M-Audio at (626) 633-9050 or visit www.m-audio.com.

higher-level inputs through its line input; the original could not record a fixed output of a CD player without clipping, requiring external attenuation.

Also appreciated were the speedy USB 2.0 file transfer, the brighter screen and the ability to mark files, which can then be renamed on the computer. Another change I liked was the unit's automatic pause mode when recording was engaged; the original one required a separate push of the engage button after the record button was pushed.

From our bench tests of the original MicroTrack, it was apparent that its high-resolution capability was very good. To test the MicroTrack II, I sampled the output of high-end universal players (SACD or DVD-A), recording several 24 bit/96 kHz acoustic guitar stereo recordings on the new one. They sounded pretty darn good via the internal DAC and headphone amp, as well as line out via its RCA unbalanced output.

Many pros may use the A/D to record, then transferring the tracks to a computer for editing/conversion to an external player format feeding a separate DAC. This is where the MicroTrack II really shined.

Despite its low cost, and its streamlined "plastic" feel, this device recorded quali-

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Inside

Radio World

Transmitters

May 7, 2008

USER Q & A

Bext Tapped for Radioactive Buildout

Mark Heller, chief engineer for Radioactive LLC, licensee of WTRW(FM), Two Rivers, Wis., comments on his experience with Bext transmitters.

How did you evaluate the transmitter choices in the market and decide on a Bext FLX 5000 FM transmitter?

A call for bids was made for a new solid-state FM transmitter that would meet a power output of at least 4,500 watts, and a three-bay FM circular antenna also was bid. Bext in San Diego put together a package that included everything but the coax, audio processor and EAS system.

There were several bids, including used transmitters, but the availability of a new transmitter within our time deadlines was a priority. The final decision to purchase the transmitter, exciter and antenna package all from Bext was a team decision.

We narrowed the list of manufacturers to two finalists, and Bext could meet our tight deadlines. I made the initial recommendation for Bext, as it had a single-phase 5 kW FM transmitter available. The final okay was given by Randy Michaels in person, who made the investment in this radio property.

Randy Michaels is a radio icon. As the newly-minted executive vice president of Tribune's radio and television properties based in Chicago, he also was recently the successful bidder on several FM stations around the country over the past three years under his own company, Radioactive.

One such station is this 6 kW ERP facility at Two Rivers, Wis., WTRW. With a construction permit due to expire in a few months, I was offered the opportunity to build this station from the ground up.

How did the sales or marketing folks from the company respond to your request for a bid or quote?

The bid was received promptly, and the price was in the range we had anticipated.

Did you install the transmitter yourself, with your staff, or did you contract that out? Did you have a special problems or challenges with its installation? How did you handle HVAC requirements and grounding?

I installed the transmitter by myself, with minor assistance, mainly checking the standing wave ratio of the antenna and monitoring the signal on a spectrum analyzer for several hours, watching for any interference. But the unit was very clean, thanks to its internal filters. Having single-phase power made wiring a breeze.

Each module represented up to 1,200 watts of available power, and the exciter was able to perform at 100 watts, although we idled it at 90 watts for our use. We used a 60-amp circuit, but probably could have gotten by with an even lighter circuit. A concrete slab was poured in early January and an 8 foot square building erected at the base of a 239 foot tower, which hosts my own station, WGBW(AM), a paging company and an FM translator.

With nighttime temperatures approaching -14 below, the building was constructed in the basement of my home residence with screws, then disassembled to be taken outside when temperatures reached the +10 and above range.

Did you buy an exciter with your transmitter? How would you characterize its performance specs compared to other choices? Which specs are most important to you?

The exciter was part of the package. The transmitter came with a Bext exciter



WTRW(FM)

Model Lex 100, capable of 100 W. It worked well. Having up to 100 W for an exciter is great, in the event of an amplifier module failure.

Bext Exciters are frequency programmable, so together with the Bext broadband transmitter and Bext broadband antennas they make for good frequency agile systems. Thus, if a broadcaster were looking for a good solid-state unit, and especially in a multi-station environment, having a Bext standing by able to switch frequencies in a few seconds makes it a great addition to the transmitter building.

Many new transmitters include a computer-driven control screen or GUI. Does the FLX 5000 offer this feature?

Yes.

Does it give you everything you want,

especially the most important functions, without having to navigate through too many layers? Is it stable during power bumps?

We had to report some initial problem at first start up, but once we got it on the air, it just stayed on. It certainly makes power in a stable manner.

Many transmitters and exciters now have an Ethernet connection and IP control capability. Does your transmitter site have Internet access and are you controlling it via IP?

No, we use a standard POTS phone line and a Sine System remote control.

We use only dial-up control. Remote control functions were easily handled, with the transmitter power output readily available both by remote on a rear connection, and locally on the large display on the front of the transmitter.

Did the manufacturer send a factory technician or contractor to commission and verify proper operation for FCC spectral mask compliance?

We handled it on our end, and we had a freelance consultant come in for an independent verification.

Have you had any significant problems? How does it tolerate power line bumps and surges, lightning storms, etc.?

It works okay so far. We had some initial complications at the beginning as the first manual we received was incomplete. But Tino at Bext sent us a full one by email two days later.

Any suggestions for improvement?

For OSHA concerns, I wish that the AC input terminal block area located inside the transmitter came with some type of cover made of Plexiglas or a screen-type cover to protect operators from potentially touching the electrical connection.

For more information, contact Bext at (619) 239-8462 or visit www.bext.com.



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USER REPORT

WACF Howls Through South With Harris

by John Mullinix
IT Contract Engineer
Wolf Creek Broadcasting
WACF(FM)

YOUNG HARRIS, Ga. The Wolf Creek Broadcasting Network owns a group of three AM stations in North Georgia and Tennessee, covering regional Appalachian Mountain communities as well as residents of North and South Carolina.

When the company added an FM station, we almost immediately opted for Harris, as its AM transmitters have served us well and we were confident of its FM transmission products.

Harris has been a helpful partner for our RF decisions. I'm an IT guy by trade æ if it has wires, it is in my department. I'm not illiterate in all things FM, but the advice and assistance of Harris engineers

have been an enormous help.

Our salesman, Garrett Wood, is an experienced engineer and recommended the ZX1000, a 1 kW transmitter from the company's ZX low-power range. We quickly realized it was the best fit for our new station, given the compact footprint, power level and ease of installation.

The transmitter's feature set also was impressive, with an integrated Harris MicroMax FM exciter and WEB Remote, a Harris product that offers an Internet connection for transmitter control and monitoring over IP. The fully integrated design of the ZX1000 was a key selling point as we were keen to get up and running quickly.

We received our construction permit last



ZX1000

July with a goal to be on the air by mid-September. Space was rented on a nearby tower and the transmitter was installed over the course of a mid-August weekend.

The tower owners let us put the transmitter in an existing facility at the site, with site preparation limited to air conditioning unit upgrades. Although the transmitter produces little heat in the room, the existing window AC unit probably was insufficient.

In position

Installation was simple. The transmitter was mounted to the rack and set inside the building. The transmitter is positioned so it is easy to access and switch out parts whenever necessary with minimal disruption of the signal.

The MicroMax exciter is the epitome of plug-and-play. We took it out of the box, hooked it up and turned it on, with no configurations needed. The MicroMax is a key component in the end-to-end technology chain that ensures we are broadcasting clean, high-quality audio to our listeners.

The WEB Remote module is added through the transmitter's RJ-45 jack, and allows us to check temperatures as well as voltage and current levels from virtually anywhere. A Wolf Creek employee takes

readings using the remote module several times a day. The WEB Remote also is set up to directly deliver an SMS to my cellphone in the event of any serious issue.

The transmitter site has an elevation of about 3,600 feet, situated on one of the tallest mountains in the region. It is only eight miles by vehicle from the station, but it takes a good 20 minutes, and about half the road up the mountain is gravel. The nearly maintenance-free operation of the transmitter is critical, as the location can be tough to reach in the winter months.

We have a 3 mile clear line of sight from the transmitter to the studio; the tower is visible from the front of the studio building. This made microwave an easy choice for our STL needs. The clear line of sight also assists with real-time monitoring. Our jocks and producers hear the on-air signal and can immediately alert the engineering staff of transmission issues.

In addition to installing the transmitter, we had to get a new studio ready for WACF at the company's facility in Young Harris. Adjacent to the studio for WYHG(AM), the new studio uses a Harris NetWave on-air console board and a VistaMax Envoy routing system, which gives me tremendous flexibility to switch inputs and simulcast our four stations if needed.

We threw the switch on the transmitter on Aug. 21, and ran it in test mode for a few days before shifting to program test mode. We launched the station Labor Day weekend, producing the signal off of a Wolf Creek Broadcasting employee's personal mixing board until we were able to install our NetWave.

The Harris transmission system gives us the ability to easily migrate to HD Radio if and when we choose to convert. At this point, both the stations and our listeners seem content with the high-quality analog FM signal provided through the Harris ZX1000 transmitter.

For more information, including pricing, contact Harris at (513) 459-3775 or visit www.harris.com.

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TECH UPDATE

Rohde & Schwarz Has Compact Line

Rohde & Schwarz offers the R&S SR8000 and NR8200 series of compact FM transmitters, which it says help ensure the quality of analog networks with the reliability of digital transmitters.

The NR8200 FM transmitters are available for transmit powers of 2.5 kW to 40 kW. Two single transmitters with up to 5 kW each can be accommodated in a 19 inch rack, which the company says is a space-saving solution for very tight spaces. Even the complete 30 kW transmitter requires only 2 RU.

Exciter standby, (n+1) standby, passive standby and active dual output stage with manual or automatic switchover can be implemented for the R&S NR8200 transmitter line. Transmitters already in the network can be integrated in a (n+1) redundancy system.

The FM transmitters of the R&S SR8000 series are rated for an output power between 100 W and 2.5 kW.

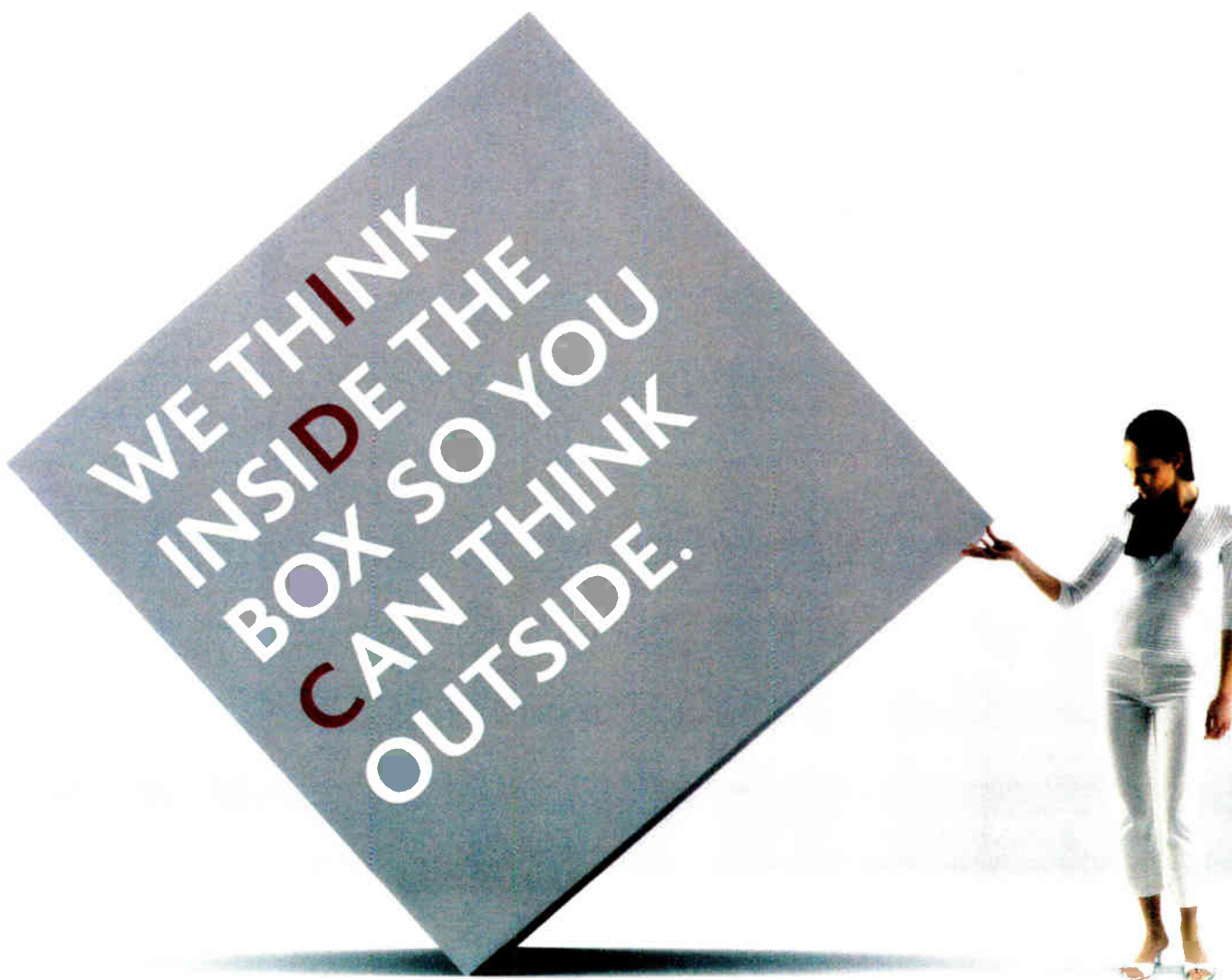
Functions are integrated in a single transmitter and occupy a maximum of 8 RUs. Single frequency network (SFN) operation already is possible. Passive standby and (n+1) standby systems containing up to eight main transmitters are available as a standby system. The FM transmitters of the R&S SR8000 series meet



SR8001

requirements for operation as a converter. Transmitter families are air-cooled. In addition to digital exciters, the platform includes power amplifiers, power splitters and couplers, power distribution, transmitter rack with a cooling system and the transmitter control unit. Transmitter and amplifier parameters can be retrieved, either locally or remotely via standard (IP) protocol and standard software (Web browser, SNMP).

For more information, including pricing, contact Rohde & Schwarz at (410) 910-7836 or visit www.rohde-schwarz.com.



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USER Q & A

WRCM Installs V20D With Reliable HD

Stu Albert, president of integration services company Albert Broadcast Services Inc. in Charlotte, N.C., has installed Nautel transmitters at many sites. The recent WRCM(FM) installation at Charlotte's Columbia Bible College was a Nautel V20D with the company's Reliable HD Transport protocol included.

How did you evaluate the choices in the market and decide to buy the Nautel V20D?

We evaluated the major manufacturers and the main criteria were serviceability, reliability and price, pretty much in that order. Nautel came out on top in all three areas. It has a long-standing reliability factor that is head and shoulders above other manufacturers out there.

Our company evaluated three possibilities with the station and I made the recommendation for the Nautel product, then they made the decision. They have a corporate engineering office as well and I worked with their corporate engineers; the decision was a team effort.

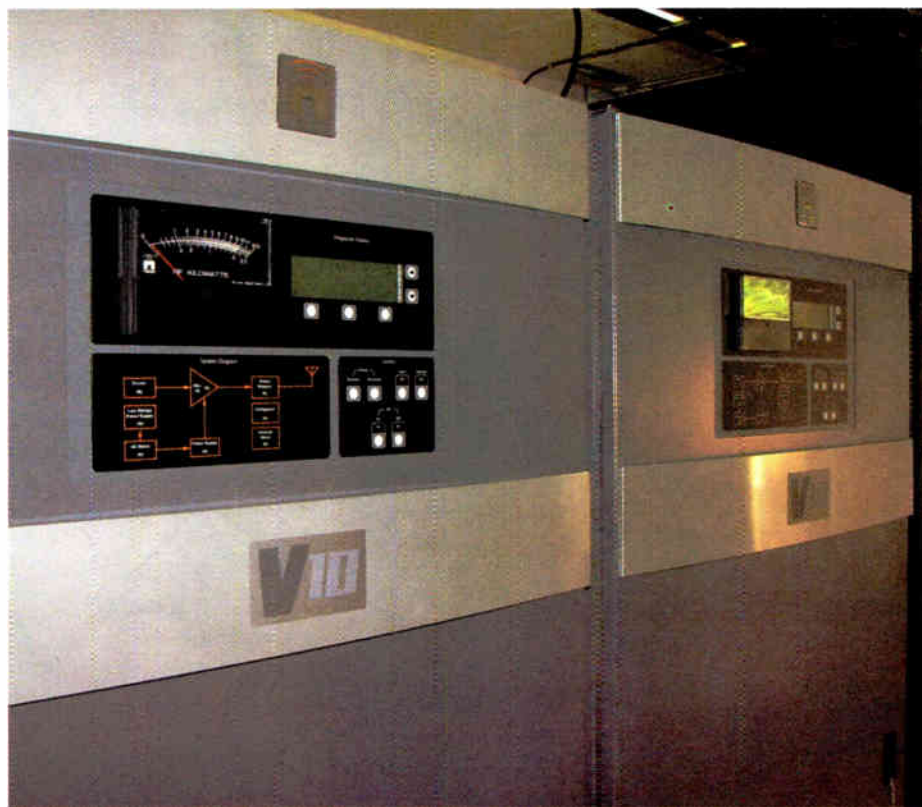
How did the sales or marketing folks from the company respond to your request for a bid or quote?

The Nautel sales staff is very responsive to all requests — pricing, configuration questions, etc. In this case the system was a V20, which comprises two V10 systems with a combiner.

Our queries involved power questions from the utility company, room size, cooling needs, all the questions associated with a dual combined transmitter situation. Nautel's staff responded quickly and completely. They also came to Charlotte to discuss the installation with us.

Did you install the transmitter yourself or contract that out?

As a full turnkey integration services company, we provided everything including interfacing with the station's power company and backup generator system, connection to the station's master technical ground system, planning and implementation of the RF transmission line system, switches and RF loads, integration of the network, audio and remote control systems and assuring adequate HVAC cooling requirements were met. Nautel makes the latter an easy task with their high-efficiency design.



Did you buy an exciter with your transmitter? How would you characterize its performance specs?

Nautel's IBOC digital exciter was purchased with the transmitter. It is a very clean design. It is straightforward with control and interconnection; the diagrams were easy to understand.

An important consideration was that everything comes with the package, so there were no extra parts to have to source or figure out such as GPS, synch clocks, etc. We have had less-than-ideal experiences in this regard with other exciter manufacturers, but this one was really easy.

Does the V20D offer computer-driven control screen or GUI?

Yes.

Is it intuitive, and stable during power bumps? Are there any missing features?

It is very intuitive and it has been very well thought out — we haven't been able to think of anything that needs to be added. Even the GM has been able to navigate through the menus so that proves how easy it is.

It's very stable, and it's very quick to

come back to the last operating conditions after a power bump. To date, it has had zero failures.

How did you make your decision with regard to which combining topology was best for your application, i.e. high-level, split-level, low-level, etc.? Did the company reps help you decide?

That decision in this case was low-level combined, and the decision was made primarily by the corporate engineering staff using our recommendations to them regarding tower loading, available tower space and required power. The combination of those factors led to the Nautel V20 being the most economical answer for this installation.

Did you also acquire the exciter and the importer and exporter options?

Yes, we bought Nautel's importer and exporter.

How important do you feel the new e2x technology is, and is it included in your new system?

That was very important for this installation, mainly for the opportunities for software enhancements to the entire sys-

tem. The studio and transmitter are currently collocated but we wanted to future-proof the station to ensure that it can seamlessly integrate with long-distance STLs and TIs in the future.

The biggest thing this protocol did for this station was to guarantee that the IBOC digital stream IP lock-ups are now a thing of the past.

Many new transmitters and exciters now have Ethernet connections and IP control capability. Does your site have Internet access, and are you controlling it via IP?

This installation is currently being controlled through a parallel remote control system but the users are planning to take advantage of the integral IP control system through the V20. The transmitter site does have Internet connectivity.

If you use IP control, did you add it to your studio subnet or build a separate subnet for your site? Did Nautel give you any assistance or guidance in setting that up?

For the audio portion (IBOC data stream), we created a separate subnet; and we didn't need any assistance from Nautel. The instruction manuals plus our own experience made this process very intuitive.

How are software updates handled with this transmitter? Does Nautel send out periodic CDs for version updates, and do you install these on your own?

We have not needed any updates yet. However, Nautel makes its mandatory software updates readily available; it sends them out to users and also makes them available via the Web site and through the Nautel User Group.

Did the manufacturer send a factory technician or contractor to commission and verify proper operation for FCC spectral mask compliance?

No, as a full-service integrator, we provide that service ourselves. We had Nautel User Group training to learn its commissioning procedure, as well as 30 years of AM/FM/TV broadcast transmitter experience.

Have you had significant problems? How does it tolerate power line bumps and surges, lightning storms, etc.?

There have been no problems at all.

For more information, including pricing, contact Nautel at (902) 823-3900 or visit www.nautel.com.

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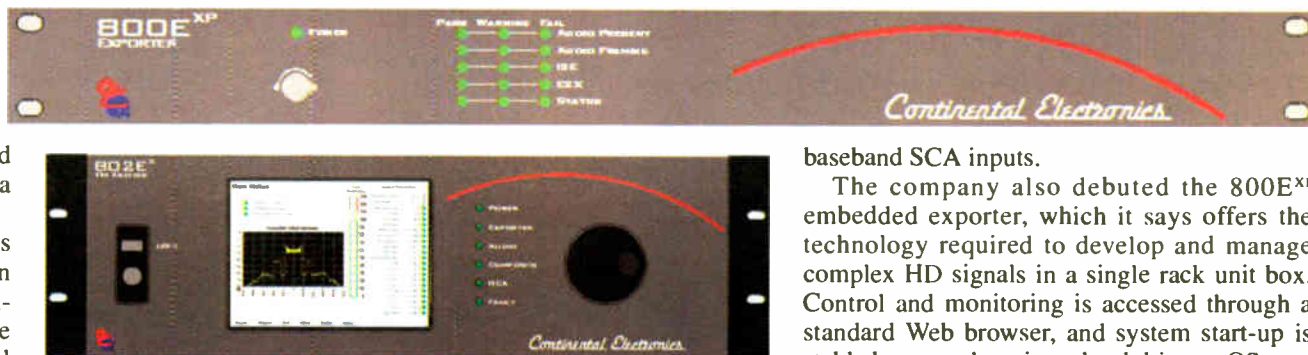
TECH UPDATES

Continental Exciter, Exporter Ease HD Management

Continental Electronics describes its 802E^x FM digital exciter as a “one-box” HD solution with embedded Exporter and Exciter technology. The company says it is based on digital technology that advances performance beyond other FM digital exciters; makes HD Radio easier to install and configure; and enhances the FM/HD experience via soft-updates and firmware plug-ins.

The company’s real-time, forward pre-correction is standard in 802E^x exciters. This allows changes in transmitter or RF system performance to be automatically sensed and corrected. Also, software-selectable HD power levels of -20 dB, -10 dB or any power level in between; color LCD screen; stereo generator; and audio delay (up to 16.4 seconds) are standard.

Additional features include synchronization, using GPS 10 MHz signal; multiple AES-3 digital audio inputs; AES-3 audio output; standard composite input; and two



baseband SCA inputs.

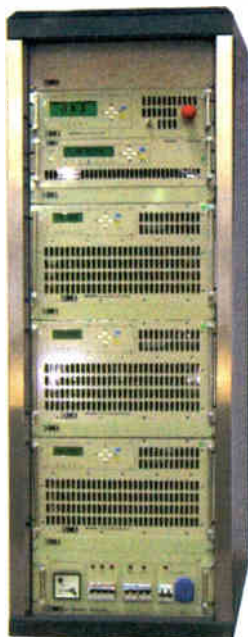
The company also debuted the 800E^{xp} embedded exporter, which it says offers the technology required to develop and manage complex HD signals in a single rack unit box. Control and monitoring is accessed through a standard Web browser, and system start-up is stable because there is no hard drive or OS.

Continental’s 800E^{xp} is compatible with IP-based STL systems, both unidirectional or bidirectional, and is field-upgradable through its Web browser interface.

For more information, contact Continental Electronics Corp. at (214) 275-2319 or visit www.contelec.com.

OMB Has Solid-State 5 kW for FM

The EM 5000 S from OMB is a solid-state FM 5 kW transmitter with three independent 2 kW power amplifiers, exciter and control unit in a 19 inch rack cabinet. Highlights include redundant design, fold back SWR protection system and programmable automatic power control as an energy-saving feature. Detected events and alarms are stored in the control system’s memory, showing time and date of occurrence.



EM 5000 S

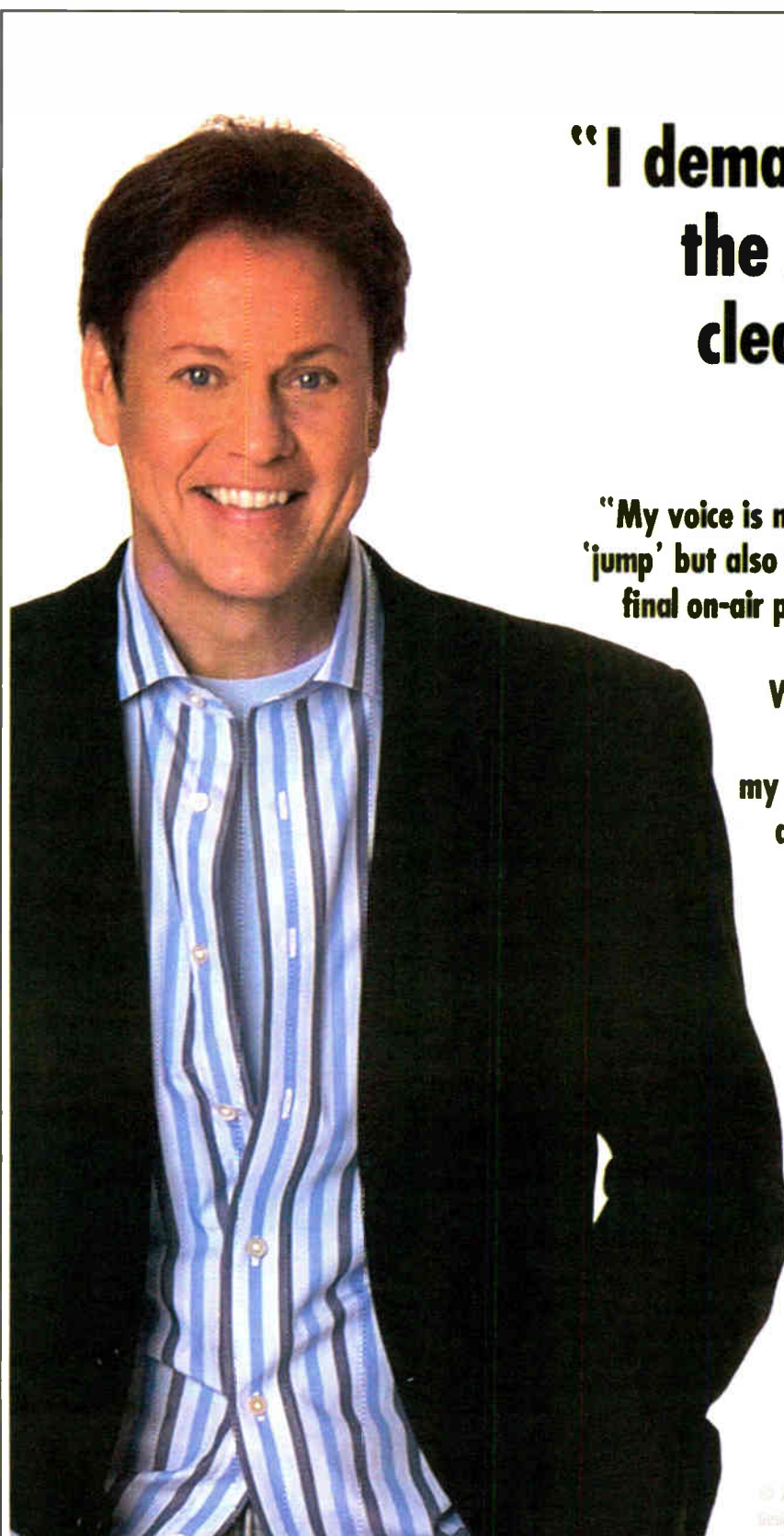
The company also offers the EM 5000, a 5000 watt FM transmitter made up of the EM 100 DIG exciter and a control unit that combines the power of two AM 2500 FM amplifiers.

Each AM 2500 includes eight 350 W high-efficiency MOSFET technology amplifying modules, fed by two independent switching power supplies that are made to withstand working conditions, according to the company. The amplifying modules work independently due to a power combining structure that provides isolation between them.

The equipment includes a low-pass filter at the antenna output, EMI filters at the utility connection and an internal transient suppressor.

Additional highlights include automatic gain control; reflected power protection; telemetry systems; and smart temperature protection. If the temperature rises to a level that is dangerous for the modules, the output power is reduced until the temperature goes back to “normal.” If the temperature keeps rising, even after the power reduction, the amplifier is stopped until the temperature goes down.

For more information, contact OMB America at (305) 477-0973 or visit www.omb.com.



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USER REPORT

Replacement Is Uphill Battle for Evanov

After Losing Its Transmitter to a Fire, Toronto FM Selects sbs/Eddystone for Hilltop

by **Leanne Brown**
Assistant Engineer
Evanov Radio Group

TORONTO With a growth rate of three stations in one market, and six stations in four markets in the last two and a half years, the operations/engineering department of the Evanov Radio Group has had to find products that are reliable, user-friendly and cost-effective. Eddystone and sbs products have proven to be leaders in this area.

At our flagship FM station in Toronto, CIDC(FM) Z103.5, we have been using the sbs TX/RX 400 combo as our primary radio STL link for years. The performance and reliability of these units have been outstanding. We have a backup/failover TX 400 unit as well as the ACU ... and have never had to use it.

The real test of sbs and Eddystone products came for us, unfortunately, in the aftermath of the worst scenario any broadcast engineer or radio station owner can imagine: a fire at the transmitter site.

Up in smoke

Just after Labor Day 2007, we suffered a catastrophic fire at the transmitter site

of our sister FM in Toronto, CKDX(FM) 88.5 "The Jewel." Most of the equipment was beyond salvage, including our previous transmitter.

With the quick help of ATX Systems Ltd. and its central sales manager, Howard Tulloch, we were able to get our hands on an sbs PA1000. We paired it with a CCA 60W exciter, and were back on the air three days after the fire — from the back of one of our station cargo vans.

A few weeks later we took delivery of our new Eddystone 4 kW S7604 transmitter. We moved out of the cargo van and into a construction trailer, popped the Eddystone into a 6 foot rack with an Optimod 8400 processor and put it into the antenna system. We ran at 4 kW for the next five or six weeks until we completed rebuilding the transmitter site and went back to full power.

The S7604 came back to the office in Toronto and prepared for its next journey: to Hawkesbury, Ontario.

Hawkesbury is a small town of about 10,000 people, located northeast between Ottawa and Montreal. We went on the air in November for Industry Canada and NAVCAN testing purposes. [NAVCAN is the country's civil air navigation services

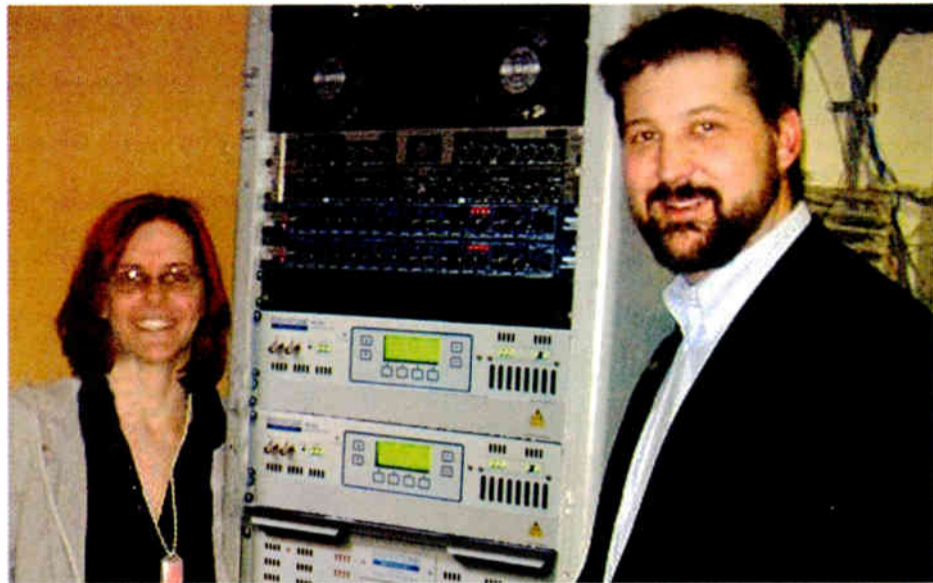
provider.] We are preparing for the full launch of our newest station, 107.7 The Jewel, later this month.

The transmitter site is located just across the river from Hawkesbury in the town of Calumet, Quebec. To suggest that accessing this site is a bit of a chal-

key where this transmitter site is concerned. Add in a 6 or 7 foot base of snow in the middle of March and the only way to access the site is on snowshoes. The grade is too steep for any but the most experienced of snowmobilers.

So we went out and bought snowshoes and poles and trekked up and down four or five times during final Industry Canada testing and field strength measurements.

At our FM station in Ottawa, CJWL



The author and Evanov DOE Adam Robinson are shown with The Jewel's new transmitter.

lenge, even in decent weather, is an understatement.

The site sits at the top of the highest hill in the area. The coverage is exceptional but to get to the actual transmitter house you are looking at a climb of at least a half a mile at about a 20–25 degree grade.

Imagine trying to get a 4 kW transmitter up this hill. It went, in the bucket of a front-end loader, the driver gunning it the whole way up. This was certainly a testament to the durability of Eddystone products.

All good

Once the transmitter was installed the user-friendliness of Eddystone and SBS products became apparent once again. Plug in the PA and power modules, put it into your antenna system, fire it up, do some setup and you're on the air.

The remote interface is a breeze. Adam Robinson, our director of engineering, is able to log into the remote interface from anywhere and control the transmitter from his BlackBerry.

Remote accessibility of this degree is

(FM) 98.5 The Jewel, we have the Eddystone S7602 2 kW transmitter. We have this transmitter set up in a 1 kW/1 kW configuration so that we have failover and redundancy in the event of a problem. We are planning to do the same in Hawkesbury with a 2 kW/2 kW configuration.

We are happy that the PA and power supply modules can be "hot swapped." The two stations are only an hour apart, so if a module is needed at one site it can be picked up and delivered from the other site and be in place in a matter of a few hours.

Support from Eddystone is superlative. It gets the whole team involved in solutions, and they stay in contact until they get the "all good" report.

The Evanov Radio Group continues to be "on-the-grow." We continue to apply for new licenses and as we acquire them, we will look at sbs and Eddystone products again to help fulfill our technical needs.

For more information on Eddystone and sbs products in North America, contact ATX Systems Ltd. at (800) 268-6851 or visit www.sbsfm.com.

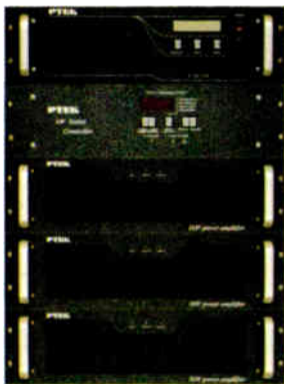
TECH UPDATE

PTEK Kilowatt Line Combines 1 kW Modules

The solid-state FM Kilowatt series from PTEK includes a combination of 1 kW power amplifier modules (depending on output power), a combiner, exciter and 19 inch rack cabinet. The units are lightweight, and each 1 kW module can be operated independently. No tuning is required across the FM band.

The PAs feature redundant power supplies and proportional VSWR fold back, protecting the unit by automatically reducing output power to a safe operating level. Over-temperature protection and multiple cooling fans help keep the unit cool. In addition, the low pass filter provides a clean RF output. The Kilowatt series transmitters are available with a stereo encoder, and are capable of full remote operation.

For more information, including pricing, contact PTEK at (888) 889-2958 or visit www.ptekpower.com.



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TECH UPDATES

Nautel Has Solid-State Models for AM, FM

Nautel debuted high-power solid-state transmitters for both AM and FM, which feature the its new Advanced User Interface.

The company says the NV40 offers the highest single cabinet power output of any FM transmitter available with a maximum analog power output of 44 kW. The HD-ready solid-state FM transmitter offers three modes of operation: HD, hybrid and analog.

The NV40 has an integral digital exciter that supports adaptive pre-correction, and offers a plug-in upgrade to the HD Radio Exgine. Nautel says it designed the transmitter to occupy a footprint as much as 60 percent less than comparable solid-state and tube transmitters.

The NV40's maximum power outputs are 44 kW in analog mode, 32 kW in hybrid mode and 12 kW in HD mode. Additional features include instrumentation and management tools; and Nautel's new HD Power Boost technology, as an option, for more IBOC power.

HD Power Boost uses advanced algorithms so peak power



NV40

requirements are reduced, allowing new Nautel transmitters to transmit higher HD power levels while at the same time achieving greater transmitter efficiency. The company says the effect is even more pronounced at higher digital carrier injection levels.

For high-power AM broadcasting, the NX50 is the next generation of Nautel's 50 kW transmitter. The NX50 supports HD Radio modes with an internal DRM or Exgine IBOC generator. Features include adaptive pre-correction, 2.7 MHz direct digital modulation and 88 percent efficiency.

Nautel boasts the inclusion of its new AUI in both models. The 17 inch color LCD touchscreen offers a range of configurable displays, as well as real-time locus measurement, an IBOC modulation analyzer and a spectrum analyzer. The AUI also can be controlled via mouse and keyboard. Additionally, users have 100 percent remote access to transmitters via Web browser.

For more information, including pricing, contact Nautel Ltd. at (902) 823-3900 or visit www.nautel.com.

Armstrong Touts 'Building Block' Approach

Armstrong Transmitter's Series B and Series C solid-state FM transmitters offer redundancy and a design that uses a building-block approach to achieve the required transmitter output power.

Multiples of the FM1300B or FM2500B self-contained solid-state amplifiers are rack-mounted with an appropriately sized driver and combined. The amplifiers both use 350 watt RF modules that contain the Thompson 2942 MOSFET.

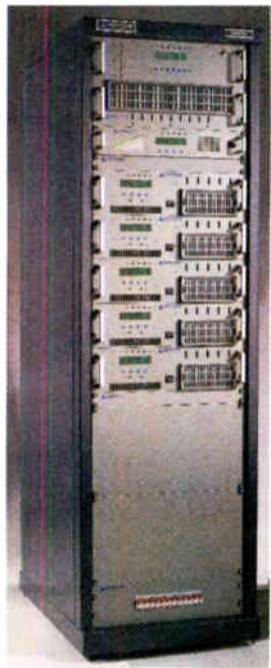
Armstrong says that each output device is thermostatically protected and protected against excessive VSWR by a fold back circuit, which proportionally reduces power when VSWR is present. Additionally, the transmitter combiner triggers fold back when external VSWR is detected.

Metering and alarm indications are available for each amplifier, the exciter and the driver. Also, overall transmitter metering and alarms are available on the transmitter and for remote monitoring via DB25 connector located on the rear panel of the chassis.

Features of the FM1300B watt solid-state amplifier include four 350 watt modules for added reliability; two independent high-efficiency switching power supplies for redundancy; low pass filter; remote control ready. The broadband design requires no tuning. The soft failure feature keeps the transmitter on the air in the event of a lost power supply or amplifier.

Features of the remote-control ready Series B transmitters include availability from 2.5KW to 20 kW; self-contained 2.5 kW solid-state amplifiers; redundant power supplies (three per amplifier); status for individual amplifiers; optional CD quality exciter; and VSWR fold back and protection.

For more information, including pricing, contact Armstrong Transmitter at (315) 673-1269 or visit www.armstrongtx.com.



FM6500 C

BE Debuts FXi 60/250esp

Broadcast Electronics' FXi digital exciter for FM, FM+HD or HD Radio-only broadcasts features direct-to-channel FM carrier generation, digital adaptive correction, dual RF outputs for redundancy and Ethernet IP control.

Available in 60 W and 250 W versions, the FXi 60/250esp comes standard in BE's FMi and FMi HD Radio transmitter lines, and as an upgrade option for its FM T, C and S Series transmitters.

ESP digital adaptive correction corrects linear and non-linear distortions for the transmission system, providing adaptive correction for FM + HD and HD Radio; and corrects for group delay in a multi-station, combined antenna application.

With dual RF outputs, one exciter can drive two transmitters, a separate HD-R transmitter and an FM transmitter, or a backup and main transmitter. The FXi 60/250esp also offers dual AES/EBU inputs with "True Silence Sense" for primary and backup audio inputs

Additional functions include RDS, stereo generator and composite clipper; high-resolution spectrum display of transmitter system, providing RF mask of the FM-only and/or HD Radio signals; and full booster synchronous operation, with master/slave GPS for locking pilot and carrier synchronization.

For more information, contact Broadcast Electronics at (217) 224-9600 or visit www.bdcast.com.



TRO' Replaces Exciter Demod, Remod at Translator

Fanfare says its FP-TRO receiver/translator for HD Radio + analog replaces typical exciter demodulation and remodulation at the translator site. "TRO" converts the modulated carrier internally from one frequency in the FM broadcast band to any other frequency within the band.

The company says recent field tests have shown the TRO capable of translating cleanly to the second adjacent, and in many cases to the first adjacent, without any visible (scope) or aural interference. A linearized PA is required to complete the installation.

Because a TRO-equipped translator does not demodulate the signal, it does not impinge on any intellectual property for which licensing may be required, according to Fanfare.

For more information, contact Fanfare at (800) 26-TUNER (268-8637) or visit www.fanfarefm.com.



The FP-TRO consists of two units; Unit 1 being the receiver and unit 2 being the translator/exciter.



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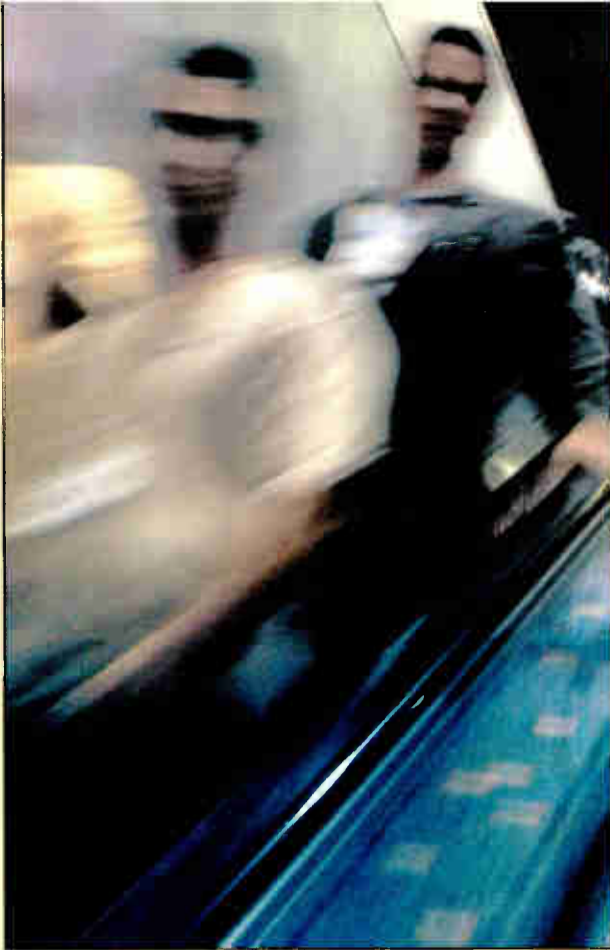
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ARRL
The National Association for AMATEUR RADIO



The American Radio Relay League is the national association for amateur radio. Shown: Dan Starr (AA7I), Stan Perkins (W7SLP), Elliott Bloch (W7EB), Andy Oppel (N6AJ0) and John Goran (K1JJ5).

Overall turnout was approximately 105,000, according to NAB. Last year's show drew 108,000.



Junius Kim of Harris presents a paper on using IP networks for simulcasting over multiple transmitters.

All photos by Jim Peck



Belden introduced a line of broadcast racks.

NDS, purveyor of conditional access technology, qualifies one of radio's commonly heard marketing phrases.



Gavin Sebek of TWR Lighting sheds light on the applications of dual LED strobe beacons for Mark Mallory.



German codec manufacturer AVT had to cobble together a slide show display when its 800-pound booth crate disappeared after delivery to the floor. Convention organizers found the shipment during move-out. From left: Wolfgang Peters, Jerry Lee and Wilfried Hecht.

USER Q & A

Orr Sticks With Crown for Low, Mid Levels

Jeff Orr, owner and broadcast engineer for Communicorr Ltd., a broadcast engineering and enterprise networking company, selected Crown's FM2000e transmitter for a recent installation.

How did you decide to buy from Crown?

When first looking for low- to mid-power transmitters, I looked extensively at a number of manufacturers. While I still watch to see what is out there, I stay mainly with the Crown transmitters for low to mid (10 kW) power levels.

My clients each make their own decisions on what actual unit to purchase, however, my recommendation weighs in heavy. I do not take this recommendation lightly, considering I am the one responsible for keeping them on the air.

Did you install the transmitter or contract that out?

I handle all aspects of the transmitter site projects, and I personally handle the transmitter installation. As every site is unique, each presented its own challenges, although none that could not be overcome.

Did you buy an exciter too?

Yes, an exciter was purchased with the PA. It performs as well as, if not better, than exciters produced by the big name/high dollar manufacture.

Most new transmitters include a computer-driven control screen or GUI. Does Crown offer this feature?

No.

Does your transmitter site have Internet

access, and are you controlling via IP?

We are using IP remote control via a Broadcast Tools WVRC8 remote controller. It can be accessed from home or studio. RDS information is transmitted to one site via IP and another as serial data riding on the satellite uplink.

How would you rate the factory support of your new transmitter?

Support is wonderful. When a small issue did arise, a phone call (after hours) had us running again shortly. A part was promptly shipped and everything was back to normal.

For more information, including pricing, contact Crown Broadcast/IREC at (574) 262-8900 or visit www.crownbroadcast.com.

Coming up in Buyer's Guide

Audio Processing
June 4

Consoles, Mixers & Routers
July 2

Audio Transport: Codecs, Telco, Internet, Satellite and STL
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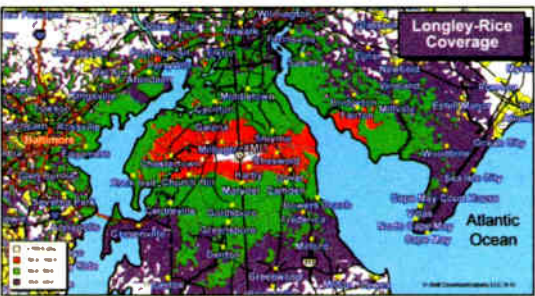
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Radio World

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◆ READER'S FORUM ◆

What's in a Name?

Wow! I don't think I have ever written an article that got such a response ("On the Street Where You Live," March 26).

I'm talking about re-naming the NAB convention with a 10 x 10 grid of famous names and street numbers. I actually talked to the Las Vegas Convention Center people about this — well, about how hard it was to use its existing system.

They said it was "easy" and that I was just too dense to figure it out. They also hinted that changing its system had about the same possibility of me being elected pope. And I'm not Catholic.

But a lot of people asked about my list of names. In fact, I had a list for every hall so you couldn't confuse halls with the same names. Below is the list for two halls — whichever hall you wish — with the details of who's behind the names:

Now, if you disagree with some of these descriptions, be aware I am trying to give you the basic reason each was chosen in a dozen words or so. If this (magically) comes about — changing the streets at the NAB Show — I hope the show book will give me a page or two to have a paragraph for each of these so I can do them justice.

I have tried to avoid name of companies, or individuals still alive, but I could always make changes if there were a good reason.

If you have better names, send me your suggestions at shlampen@aol.com.

And, yes, Q, X and other letters are a real problem. I would love to have names of significant individuals in those (and other) positions.

Steve Lampen
Richmond, Ind.

LIST #1	MEANING	LIST #2	MEANING
Armstrong	Maj. Edwin Armstrong, invented feedback, heterodyning, FM	Affel	Herman Affel, co-inventor of coaxial cable
Bell	Alexander Graham Bell, invented telephone (with help from many others)	Berliner	Emile Berliner, inventor of the flat record and the dynamic microphone
Crosby	Harry Lillis "Bing" Crosby, bankrolled the development of the tape recorder at Ampex	Camras	Marvin Camras, invented digital tape recording
de Forest	Lee de Forest, invented the Audion, first amplifier, radio pioneer	Dennard	Robert Dennard, invented scaling techniques for integrated circuits
Edison	Thomas Alva Edison, prolific inventor, light bulb, phonograph	Espenscheid	Lloyd Espenscheid, inventor of coaxial cable
Farnsworth	Philo Taylor Farnsworth, invented electronic line scanning in TV	Faraday	Michael Faraday, discoverer of electromagnetism
Ginsburg	Charles Ginsburg, headed the group that invented the video tape recorder at Ampex	Goldmark	Peter Carl Goldmark, inventor of the LP record
Henry	Joseph Henry, discovered induction, invented the telegraph	Hughes	David E. Hughes, first to transmit and receive radio waves
Ince	Thomas Harper Ince, pioneering Hollywood director; invented the "shooting script"	Ibuka	Masaru Ibuka, co-founder of Sony
Jenkins	Charles Francis Jenkins, invented the motion picture shutter, founded SMPE (now SMPTE)	Johnson	Eldridge Johnson, co-creator of the Victor Talking Machine Co.
Kelvin	Lord Kelvin (William Thompson), perfected transatlantic telegraph	Kent	Arthur Atwater Kent, early radio manufacturer
Lamarr	Hedy Lamarr, actress/co-inventor of spread-spectrum transmission	Lissajous	Jules Antoine Lissajous, invented a device to show the harmonic patterns of two frequencies
Marconi	Guglielmo Marconi, first transatlantic radio broadcast	Muybridge	Eadweard Muybridge, early experiments with moving images
Nyquist	Harry Nyquist, established limits of sampling in digital signals	Nipkow	Paul Nipkow, invented mechanical television
Ohm	Georg Frederich Ohm, discovered "Ohm's Law"	Olson	Harry F. Olson, major advancements in acoustics
Poniatoff	Alexander M. Poniatoff, founder of Ampex (which uses his initials)	Plunkett	Roy J. Plunkett, inventor of Teflon
Quincy	City in Illinois holding many broadcast and electronics manufacturers	Quadrature	Two frequencies 90° out of phase
Ranger	Richard Ranger, early competitor of Ampex and tape recorders	Rosing	Boris Lvovich Rosing, invented the cathode-ray tube receiver
Sarnoff	"General" David Sarnoff, turned RCA into a manufacturing giant	Semon	Dr. Waldo Semon, inventor of PVC and artificial rubber
Tesla	Nicola Tesla - Supreme Court upheld Patent 645,576 for the invention of radio, invented the electric motor	Tainter	Charles Sumner Tainter, invented the graphophone and the dictaphone
UTP	Unshielded Twisted Pairs, now common for data cabling	Ultraviolet	The spectrum of light beyond the visible frequencies
Volta	Count Alessandro Volta, invented the modern battery	Vacuum	The best insulator. Dielectric constant of "1"
Westinghouse	George Westinghouse, pioneered the commercial use of alternating current	Walson	John Walson Sr., co-inventor of cable television
XLR	eXperimental Locking audio connector with a Rubber strain relief	X-ray	X-ray crystallography revealed atomic arrangement
Yagi	Hidetsugu Yagi, co-inventor of the Yagi antenna	Yokoi	Gunpei Yokoi, designer of the Game-boy and other Nintendo products
Zworykin	Vladimir Zworykin, chief engineer at RCA during the perfection of television	Zuse	Konrad Zuse, invented the first program-controlled computer

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Anne Drobish Associate Circulation Director, Audience Development
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—SUBSCRIPTIONS—

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More Than Half Full

Honestly, we expected a soft NAB convention. Radio layoffs, expense reductions and capital budget belt-tightening over six months have signaled financial uncertainty. We knew the technical sessions would be strong, as usual; but with recessionary talk and declining stock values, it seemed U.S. owners might not be keen on spending to explore new technology.

Most vendors and exhibitors were pleasantly surprised, reporting good traffic and interest in their offerings. Attendance was down but only about 3 percent, to 105,000 people or so, according to NAB (though we still wish the association would provide an independent audit of its numbers); and more than a quarter of attendance was international.

The overall feeling was both more global and more upbeat than we'd anticipated.

Radio is only a small part of the NAB Show, of course; but when we walk the aisles and sit in the presentations, we find plenty to get excited about for owners seeking new technology tools to advance their business plans.

Innovation doesn't wait for better economic times. Nor should radio managers, who ought to be using this time of economic softness to solidify market position and prepare for their next growth moves.

Yes, growth. Traditional commercial radio has a business hangover, perhaps, but the industry has absorbed big changes in the past five years and more is to come. Enhancements in Internet streaming, wireless/mobile and HD Radio technologies dominated the show and continue to propel new, potentially lucrative ways of thinking about the broadcast model.

Most of radio's revenue engine — perhaps 90 percent — still supports our traditional over-the-air product, but we sense a new willingness on the part of commercial broadcasters — often following the example of public radio — to get behind unexpected channels and projects.

Nontraditional partnerships, aggressive marketing and a willingness to experiment characterize this management style. We've been reporting on such efforts in recent issues and find the mood change exciting.

What about HD Radio? Well, in such an environment, digital broadcasting is but one possible tool in a manager's new media work belt; but it remains an important one.

Early adoption may be profitable but it is also risky, and nowhere is that more apparent than in the debate among stations about if and when to convert.

FM-HD continues to make important gains, but its eventual

health will depend on much better execution and promotion to convince consumers that buying a digital radio is worthwhile. We hear promising things from industry leaders but we'll let their actions convince us; the track record isn't super.

Receiver penetration, we feel, is going to pick up quickly. Ibiqity showcased 60 new HD products on the floor, including several featuring Apple iTunes tagging; this display was a welcome sight.

Another key consideration on people's lips was the proposed 10 dB digital power increase. It's sorely needed to improve signal reception and make HD2 and HD3 channels more viable. Glynn Walden, CBS Radio's director of engineering and one of HD Radio's founding fathers, thinks HD's future will depend on it; we agree an increase is needed. Just how much eventually will be allowed and how it's implemented are certain to consume the HD debate.

AM-HD continues to fight uphill. Several manufacturers showed impressive new transmitter models designed to optimize and maintain HD performance. Yet the growth of AM-HD stations coming on the air appears stalled and we hear murmurings about some broadcasters pulling back on AM-HD or wishing to renegotiate their commitments with Ibiqity. That does not bode well as the AM service struggles to remain relevant.

The rollout of cheaper and better HD receivers, and the penetration of the dashboard as standard equipment, must accelerate. We predict this will happen and we are actually feeling pretty sanguine about market penetration in the year ahead. But unless radio does its part and makes sure HD programming is compelling and reliable, the powerful new tool of digital radio may remain tucked in the tool belt too long.

Also, some observers think this way: "The clock is ticking. WiMax-delivered Internet or some variant ultimately could absorb and replace traditional radio. Why spend money or worry anymore about HD-R? It will become a white elephant sooner than later." That may or may not happen but we should not ignore this school of thought. It's an important part of the business dynamic.

Overall, however, it has become clear to us that radio's health and growth do not rely on any one tool or platform but rather on a willingness to be flexible, to try something new and not be afraid to fail at one project and then try another.

For such managers, these are exciting times.

—Radio World

READER'S FORUM

The Rules Have Changed

Much has been written in Radio World and elsewhere on the topic of "radio as we know it" in an iPod age.

"Radio," taken as a subject without qualification, is considered a poor man's source of information or amusement by many who listen and by many of us who work in the industry. This has nothing to do with the actual medium, that is, radio waves transmitted as a broadcast for anyone to receive for free with a \$10 hunk of plastic, headphones included. Rather, it concerns the content.

Harking back to "public interest, convenience and necessity," what does radio do for us today? "Give us 22 minutes and we'll give you the world," says CBS. Sure enough, on its all-news stations you get the same 22 minutes repeated over and over, albeit updated when something new happens. "News/talk"? Generally just rants from very diverse and uninformed points of view.

Music? This is where the iPod shines. Who needs 20 stations in a market, all playing the same "hits" with the same 20-minute "rotation" as the all-news format and only about 40 minutes of music an hour?

This is not an exaggeration. Even Sirius and XM have more well-rounded

play lists, cater to a multitude of listening preferences and have no mattress-hawkers or high-energy car sales spots.

The distribution of recorded music has changed. Witness the death of Tower Records and the empty aisles in the CD section at Wal-Mart. Just as it was possible in the days of the '45, one can now buy a song for less than a buck. Cram a few dozen of these — in far less than real time — onto a player with no moving parts and what music junkie wouldn't prefer it to what he can pick out of the air?

Jim Wood, C.P.E.W.
 Founder/CEO
 Inovonics
 Santa Cruz, Calif.

To the Archives

In his letter concerning my review of the Crowley and Tripp P-Solo ribbon mic (*Reader's Forum*, March 12), Mr. Berliner of Bozman, Md., presumes my ignorance of the Royer and Dooley ribbon mics. Hewould do well to visit my Online Archive at www.tyford.com to read the feature story I wrote for RW's sister publication Pro Audio Review a few years back.

In it, I begin in 1933 with the BBC's first use of ribbon mics, and move through Harry Olson's work at RCA and Charles Gant and Clarence Kane, who continued on at RCA until RCA discontinued ribbon mics, to Eugen

Beyer, to Bob Speiden, who modified the B&O ribbon mics, to Wes Dooley and on to include the efforts at Royer.

This was not an article assigned to me; it was one I suggested because, as the owner and operator of what some consider a high-end recording studio, I have a passion for getting things right.

When I wrote the article, the focus of microphones had drifted to the low-cost, Chinese-made knockoffs. I find their edginess offensive and hoped the article would introduce ribbon mics to a new generation of users.

In addition, not only have I reviewed the Royer 121 and 122, I am now patiently awaiting a new AEA mic that Wes Dooley is making for me.

To Mr. Berliner's question concerning my point that condenser mics are more popular than ribbon mics for voice on FM radio:

It is a matter of record that ribbon mics fell out of favor in broadcasting after condenser mics and better dynamic mics were introduced. It is not a coincidence that this happened at the point in history at which FM penetration noticeably began eating away at AM audiences.

As an AFTRA freelance voice talent since 1969, I can attest to the fact that the majority of major-market recording studios in which my voice is recorded for commercials use either Neumann U 87 or AKG C414 condenser microphones.

Ty Ford
 Baltimore

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