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Photo by Leslie Stimson

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Radio World
$2.50 The Newspaper for Radio Managers and Engineers October 22, 2008

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NewBay Media
Are you in Leslie's loop? Sign up for The Leslie Report at radioworld.com

This Negativity Threatens Our Biz, Rehr Says

In Austin, Tone Is Upbeat Against Backdrop of Worsening Economic News

by Leslie Stimson

AUSTIN, Texas It was one of the stranger NAB Radio Shows. Hurricane Ike forced the evacuation of thousands of people along the Gulf Coast in September. More than 1,000 displaced Houston-Galveston area residents were sheltered in part of the Austin Convention Center while the broadcast show was held a few hundred yards away.

Exhibit hall hours were limited to 12 hours total. Talks about the worsening economy, whether the bleak outlook will extend into the first part of 2009 and radio's struggle to grow were overarching themes to hallway discussions.

Final attendance was announced at 2,743, down from last year's approximately 3,100. An NAB spokesman said "drive-in" traffic that normally materializes "was pretty much non-existent this year because of Hurricane Ike, and because some 60 radio stations in Texas were off

See RADIO, page 6 ▶

What's New Is Old in Transmitter Maintenance

With Fewer Engineers, More Sites and the Growth of IT, Maintenance Basics Are Vital

by Paul Shulins

The author is chief engineer for Greater Media's Boston cluster, consisting of FM stations WROR, WKLB, WTKK, WMJX and WBOS.

BOSTON Now more than ever, broadcasters need to make sure their transmitter facilities are in good shape.

While it is true that over the years there has been a dramatic improvement in the efficiency, ease of service and reliability of RF transmission equipment, the pool of experienced RF engineers has

See TRANSMITTER, page 10 ▶

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World Radio History

◆ NEWSWATCH ◆

FCC OKs AM DA MoM Modeling

WASHINGTON Many of the approximately 1,900 AM owners whose stations have directional arrays were anxious to take advantage of a change in Federal Communications Commission rules.

The FCC passed the change to its Part 73 rules to allow computer modeling and calibrated antenna monitoring systems to ensure proof-of-performance on certain AM directional arrays. The current method involving magnetic field strength measurements is more time-consuming and costly, those who favor the change say. The MoM proof will still require field strength measurements at reference locations.

CBS Radio's Ray Benedict, spokesman for the AM Directional Antenna Performance Verification Coalition, a group of broadcasters, consulting engineers and equipment manufacturers who favor the change, said, "It's really good news for AM broadcasters. It's the biggest change in AM rules in 50 years."

The change was nearly 20 years in the making. According to the FCC, the first petition for rulemaking for modeling was filed in 1991.

Not everyone favored the change. Greater Media called MoM substitution for field strength measurements to assess a nearby tower's effect on AM pattern as a "gift for telecommunications providers at the expense of AM licensees and their listeners." The company advocates maintaining the current distances from AM stations specified in rules governing wireless licensees, and relying on field strength measurements to determine the effect of a tower on AM pattern.

AM stations using directional arrays consisting of top-loaded or sectionalized elements or folded unipoles would not be eligible to use moment method calculations in place of field strength measurements.

The agency is also taking comments on issues that could limit the scope of the new rules, and specifically on new rules regarding tower construction near AM stations that would not depend upon the service for which a tower is used. Comments and replies to MM Docket 93-177 were due 30 and 60 days respectively after Federal Register publication.

AM Translator Action Delayed

WASHINGTON The commission pulled several items from the agenda prior to its open meeting in late September, including one that would allow AMs to operate on FM translators to fill in coverage gaps.

Chairman Kevin Martin said at the NAB Radio Show the agency has granted special temporary authority to approximately 150 AM stations allowing operation on FM translators; he indicated that some commissioners have asked how codifying this policy would affect LPFMs.

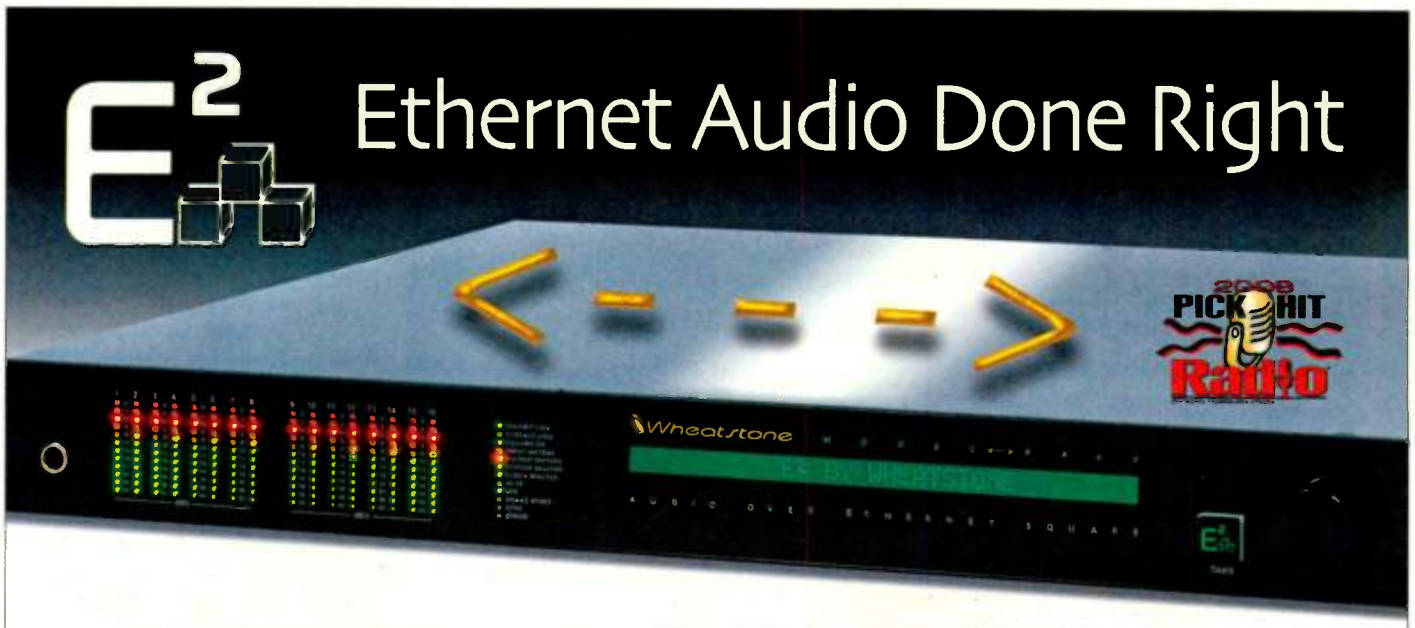
Low-power stations see AM translators as taking spectrum they might otherwise be able to use.

Arbitron PPM Under Siege

The states of New York and New Jersey announced litigation against Arbitron in its rollout of Portable People Meter listening estimates.

The company meanwhile asked federal district court officials to prevent any attempt by the attorneys general to restrain its publication of PPM data. It argues that any restraint would have

See NEWSWATCH, page 5 ▶



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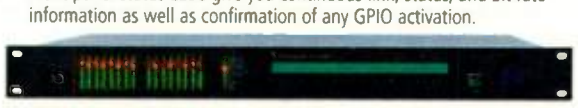
88A I/O: 8 analog inputs and outputs. You can bring a new SQUARE up in seconds and of course use the front panel encoder for your X-Y control. Front panel status LEDs give you continuous link, status, and bit rate information as well as confirmation of any GPIO activation.



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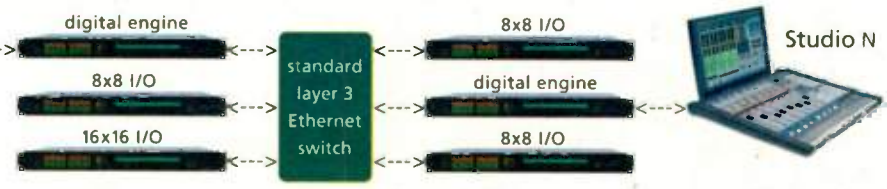

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World Radio History

Do PPM Panelists Carry Their Meters?

Coleman's Advice: Focus on Core, Rather Than Incidental or Invisible PPM Listening

by Carl Lindemann

With the planned extension of the Arbitron Portable People Meter rollout in eight additional top markets this month, interest in the new research methodology at the recent NAB Radio Show was high.

North Carolina-based Coleman Insights released results from "Real PPM Panelists Tell All," its fourth PPM study.

The upshot for radio managers? Don't be distracted by the higher cume produced by the PPM's ability to log all exposure to radio.

Cume is the total number of different listeners to a radio station — think "cumulative."

PPM is measuring all radio exposure, not just what the listener can recall, as with diary methods. Much of the apparent cume increase is from so-called "invisible" and "incidental" exposure. Panelists said radio managers should not be distracted by this phenomenon but should keep tightly focused on core, "intentional" listeners, people who connect with radio's brands.

Coleman Insights Chairman/CEO Jon Coleman discussed his firm's work into PPM, which began some three years ago. The research switches from previous quantitative reports to a qualitative study that peers into how PPM data is gathered.

"We looked at behaviors of PPM panelists, not just in terms of radio stations they listen to but also how they interact with the meter itself — what they think of it, how they use it. How do all of those variables related to the PPM meter impact the ratings that our radio stations achieve?" Coleman asked.

Coleman Insights VP John Boyne and President/COO Warren Kurtzman fleshed this out with video of some 30 PPM panelists in New York, Philadelphia and Houston who were interviewed immediately after their participation in the PPM panel concluded. In general, people leave the panel after 9 to 12 months, or when they stop carrying the meter.

The first clips portrayed the positive aspects. These represented the majority — panelists who embraced a daily habit of complying with the requirements, enjoyed friendly interactions with Arbitron employees and who had no negative reaction to the meter itself.

Balancing this, others talked of the downsides of their experience: forgetting the meter, having family members carry it when forgotten, and increasing non-compliance over time. Some did not like the meter itself, self-conscious about what they saw as an outdated "beeper" appearance, or felt uncomfortable wearing it due to the design and shape.

As noted, PPM shows a far greater cume than diary research methods. What's the impact of all this added radio exposure? The study revealed three categories of radio exposure: "invisible," as well as "incidental" and "intentional."

The next phase of the study confronted panelists with the information they had personally generated to give a better sense of what these categories mean. How does PPM data compare with the panelists' experience?

Interviews with panelists showed that "invisible" exposure to a station means just that; they have no conscious recollection whatsoever, and were often surprised that they had been exposed to it at all.

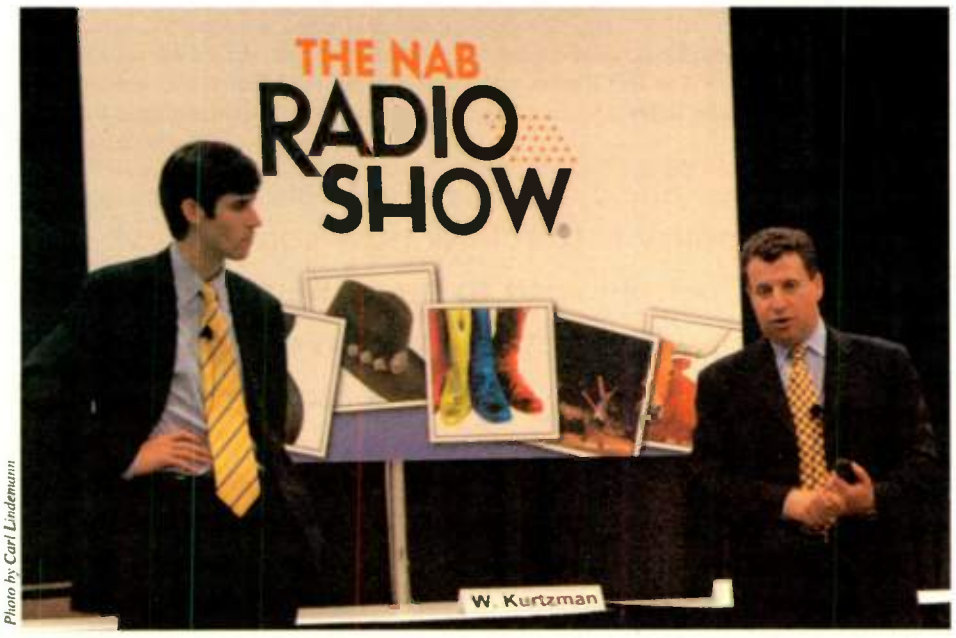

Photo by Carl Lindemann

Coleman Insights VP John Boyne and President/COO Warren Kurtzman: 'We looked at behaviors of PPM panelists, not just in terms of radio stations they listen to but also how they interact with the meter itself.'

"Incidental" contact, like driving while a child tunes stations, did register but they could not give any significant details about the station. "Intentional" was not just exposure to stations but actually listening and connecting to the content.

The takeaway? PPM's big cume means little; most of this added audience isn't really tuned in.

What does this mean for programmers?

"There's very little you can do to influence invisible and incidental listening, you have to focus on driving intentional listening," said Kurtzman. "Chasing after incidental listening can actually do you more harm than good."

He suggests sticking to fundamentals: Tailor the station brand to facilitate "intentional" listening on many levels including music and personalities. External marketing, such as billboards, remain a key part of the mix in a PPM world.

There's very little you can do to influence invisible and incidental listening, you have to focus on driving intentional listening.

— Warren Kurtzman, Coleman Insights

PPM concerns

The Q&A following the presentation touched on concerns as to whether PPM accurately captures Hispanic and African-American audiences. Following on the heels of the investigation into these issues by the New York and New Jersey state attorneys general, did the

See PPM, page 5 ▶

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Why Ibiquity Is Now iBiquity Again

Sharp-eyed readers may have noticed we've recently changed the way we write the word iBiquity.

A capitalization question arose when the company announced its name eight years ago. When the name was rolled out I gave this a good deal of thought, researched how other publications were handling it at the time and decided to adhere to RW's style rules, which oblige us to convert oddly capitalized names so that our pages dOn'T eNd up LooKing like ThIS.

Thus, instead of writing iBiquity as the company prefers, for years we have written Ibiquity. (For similar reasons, we convert all-capped company names to the standard format unless the letters constitute an actual acronym.)

However this is a case where RW's insistence on a style rule is no longer appropriate. We don't write Ipod and Tivo, we write iPod and TiVo, to cite common examples. Further, researching the matter, I find that RW's practice on iBiquity does not reflect now-established industry use.

So I've changed the policy to follow the style seen in publications including the New York Times. We'll write iBiquity and, when starting a sentence, IBiquity.

★ ★ ★

The company also takes pains in spelling out how to use the trademarked phrase HD Radio. We respect that here as much as possible; for instance we don't write HD radio or HD-Radio.

I think iBiquity has an uphill fight in trying to enforce some of its rules, such as keeping people from using the term as a noun, as in "I bought an HD Radio." IBiquity prefers that you say "I bought an HD Radio receiver." Good luck with that one.

Also, it seems disingenuous to say that the letters HD were not intended to stand for "high definition." But iBiquity insists "HD Radio" is a brand name for its digital AM and FM radio technology and that "HD" does not stand for either high definition or hybrid digital.

If you are curious, here are a few more examples of the company's preferred style use.

Don't use the trademarked phrase as an adjective; thus you may say "Our station broadcasts using HD Radio technology" but iBiquity prefers you not say "Our station broadcasts HD Radio."

The company also says in its style guidelines that you should not make the trademark possessive, so don't write "I don't like HD Radio's sound," instead write "I don't like the sound of HD Radio technology."

Also, don't use hyphens, slashes, prefixes or suffixes. So it is HD Radio, not HD-Radio, H/D Radio, HDRadio or other variants.

My policy is to follow how companies and people wish to have their names written, when possible within certain style constraints that we've created to present a consistent, easy-to-read text.

Such matters probably seem minor for most folks; but for editors on the one hand and companies on the other, these decisions are relevant. Hey, if someone is going to write my name, I'd like to know they respect how I prefer to write it, or at least have a good and consistent reason to change it.

My policy is to follow how companies and people wish to have their names written, when possible within certain style constraints that we've created to present a consistent, easy-to-read text.

★ ★ ★

I bid adieu to Radio World Associate Editor Kelly Brooks, a friend and colleague who has been a key member of our editorial team for several years. She moves on to become associate managing editor for the American Society of Clinical Oncology. If you have contributed to our *Reader's Forum*, *Buyer's Guide* or *Studio Sessions* sections, or if you've walked the convention floor at NAB, you may have met or worked with Kelly.

In losing her, I'm fortunate to have the experienced Brett Moss assume the newly created position of gear and technology editor.

He will be responsible for managing *Buyer's Guide* content in both the U.S. and international editions of Radio World and the content of RW's *Studio Sessions* section, thus putting on the hat of our primary gear guy.

Brett is a former editor at the daily newsletter Talk Daily and was a public affairs radio producer/engineer for Radio America. For most of the past 11 years, he worked on Pro Audio Review, our sister magazine, which grew out of RW's *Studio Sessions* section; at PAR he worked his way up to the position of managing editor.

He is managing editor at Radio World International and also contributes to *radioworld.com*, e-mail newsletters, convention dailies and special projects. Write to him at *bmoss@nbmedia.com*.

Our veteran production publication coordinator Karen Lee adds to her duties the role of production editor for Radio World Engineering Extra. She becomes the point person here in our Virginia office for Technical Editor Michael LeClair, who is based in Boston, turning the content he gathers and edits into its final form.

Departing is Marguerite Clark, editor of Radio World International, who was based in Paris; she is taking a position with a public relations firm.

Alicia Zappier, managing editor for Government Video based in New York, will add to her duties the role of contributing editor for Radio World International. She contributes to the news and features

From the Editor

Paul J. McLane

section of our publications as well as to *radioworld.com* and e-mail newsletters.

Editorial Director T. Carter Ross and I are fortunate to have three talented people on our teams to take on these important roles. Congratulations to Brett, Karen and Alicia.

★ ★ ★

Catching up on more people news of the last few months, a hearty kudos to our contributor Cris Alexander, who was named Broadcast Engineer of the Year by the Society of Broadcast Engineers.

Cris is director of engineering for Crawford Broadcasting. He writes the column *A Day in the Life* in Radio World Engineering Extra as well as frequent articles in RW. He's a member of the national board of SBE and its certification committee and he is certification chair of Chapter 48 in Denver.

When I heard that colleagues were working on a nomination, I wrote to SBE to add my support. I stated that in a profession blessed with many bright lights, Cris goes beyond them. He is a special man — in my eyes, one who exemplifies the best traits that the SBE seeks to honor from among the broadcast engineering profession.

He is a model manager and executive who has worked diligently on behalf of his employer for almost three decades, yet puts more effort into sharing credit and attention with his employees than in celebrating his own accomplishments.

He cares about the broadcast industry

See MCLANE, page 5 ▶

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World Radio History

Newswatch

▶ Continued from page 2

adverse impact on the radio broadcast and ad industries, cause harm to Arbitron and its shareholders and violate its First Amendment rights.

New York Attorney General Andrew Cuomo said Arbitron had engaged in "false and deceptive business practices" that he says "threaten to drive minority broadcasters out of business."

On Oct. 6, two days ahead of its original schedule, the company commercialized its PPM radio ratings services in New York, Los Angeles, Chicago, San Francisco, Nassau-Suffolk, Middlesex-Somerset-Union, Riverside-San Bernardino and San Jose.

Houston and Philadelphia stations already rely on PPM data only for their audience ratings.

Critics including the Portable People Meter Coalition — a group comprising Entravision, ICBC Broadcast Holdings Border Media Partners, Univision, the National Association of Black Owned Broadcasters and the Minority Media Telecommunications Council — argue that the system undercounts minorities and has other problems.

Arbitron disputes the allegations and says that a number of stations targeting minority audiences have maintained or actually increased their market ranking since the introduction of PPM.

The coalition earlier asked the FCC to intervene to ascertain the facts and potential harm to broadcast diversity. Arbitron says the commission lacks jurisdiction.

The New York City Council earlier approved a resolution calling on the FCC to investigate. Senate Commerce Committee Chairman Daniel Inouye, D-Hawaii, and Judiciary Committee Chairman Patrick Leahy, D-Vermont, said Arbitron should ensure that the system "accurately measures listening behavior" and that "no station is unfairly harmed."

Arbitron said that throughout the deployment of the PPM, it has voluntarily briefed elected officials and promised to keep Inouye and Leahy informed.

News Roundup

EAS PROTOCOL: A group of equipment, software and service providers to the Emergency Alert System released a draft "profile" for the use and translation of the open, non-proprietary Common Alerting Protocol for digital EAS. CAP is a format for exchanging emergency alerts and public warnings over various networks. Members of the EAS-CAP Industry Group say the profile will help improve interoperability across the entities that are involved in alerting: agencies, jurisdictions, systems and vendors. The idea is to better communicate weather, civil, AMBER and other alerts via stations. Group members supporting the profile include Digital Alert Systems, Hormann America, iBiquity Digital, Monroe Electronics, MyStateUSA, Sage Alerting Systems, SpectraRep, TFT, Trilithic and Warning Systems Inc. The group's work is at its Web site *www.eas-cap.org*.

DAB UNIFIED RADIOS: WorldDMB, the European Broadcasting Union and EICTA, the European digital technology industry association, have joined to develop a receiver standard for Eurkea-147 digital receivers. The standard covers the minimum feature sets and functions to be included in DAB, DAB+, DMB Audio and T-DMB receivers. With these specs, manufacturers will make interoperable digital radios for the European market.

IKE & PPM: Houston is getting shorter Arbitron Portable People Meter Reports for September and October. The audience research firm had to cancel Week 4 of the PPM ratings for that market because of the evacuations for Hurricane Ike. The affected week is Sept. 11–17. The company said it would produce an abbreviated September Monthly PPM Report for Houston, based on the first three weeks of the scheduled report period (Aug. 21 to Sept. 10). The delivery date for the Houston report has not been established; Arbitron says the abbreviated report requires special processing. Previously, the report was scheduled to deliver on Oct. 8. The October PPM report for Houston is affected as well. There won't be a weekly for October Week 1 (Sept. 18–24). And the company was still evaluating the hurricane's effect on Week 2 data at press time.

ALERT FM: Global Security Systems said Oktibbeha County in Mississippi has purchased its Alert FM emergency alert and messaging system. Residents will be able to receive emergency information from local emergency managers as well as National Weather Service severe weather warnings through portable Alert FM receivers. Initial stations participating in Alert FM in the area are WKOR, WMAB, WMBC, WMXU, WSMS and WSYE. GSS says that provides a footprint to reach more than 50,000 citizens in Oktibbeha County. The county also purchased approximately 400 Alert FM receivers for use in government offices, schools and the county hospital.

PPM

▶ Continued from page 3

study's results give any insights?

One audience member asked whether a cultural concern for privacy, a fear of bringing "Big Brother" along with a device that records your activities, might distort data captured by Hispanic participants.

Kurtzman indicated that while privacy issues did come up, they were not dominant. The NAB presentation itself, he noted, omitted the many Spanish-language interviews in the study because the day's presentation was crafted for an English-speaking audience.

More harm

Going into more details after the presentation, Boyne noted that these issues go beyond the scope of the study. "This is a qualitative study, and is not designed to look into these specific issues. So whatever it might suggest here isn't definitive one way or another," said Boyne

After the close of the session, Arbitron President, Sales and Marketing, Pierre Bouvard shared his perspective. Bouvard is now responsible for commercializing Arbitron's PPM, but also spent six years working for Coleman Insights in the early 1990s. In his view, "Real PPM Panelists Tell All" confirmed some long-standing beliefs.

Bouvard said that for years, programmers have suspected there was a lot of so-called "phantom cume," exposure to a station that goes unrecorded in diaries. "They were right. The classifications they pulled from the data are quite similar to how we see it — half the cume does 90 percent of the listening," said Bouvard.

For Bouvard, one of the great discoveries from PPM is that the new methods confirm traditional ones that will remain at work in 250 markets.

"Keeping a TV diary means that responses are sprinkled across many shows. With radio, radio listeners go to favorite stations, [they] know shows and DJs. Because of this, the diary approach lends itself well to radio, as the study now verifies," he said.

McLane

▶ Continued from page 4

and the future of radio engineering in particular, as seen in his work to develop engineer training programs, his articles in Radio World and other publications, his Local Oscillator newsletter and his personal approach to his career.

He is a superb representative of the radio engineering profession to the industry's owners, executives, programmers, sales people, air talent and regulators. It's no accident that Cris is one of the few engineers to have been featured not only in technical publications but on the cover of a radio *business* magazine.

Cris is a lifelong learner, a devoted father and a moral man who knows that he works in a competitive business yet nevertheless finds a way always to do the right thing, not just the profitable thing. He really is a credit to broadcast engineering.

Maybe our colleague Tom McGinley puts it best about Cris after the award was announced: "This young man," Tom told me, "is a class act."

★ ★ ★

We talk here often about perceptions of engineers. Here's a reminder that we still have work to do.

During a conference of public radio managers awhile back, one person — a man who got into the business because he loved the creative side and has become a general manager — was overheard to say: "I spend my time with engineers now, and they can spend money faster than I can make it. That's a problem. They buy things that are new, expensive and they break."

Is that how your management views you? Fair or otherwise, that's how at least some managers see engineers. What have you done lately to help your own superiors consider you as part of the solution, not part of the problem?

World Radio History

Radio

▶ Continued from page 1

the air during our show trying to get their facilities back on the air."

Here's a summary of some of the happenings at the show. Digital radio news is in a separate article, see page 18.

REHR: 'NEGATIVITY' THREATENS BIZ

Negativity about radio, particularly from those in the industry, is "pervading the radio business and threatens to paralyze us," NAB President and CEO David Rehr told several hundred NAB Radio Show attendees as he delivered his annual state of the industry address.

He opened the three-day show by acknowledging, "It's not surprising that some of you may be feeling this pessimism. It's a dark cloud hanging over our heads. And we feel bombarded by negative — and often false — messages that reinforce these feelings."

We hear that radio is obsolete and not adapting fast enough to the digital age, he added; but what we don't hear are the success stories. "Radio connects, informs and inspires an estimated 235 million listeners each week," said the NAB chief executive.

"Right now, radio needs people who believe," Rehr said. "We need people who are bold and who will take charge of leading us into the future."

Rehr listed radio's technological highlights. In addition to HD Radio and new delivery services, he said broadcasters are "undertaking an effort to increase the number of FM radio receivers in cell-phone handsets." He did not mention AM radio.

NAB is working with the HD Digital Radio Alliance to further the rollout of HD Radio, targeting automakers and dealers with the message that your car is not "fully equipped" unless it includes HD Radio, he said. They've taken the message to auto shows in Detroit, New York and Los Angeles and used billboards to get the attention of automakers commuting in Detroit "and they're listening."

A new generation is coming to radio through the iPhone; in fact, "AOL Radio powered by CBS is one of the most downloaded applications for the iPhone," Rehr said, also mentioning that owners of the new Microsoft Zune player will have the ability to tag and purchase songs directly from the radio.

© NAB

NAB EVP Communications Dennis Wharton and VJ Barre, sales manager for the Austin Convention Center, handed out hundreds of toys and games to children who were evacuated to the center due to Hurricane Ike.

Rehr called the Federal Communications Commission inquiry about whether broadcasters ought to be regulated by certain localism rules "misguided" and praised broadcasters in general, and Texas broadcasters in particular, for their commitment to covering Hurricane Ike.

The FCC's proposal to bring back 24/7 staffing regulations and mandating having a main studio in the city of license "ignore the realities of the broadcasting business and technology," said Rehr.

The text of his speech can be found on pages 45–47.

GROUP HEADS FUME ABOUT FUTURE SAT TUNERS

Group heads speaking at a Dickstein Shapiro financing panel criticized the FCC for not mandating HD Radios in new satellite tuners as part of the conditions Sirius and XM had to accept for the agency to approve the merger.

Clear Channel CEO Mark Mays said, "I don't know how they allowed XM and Sirius to merge into a monopoly." The commission didn't have "the backbone" to do the right thing, he said.

CBS Radio CEO Dan Mason said, "Unless we're in the box at the factory level, AM could become extinct."

LARGE ADVERTISERS = SKEWED PERCEPTIONS

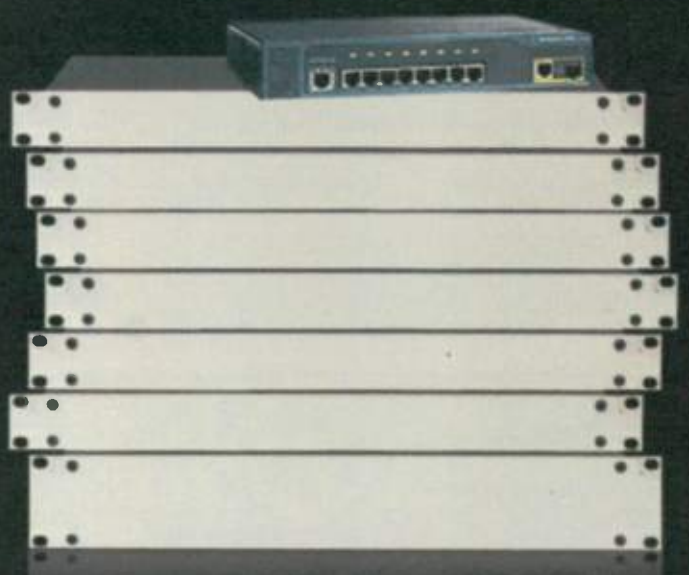
Several group heads argued that there's nothing wrong with radio but that it has a perception problem among large advertisers. Entercom CEO David Field said the key is to reach decision makers before media planners cut radio advertising out of a planned buy.

All of the group heads on hand said their companies are embracing new technology to put content on new platforms, but a lot of the discussion was about developing content to draw people to those new offerings.

Emmis CEO Jeff Smulyan noted that

See RADIO, page 8 ▶

Antiquated IP Audio



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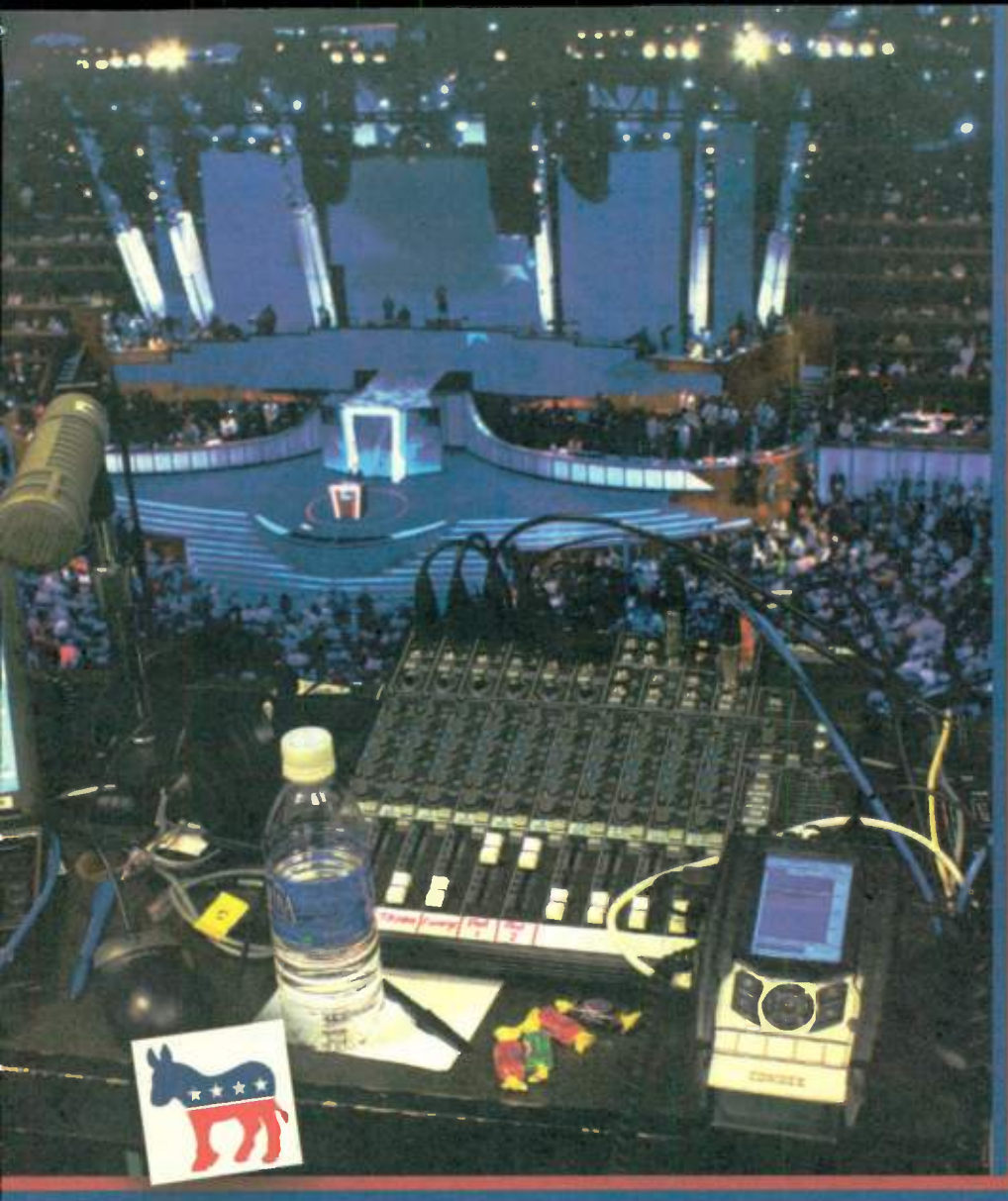

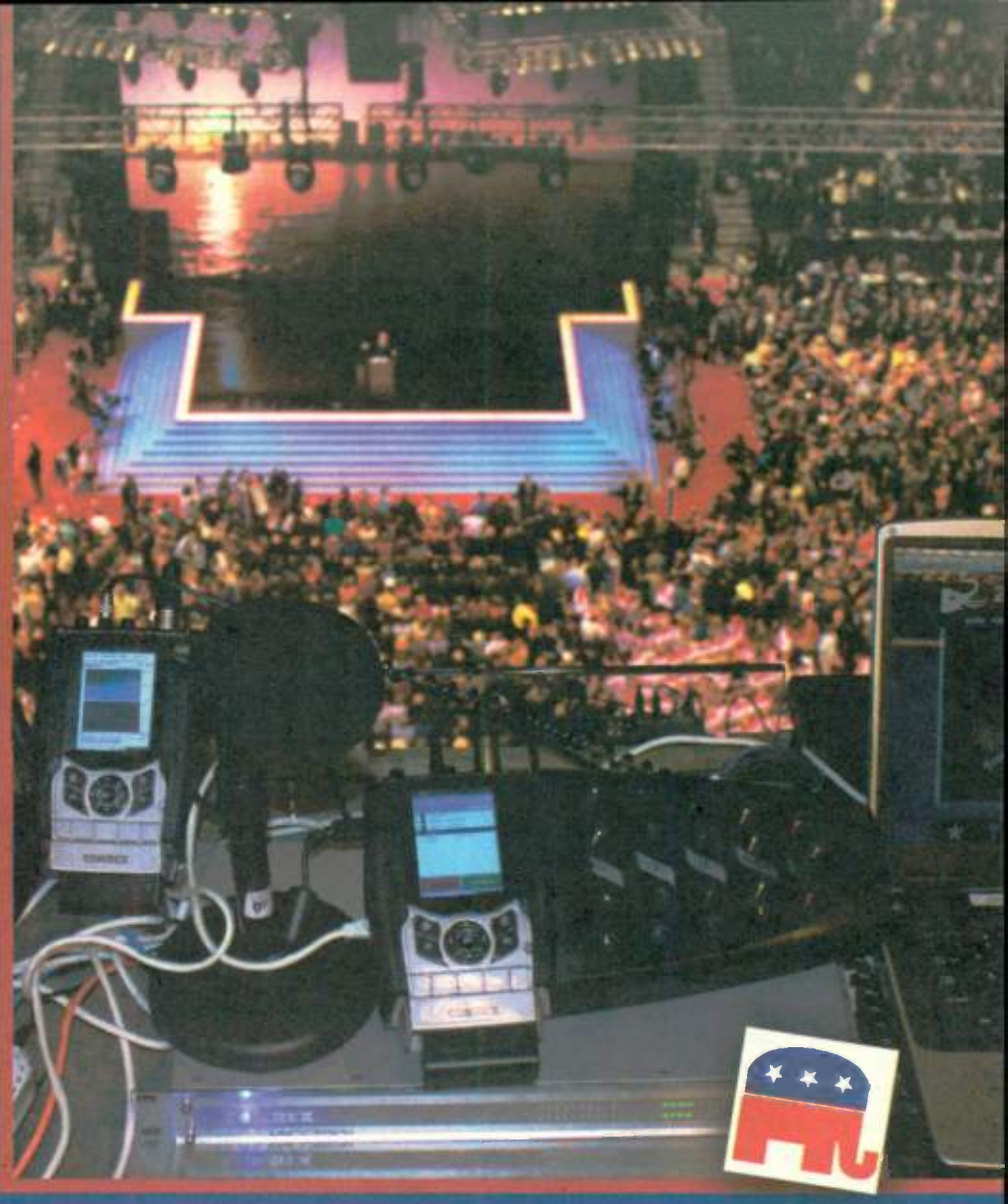

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World Radio History

Radio

▶ Continued from page 6

he and some other major group heads are meeting with top executives of major wireless telecom companies to persuade them to put radio receiver chips into cell phones, a recent stated goal of NAB leaders. His goal is to have a radio chip in every new cell phone in a few years; he said, "We're on our way."

MARTIN URGES INDUSTRY PLAN TO SOOTHE LOCALISM CONCERNS

Speaking of the future of AM, FCC Chairman Kevin Martin told NAB Radio Board Chair Russ Withers and attendees during the annual "Chairman's Breakfast" that radio's migration to digital will "level the playing field" for AM stations that are suffering from poor audio quality.

Martin acknowledged the importance of the agency facilitating the industry's digital conversion but also said that he thinks tuners should be able to receive an array of signals including analog AM/FM, HD Radio and satellite radio signals.

He noted that the commission released a public inquiry seeking public comments on whether HD Radio should be mandated in satellite tuners, or vice versa. Martin couldn't say how his fellow commissioners come down on the issue.

The Republican appointee is expected to tender his resignation in January as a new administration comes in; so Martin likely will be gone long before any decision is made on the issue.

Switching to localism and the possibility of mandated 24/7 staffing, Martin said Congress is concerned that broadcasters aren't taking their public service commitment seriously and said there's a lot of "angst on Capitol Hill over it."

The chairman encouraged broadcasters to come up with a plan offering solutions to address lawmakers' concern about the overnight staffing of stations and about voice tracking. He noted that while lawmakers on the Hill understand the role individual stations play in performing public service to their communities, "there is concern about broadcasters as a whole." Martin urged resolution by year-end.

ADELSTEIN: RADIO'S FUTURE IS LOCAL; OPPORTUNITY MISSED FOR HD-R

FCC Commissioner Jonathan Adelstein, meanwhile, isn't so sure localism will be wrapped up by the end of the year. In a separate event, though, he said, "The NAB has raised a ruckus," telling attendees, "You have a very effective advocacy campaign."

The goal of the initiative, he said, isn't to tie broadcasters' hands but to address ongoing concerns, saying "We don't want another Minot," a reference to a 2003 train derailment when tank cars carrying anhydrous ammonia burst in that North Dakota town.

Clear Channel owned most of the radio stations in that market then. City officials said they couldn't contact station personnel quickly in order to warn residents of the resulting poisonous gas cloud; Clear Channel said officials didn't have their EAS equipment installed and didn't know how to use it to send an alert, though an alert eventually aired.

© NAB

FCC Commissioner Jonathan Adelstein, foreground, with NAB Radio Board First Vice-Chair Steve Newberry of Commonwealth Broadcasting.

Those who argue in favor of returning the 24/7 staffing and main studio rules fear consolidation has left many stations empty at night and another incident similar to the Minot situation could occur. Broadcasters say the expenses of bringing the rules back could make many stations fail.

To wrap up that issue, Adelstein said that broadcasters have a "good future" if they "stick to local communities" and provide local content to their audiences.

The Democratic commissioner had strong words about another issue: whether HD Radio reception capability should be mandated in satellite receivers. Before the agency approved the merger, Adelstein tried to win this concession. Failing that, he said, he changed his vote to oppose the merger.

"That didn't go very well," he said of the commission's 3–2 vote in favor of the merger, with Adelstein and fellow Democrat Michael Copps in the minority.

He wanted a prohibition on the merged sat rad company subsidizing automakers for including receivers in cars that "discriminate against HD Radio." The satcasters did agree not to develop a combined radio that couldn't include the IBOC technology, but that's not the same as mandated inclusion.

I will be surprised if we can come up with a good legal basis to require HD on receivers.

— Jonathan Adelstein

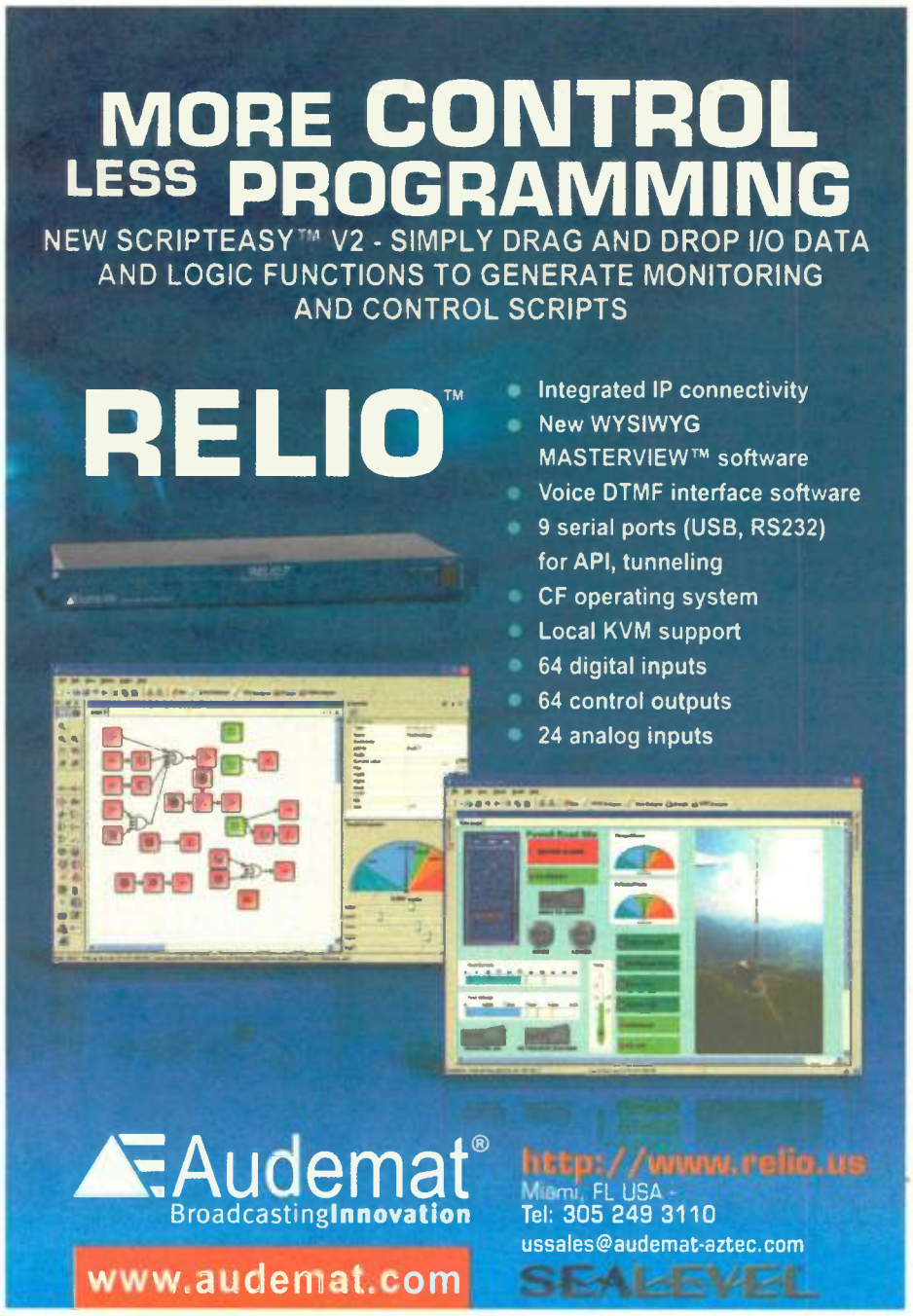
Adelstein questions whether the FCC has the authority to force manufacturers to include IBOC chips in sat tuners now that negotiations with the satcasters are over.

"With Sirius/XM we had the authority because it was voluntary." He noted that the FCC is investigating the issues through a Notice of Inquiry on the topic; however he added, "I will be surprised if we can come up with a good legal basis to require HD on receivers."

The key to advancing HD Radio is to get the technology into cars, he said.

Adelstein also said he wants to see radio receivers in cell phones. "We need to work on making that a reality."

Shortly after the show, Rep. Edward Markey, D-Mass., introduced the "Radio All Digital Channel Receiver Act," a bill to mandate that all satellite radios be able to receive HD Radio signals.



HALEY TALKS UP ONLINE REVENUE POTENTIAL

Radio Advertising Bureau President/CEO Jeff Haley said radio's challenge is offering shifting choices to advertisers as more of radio's programming is offered online. New technology doesn't necessarily mean fewer people will listen to radio, he said, noting that radio is the number six choice among iPhone applications.

The FM adapter is also popular on iPods, he said. Continuing this theme, "We want FM receptivity on every cell phone" and all digital devices within five years, Haley said during the Radio Luncheon.

Pointing to RDS, he said that's a system in which the point of contact to the user can be for sale, serving as a revenue generator for radio's partners.

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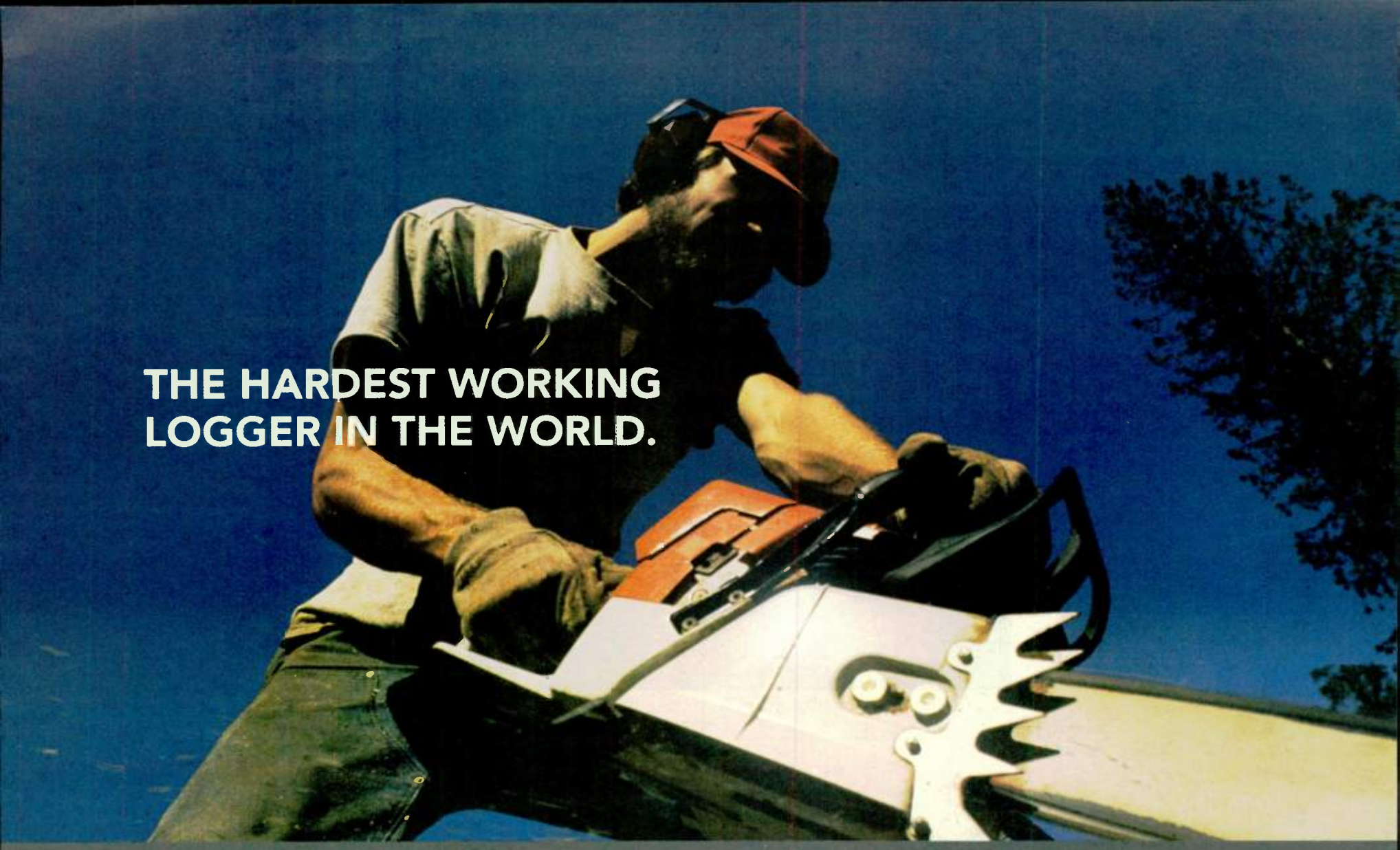
Radio Advertising Bureau President/CEO Jeff Haley

See RADIO, page 10 ▶

World Radio History



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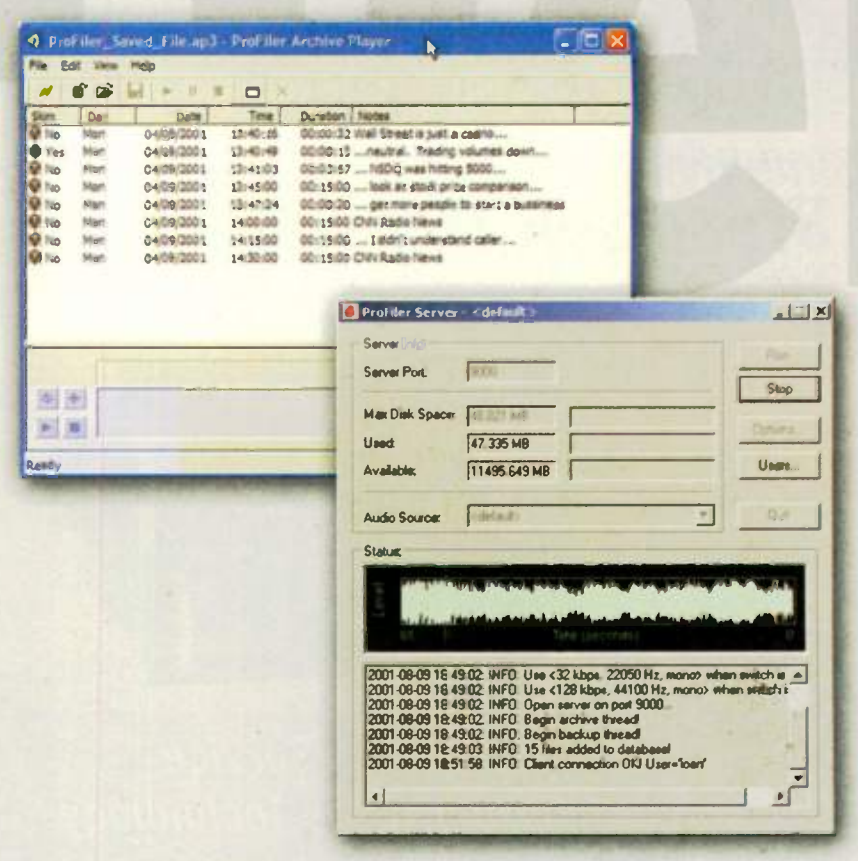

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World Radio History

Transmitter

▶ Continued from page 1

substantially decreased. Many new engineers today may not have had a chance to work in high-power RF plants.

Many older engineers are reaching retirement age; but more significantly, young men and women entering the field are more geared toward the information technology/computer side of radio engineering.

Why not? The line between computers and transmitters is becoming less defined each day. Most radio transmitters manufactured during the previous two decades contain some kind of microprocessor or in some cases are full-blown personal computers.

With the advent of HD Radio, this has become particularly true. In this age of computerized broadcasting, it is vital that we not lose sight of some of the basic engineering principles and standards.

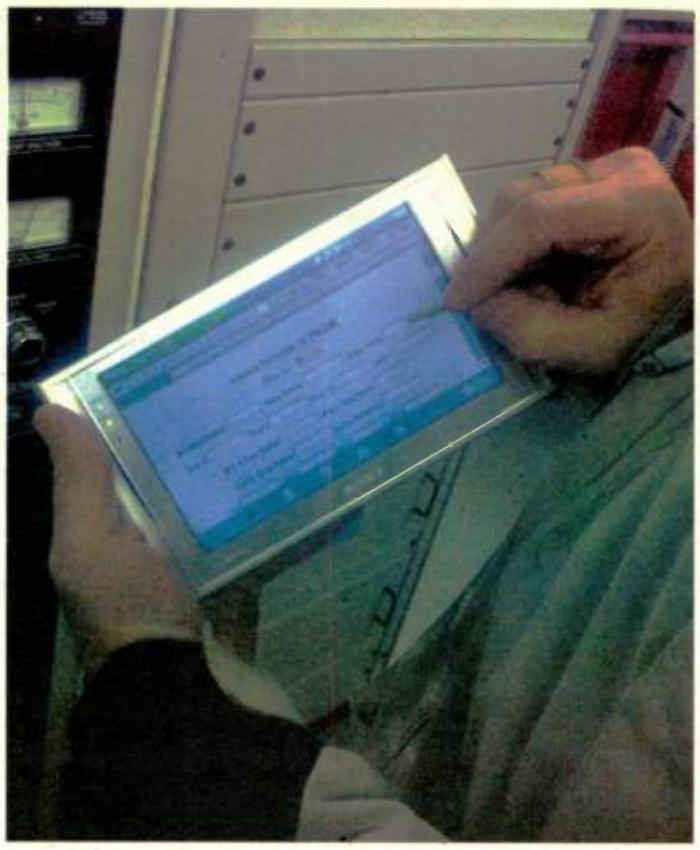

Fig. 1: Portable Sony LocationFree TV Web browser is used for data entry into the electronic maintenance log.

Fig. 2: Completed maintenance log in loose-leaf notebook at transmitter facility.

Keep it clean

Keeping a transmitter site clean and organized has many benefits.

It is usually beneficial to employ a redundant closed-loop HVAC system to keep dirt, pollen and humidity out of your shelter.

Transmitters that operate with high voltages especially will benefit from the clean environment because high voltage tends to attract dirt and can lead to unwanted arcing. Proper air flow in transmitters, audio processing gear and computers is also critical; and dirt and pollen can quickly clog air filters leading to overheating of components and eventual failure of critical systems.

In addition, having redundant HVAC systems helps to assure that unattended transmitter sites will continue to stay cool if one of the air conditioners were to fail, until repairs can be facilitated. It's now common to install a tertiary ventilation system that will simply bring in filtered outside air and draw it across the room to cool the area in the unlikely event that both HVAC units were to fail.

An ideal transmitter facility will have redundancy for most of the equipment. In many cases the costs associated with buying "two of everything" are impractical.

If you are able to duplicate equipment, one strategy that has proven to increase overall reliability is to have a main and an alternate "chain."

A facility in which each transmitter is fed by its own set of processing and STL path helps to ensure that in the event of a problem (i.e., RF off the air, audio off the air or audio problems like distortion etc.) you have the best chance of bypassing the problem as quickly as possible until the problem can be addressed by simply switching to the alternate transmitter chain, including the RF amplifier.

A "main/alternate" configuration implies that both systems are close to being equal in terms of reliability and quality. An ideal main/alternate configuration will be run on a regular changeover schedule.

Depending on your individual circumstances the times will vary; a popular method is to alternate systems on a quarterly basis. This helps prove to yourself that both systems are working properly; in the event of a failure on any one system, you will be confident that you can switch reliably to the alternate system and your business will not be compromised.

If you have a primary/backup system, your backup transmitter may not be as modern and therefore may not offer you the efficiency and reliability of your main transmitter. It is extremely important to test it regularly and maintain it as well as your primary.

Safety

Often, preventive or required maintenance is performed on transmission gear that has lethal voltages inside. While all manufacturers of modern broadcast equipment take precautions to interlock their equipment when a door or access panel is removed, occasionally it is necessary to bypass these safety measures in order to troubleshoot the problem.

When this happens, the engineer opens himself or herself up to added risks. The consequences of making a careless mistake can be deadly. Compounding the problem is the fact that many of these maintenance sessions are performed late at night at a time when the engineer may be fatigued, and could carelessly make a mistake.

The issue is a serious one, and requires one carefully to manage the risks associated with transmitter maintenance. Some of the tools available to the engineer to

See TRANSMITTER, page 12 ▶

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Radio

▶ Continued from page 8

Haley premiered a video about radio that the RAB hopes stations will post online and use it to remind listeners about radio's potential.

POGUE: 'WHERE DOES RADIO FIT IN?'

"Where does radio fit in?" asked New York Times technology critic David Pogue, who discussed topics such as VoIP phones, WiFi, on-demand media and new Web developments. He linked the technologies and said all reinforce each other, often in initially unseen and unexpected ways.

The next generation of consumers expects things on-demand, he said, noting that technology is advancing rapidly. "Universal wireless would help this industry a lot," he said as he named numerous wireless Internet gadgets, some of which can be implanted with a radio chip.

His lively and funny performance included demos of fresh technologies such as "Goog411," a free information service that lets consumers avoid paying $2 for a directory assistance-placed call.

He also parodied the RIAA for suing teenagers and grandmothers for downloading pirated music, singing to the Village People's "YMCA."

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World Radio History

Transmitter

▶ Continued from page 10

lower this risk include using checklists, making sure the shorting stick is used before contacting any potential high-voltage points and never working alone.

The equipment itself needs to also be protected. If you employ an air-cooled dummy load, make sure that it is interlocked to remove the RF source from whatever transmitter is connected to it, should the cooling fan in the load fail to operate.

The same is even more relevant with a water-cooled dummy load. If sufficient water flow is not maintained, the load element will be destroyed in a matter of seconds. A properly adjusted, high-quality external water flow switch is usually required to protect a water-cooled dummy load.

Just as the load needs to be protected, those who use a manual or motor-driven RF transfer switch need to make sure that these switches are interlocked to any transmitters to which they are connected. Usually moving an RF contactor with RF present can cause serious damage to the switch.

Probably the most important — and unfortunately one of the most widely overlooked — interlocks needed at transmitter site are the VSWR protection interlocks.

Even though modern transmitters provide internal VSWR fold-back protection, it is absolutely necessary to have an external VSWR meter capable of interlocking the transmitter(s) installed at an appropriate place in the transmission line system, and tested on a regular basis.

The cost of installing and maintaining such a device is a small insurance premium to pay for a whole lot of protection afforded to your expensive transmission line and antenna system.

Another vitally important consideration for those using transmission lines with an air dielectric is proper pressurization of the transmission line system with dry air or an inert gas such as nitrogen. The object is to keep the voltages between the inner and outer conductors of the transmission lines from arcing over and destroying the line.

Using a dehydrator to dry the air to a very low dew point guarantees that the moisture content in the line will be low enough to avoid arcing.

The other popular method that is effective is to infuse the line with nitrogen gas from a bottle or a nitrogen generator. This effectively removes any moisture in the line and helps to prevent flash-over.

Having an electric pressure switch to monitor the transmission line's gas pressure and relay the status to the operator on duty is imperative so that if an air leak develops, it does not go unnoticed.

Finally, for air-cooled tube type transmitters a routine testing program for the air flow safety systems is important. Even though all tube-type air-cooled transmitters employ a safety air flow switch, unless they are tested on a regular basis you can't know whether they are actually working to protect your equipment.

One popular method is to slowly restrict the air flow to the intake filter with a piece of cardboard on the transmitter under test until the air interlock is no longer satisfied, and verify that the filament gets turned off.

Most tube manufacturers furnish a data sheet that along with specifications for operating parameters depicts recommended filament voltage settings. Typically it is advantageous for a brand-new tube to be run at the rated filament voltage for the first several hundred hours and then at a reduced voltage for the life of the tube.

Eventually when the emission drops off the voltage can be increased to a certain point to extend the useful life of the tube further.

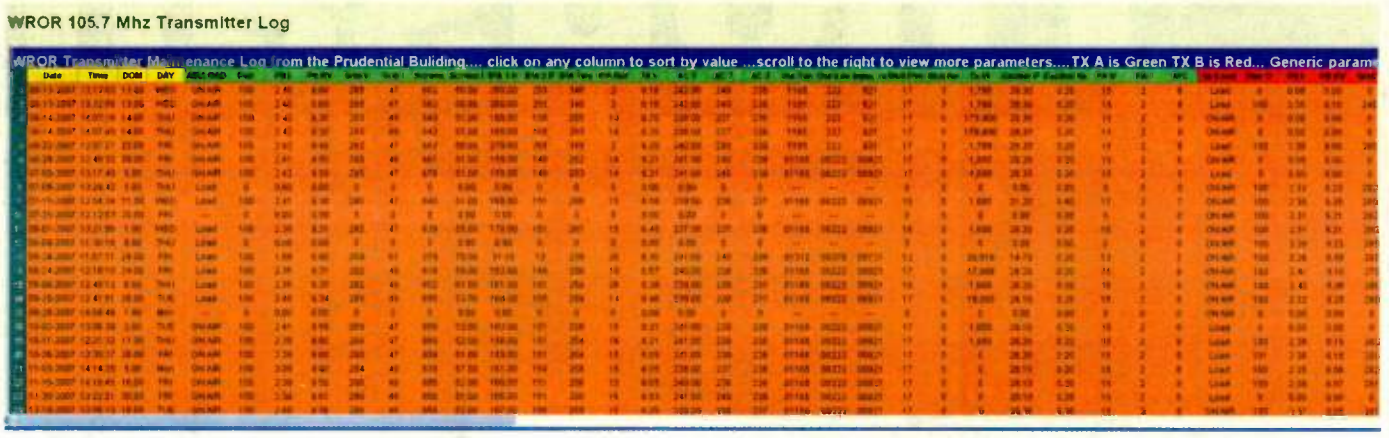

Fig. 3: Web Page with Log

Transmitter maintenance logs

Running your transmitter facility efficiently and with a minimum amount of down time requires good record-keeping. Most engineers accomplish this with maintenance logs.

These records help keep an accurate record of service to equipment, as well as regular records of calibrations. Perhaps the most useful aspect is that engineers can refer to a record of what normal parameters are, and thereby easily understand how trends in parameters are affecting the operation.

With the availability of smaller computers and PDAs it is now practical to record and analyze maintenance log data electronically. This has a few advantages over the paper method.

For example an engineer using a portable electronic device such as a laptop computer, PDA or other handheld Web browser can directly input information read from the equipment meters for accurate storage, and later retrieve that information. Advantages over the paper method are:

- The data is stored in a logically formatted structure and is easy to read.
- The data can be easily manipulated and sorted by field.
- It becomes apparent when trends in readings start to occur and an engineer can more quickly take action to address any equipment shifts in performance.
- Maintenance logs can be printed out in a uniform way with color coding and different sizes of fonts to highlight changes the engineer might want to be aware of.
- Maintenance logs can also be posted to an internal or external Web page so that it is possible to access the data from many locations.
- Log fields can be individually sorted by value so the person analyzing the data can see the highest or lowest value in a field.
- Comment fields in logs can be sorted by keyword. For example, search the comments field for the last time a tube was changed.
- Mathematical calculations can be routinely done to calculate a running time tally on items such as the time between tube changes in a particular transmitter, or elapsed run time of a dehydrator.

Even when you are not at the transmitter site, if you write these logs to a Web page it gives you the flexibility to access maintenance data from anywhere.

This allows an engineer to more thoroughly analyze the historical data in a cleaner, quieter and often more relaxed atmosphere (like the office or home) where he or she can spend more time looking at trends and understanding the changes that might be occurring at the transmitter site.

In Fig. 3, the Web page shown uses a Java Applet to enable the user to sort the individual fields by value.

Web access

It is also becoming more important than ever to supply good, clean and uninterruptible AC power to the equipment at your transmitter site.

In particular, transmitter sites often are located in remote areas where utility power is not the most reliable; physical access to the site can be restricted by weather conditions or other environmental factors.

Since almost all the gear used these days is CPU-based, a power glitch will end up resetting most equipment used at a transmitter. Most equipment does not reset instantly, and will normally take a minute or two to come back to life. This always seems like an eternity when you are off the air.

Finally, the Federal Communications Commission and Federal Aviation Administration recently have modernized the rules regarding tower sites.

Make sure that the base of the tower and guy wires are secure, and that the tower registration number is displayed prominently not only at the tower base, but at a point that can be easily seen from the street (or a public point) leading to the tower.

Tower light monitoring remains one of the more important rules that the FCC is enforcing. A system must be in place to allow your operators to detect a full or partial failure of the tower lighting system immediately.

If your tower lighting system is not operating as specified in the station's authorization, notification to the FAA (through a special toll-free number) is required within 30 minutes. Notification is required again when the problem has been resolved and the lights are operating in accordance with the station's license.

The author thanks his colleagues at Greater Media, Eimac and ERI Corp. for their assistance.

This article is based on Shulins' NAB Broadcast Engineering Conference paper "Radio Transmitter Maintenance 'Back to Basics.'"

New Paint, Old Friends

Photo by James E. O'Neal

Members of SBE Chapter 37 and their guests take part in a picnic on the grounds of WMAL(AM) near the nation's capital; the event is an annual end-of-summer occasion, and was held this year in conjunction with the local section of SMPTE. The four-tower array, which sits on 75 acres, recently was spiffed up with a new paint job.

World Radio History

Can a radio console be over-engineered?

(Only if you think "good enough" really is good enough.)

The radio console, redefined.

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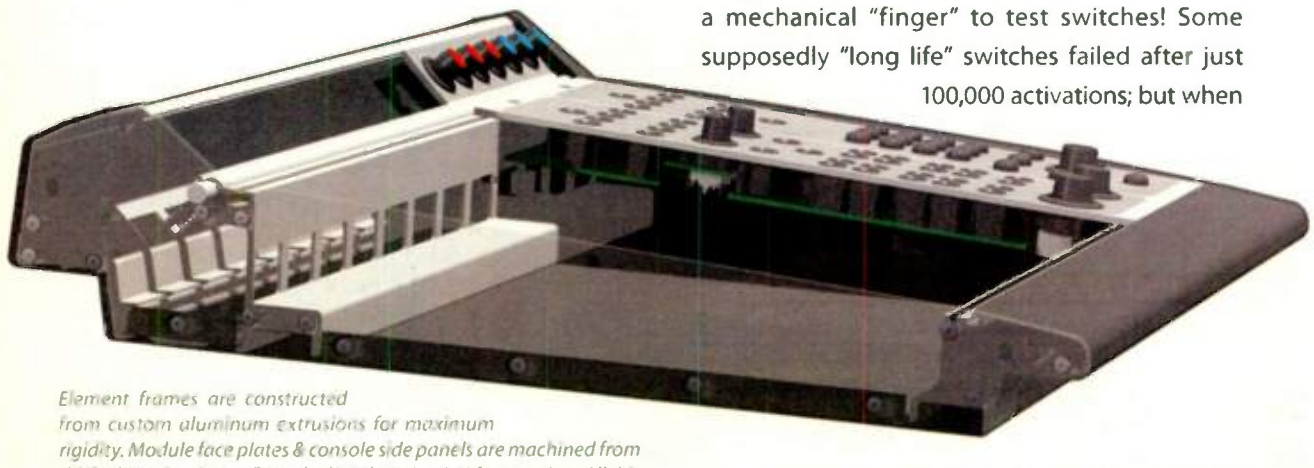
Beneath the surface

There's more to a great board than just features. **Consoles have to be rugged,** to perform flawlessly 24/7, 365 days-a-year, for years at a time. So we literally scoured the globe for the absolute best parts — hardware that will take the torture that jocks dish out on a daily basis.



Element frames are constructed from custom aluminum extrusions for maximum rigidity. Module face plates & console side panels are machined from thick plate aluminum. Even the hand rest is a beefy extrusion. All this heavy metal means even the most ham-handed jock can't dent it..

First, Element is fabricated from thick, **machined aluminum extrusions** for rigidity and RF immunity. The result: a board that will stand up to nearly anything.

With so many devices in the studio these days, the last thing anyone needs is gear with a noisy cooling fan. That's why Element's **power-supply is fanless,** for perfectly silent operation inside the studio.

Element modules are **hot-swappable**, of course, and quickly removable. They connect to the frame via CAT-5, so pulling one is as simple as removing two screws and unplugging an RJ — no motherboard or edge connectors here.

Faders take massive abuse. The ones used in other consoles have a big slot on top that sucks in dirt, crumbs and liquid like the government sucks in taxes. By contrast, our silky-smooth conductive-plastic faders actuate from the side, so that **grunge can't get in**. And our rotary controls are high-end optical encoders, rated for more than **five million rotations**. No wipers to clean or wear out — they'll last so long, they'll outlive your mother-in-law (and that's saying something).

Element's **avionics-grade switches** are cut from the same cloth. Our design team was so obsessed with finding the perfect long-life components that they actually built a mechanical "finger" to test switches! Some supposedly "long life" switches failed after just 100,000 activations; but when our guys found the switches used in Element, they shut off the machine after **2 million operations** and declared a winner. (The losers got an all-expense-paid trip to the landfill.)

Element's individual components are **easy to service**. Faders come out after removing just two screws. Switches and rotary volume controls are likewise simple to access. And all lamps are LEDs, so you'll likely **never need to replace them**.

Engineers have said for years that console finishes don't stand up to day-to-day use. Silk-screened graphics wear off; plastic overlays last longer, but they crack and chip — especially around switches and fader slots, where fingers can easily get cut on the sharp, splintered edges. We decided that we could do better.

There's a reason these board-ops are smiling. Axia consoles are in more than 1000 studios worldwide.

Element uses high-impact Lexan overlays with color and printing on the back, where it **can't rub off.** And instead of just sticking the Lexan to the top of the module like some folks do, our overlays are **inlaid on the milled aluminum module faces** to keep the edges from cracking and peeling — expensive to make, but worth it. For extra protection, there are **custom bezels** around faders, switches and buttons to guard those edges, too. Which means that Element modules will **look great for years.**

By the way, those on/off keys, fader knobs and bezels are our own design, custom-molded to give **positive tactile feedback**. The switch is flush with the top of the bezel, so it's easy to find by touch. But if something gets dropped on it, the bezel keeps the switch from being accidentally activated.

More than just products

Even the best products are nothing without **great support.** So Axia employs an amazing network of people to provide the best support possible: Application Engineers with **years of experience** in mapping out radio studios... the most knowledgeable, **friendly** sales people in the biz... Support Engineers who were formerly broadcast engineers. Plus a genius design team, software authors who dream code... one of the **largest R&D teams** in broadcast.

And now Axia has become radio's **first console company to offer 24/7 support**, 365 days a year. Chances are you'll never need that assistance, but if you do, we'll be ready for you. Our 'round-the-clock help line is +1-216-622-0247.

Proudly Over-Engineered

Are Axia consoles over-engineered? **You bet.** If you're looking for a cheap, disposable console, there are plenty out there — but this ain't it. Not everyone appreciates this kind of attention to detail, but if you're one who seeks out and appreciates excellence wherever you may find it... Axia consoles are built **just for you.**

AXIA
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www.AxiaAudio.com

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World Radio History

Build a Cell Phone Interface

by John Bisset

Are you looking for a low-cost interface to be able to send and receive audio from a cell phone? The circuit shown in Fig. 1 designed by Joe Stack will get the job done. Joe used RCAs for the "ins and outs" and shielded cable throughout the mic circuit.

The circuit is simple and there is room to move on the component values, so this should be easy to build in the field. The completed board is shown in Fig. 2.

In keeping with the simplicity theme, Joe cut a square hole in the box lid; that way your fingers can reach the audio adjustment pots. The potentiometers are mounted on the circuit board, and the knurled edges just rise above the level of the box top for easy adjustment, as seen in Fig. 3.

Joe Stack can be reached at *williamjstack@comcast.net*.

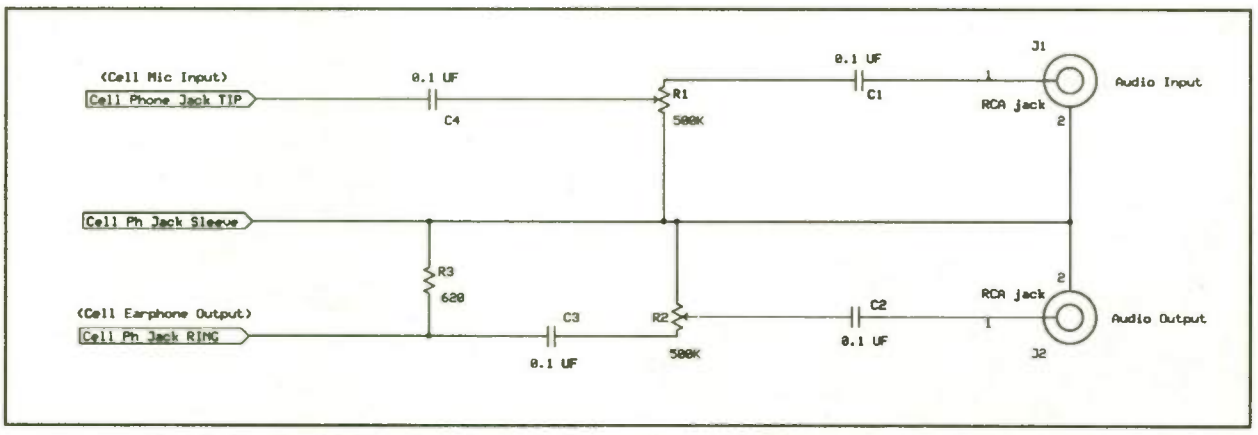

Fig. 1: Joe Stack's simple schematic for getting audio into and out of a cell phone.

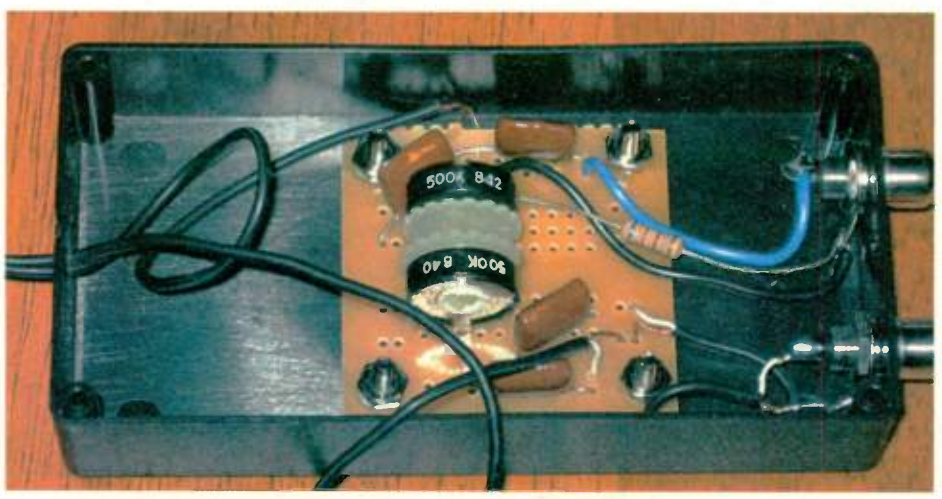

Fig. 2: Components mount easily on a board inside a project box.

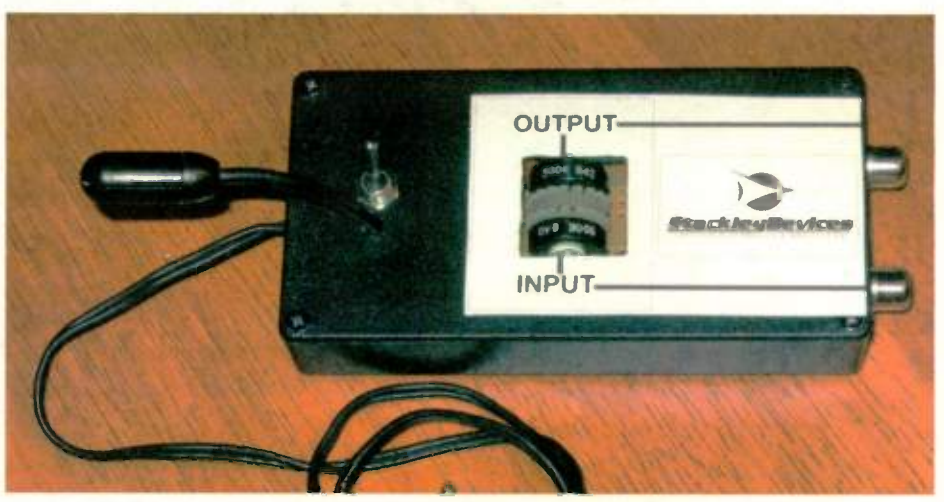

Fig. 3: A hole cut in the box lid permits easy potentiometer adjustment.

★ ★ ★

Gregory Muir is the chief engineer for Cherry Creek Radio and Central Montana Radio Network. Greg writes that while pursuing one of his more boring tasks attempting to find a good source of rack clip nuts, he found *www.rackrelease.com*.

This site offers an interesting assortment of not only the plain vanilla screw and nut assortments, but also some variants to include "quick-release" and thumb-screw-style rack screws. Visit the site and be amazed at the world of rack screws.

Thanks, Greg, for a great place to bookmark. Gregory Muir can be reached at *gmuir@cherrycreekradio.com*.

★ ★ ★

Fall brings the nesting instinct of both animals and insects, seeking a way out of the cold.

Warm transmitter buildings are a draw, so ensure that cracks and openings are sealed; this is good insurance against pests that could ruin a site. Expanding foam coupled with stainless steel wool (found at Dollar Store-style retailers, in the kitchen supply area) make a better barrier than the foam by itself, when filling large spaces.

Mothballs sprinkled on the building floor and inside the bottom of equipment racks will deter snakes.

With inclement weather comes the possibility of

See WORKBENCH, page 16 ▶

TOP VALUE FM Monitor

This Easy-to-Use FM Mod-Monitor Gives Accurate Off-Air Measurements

A wealth of features makes Inovonics' second-generation 531 the undisputed value leader in FM Monitoring. In addition to the high-resolution total-mod display, the 531 also shows stereo audio levels, SCA and RDS subcarrier injection, plus a relative indication of incidental AM noise. A digitally-tuned pre-selector with programmable presets lets you quickly compare your station's parameters with those of market companions.

Signal strength and multipath readouts simplify antenna alignment and help validate all measurements. Rear-panel appointments include balanced audio out, composite in/outs, and both antenna and high-level RF inputs. Alarm tallies are provided for overmod, audio loss, carrier loss and excessive multipath.

"Other guys imitate us...
But the original's still the greatest."
— Billy Page THE IN CROWD

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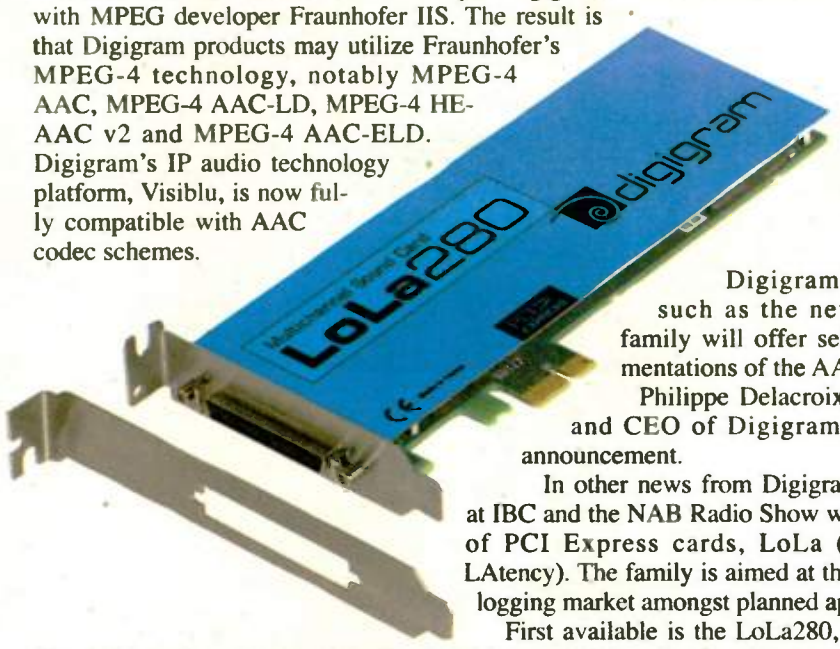
World Radio History

MARKET PLACE

Digigram Partners With Fraunhofer MPEG-4 and Releases LoLa

Audio interface and network developer Digigram has announced that it partnered with MPEG developer Fraunhofer IIS. The result is that Digigram products may utilize Fraunhofer's MPEG-4 technology, notably MPEG-4 AAC, MPEG-4 AAC-LD, MPEG-4 HE-AAC v2 and MPEG-4 AAC-ELD. Digigram's IP audio technology platform, Visiblu, is now fully compatible with AAC codec schemes.



Digigram hardware such as the new IQOYA family will offer select implementations of the AAC codec.

Philippe Delacroix, president and CEO of Digigram made the announcement.

In other news from Digigram, debuted at IBC and the NAB Radio Show was a family of PCI Express cards, LoLa (for LOw, LAtency). The family is aimed at the broadcast logging market amongst planned applications.

First available is the LoLa280, a low-profile, full-length card with eight line-level inputs and two line-level outputs. An eight-channel rackmounted outboard mic preamp box is optional. An onboard software mix controls the unit. Onboard converters are high-def 24-bit, 192 kHz.

The LoLa280 is fully compatible with Digigram's Visiblu broadcast IP technology. WDM DirectSound and ASIO drivers are provided.

Delacroix said of the LoLa: "Legal, surveillance and broadcast logging applications have never had an audio platform designed specifically for their requirements until now. The LoLa platform will give our development partners, especially those whose business is monitoring, archiving or security, a fantastic new enabling technology."

For more information, contact Digigram at (703) 875-9100 or visit www.digigram.com.

ERI Likes Hanging Around

Electronics Research Inc. (ERI) has introduced a new member of the Universal Rigid Line Bracket family.

The new bracket handles 3-1/8-inch, 4-1/16-inch and 6-1/8-inch rigid transmission line hangers. It acts as an interface to adapt lightweight hangers and vertical spring hangers to round horizontal tower members from 0.75 inches to 3 inches in diameter.

Ideally the flexible bracket will eliminate the need for customized brackets.

For more information, contact ERI at (877) 374-5463 or visit www.eriinc.com.

Workbench

▶ Continued from page 14

being stranded at a transmitter site. Spend a few minutes putting together a survival kit of granola bars, bottled water and perhaps a heat-reflecting space blanket in a sealed plastic container. Just in case.

★ ★ ★

Radio World recognized Henry Engineering's SixMix with a "Cool Stuff" Award at the spring NAB. This USB console was designed to take the place of a "live music" or PA-type mixers, as it features a cue bus, a means to turn mikes on and off, a monitor mute, mike tally and other features.

Add to those features a USB connection for your computer! In the few short months the console has been in production, there's further feature evolution.

Proprietor Hank Landsberg announced the Monitor-Mix module. Seen in Fig. 4, the module is installed inside the SixMix, providing the operator with a mix of both program and return cue audio.

An adjustment pot is accessible from the rear and adjusts the level of the program audio, so it can be set to the same level as the return cue audio.

Henry Engineering is celebrating its 26th anniversary this year. We congratulate Hank as he's grown his product line to include a wide variety of problem solvers.

Hank Landsberg can be reached at *henryeng@aol.com.*

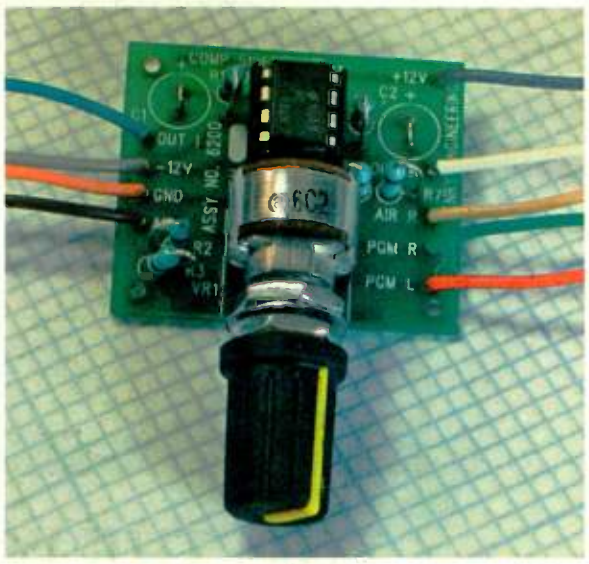


Fig. 4: A monitor mix add-on makes the SixMix more versatile.

★ ★ ★

Even though Fred Greaves retired from Susquehanna Broadcasting, he still keeps his hands in broadcast engineering.

He was reading the Aug. 13 issue of *Workbench* and Bill Weeks' suggestion to use nail polish remover to remove ink left by Sharpies or similar markers. Bill used a Sharpie to mark coil tap positions while tuning an AM array. Using different colors made for quick adjustment point identification.

Fred writes that the nail polish remover works, but he would suggest using a can of hairspray, the cheaper the better. Fred says the spray melts the ink right off, and doesn't have the stringent smell of nail polish remover.

Fred Greaves offers technical services and can be reached at *fredgreaves@aol.com.*

These markers are invaluable at transmitter sites. Even after the array is tuned, use them to mark coil clip locations. If a clip falls off, its location can be located quickly.

John Bisset has worked as a chief engineer and contract engineer for 39 years. In 2007 he received the SBE's Educator of the Year Award. Reach him at johnbisset@verizon.net. *Faxed submissions can be sent to (603) 472-4944.*

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

World Radio History

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World Radio History

HD Radio News

Radio World | Covering Radio's Digital Transition | October 22, 2008

HD Radio On the AM Band

Page 19

IBOC Power Boost Dominates Tech Talk

Accessible HD-R Receiver, EPG Also Gain Notice

by Leslie Stimson

AUSTIN, Texas The need to grant stations the right to increase the level of IBOC power they are allowed to transmit is the issue in HD Radio. That's according to Greater Media Vice President of Engineering Milford Smith in a session at the NAB Radio Show about the power increase.

Participants had agreed before-hand to have a civil discussion about the topic. That's because the coalition of 18 mostly commercial groups who petitioned the FCC for the voluntary increase say their tests show there would be minimal interference to analog signals if the IBOC power were increased up to10 dB — from the current –20 dB below the analog carrier to –10 dB — while NPR Labs tests concluded the analog would be greatly impacted by such an increase.

The digital coverage must replicate the analog or IBOC "will be seen as deficient," Smith said, also noting that building penetration at existing power levels is not good.

Continental Vice President of Engineering Dan Dickey agreed that the noise in office environments competing with the IBOC signal is "horrible" and the "only way around that is to get a bigger signal to [the radio]."

Portable audio devices typically have small antennas. Noting that HD Radio portables are expected on the market in 2009, iBiquity Digital Broadcast Technology Manager Jeff Detweiler said, "An earbud doesn't make a good antenna."

The coalition and iBiquity have issues with the NPR report in regards to whether the majority of predicted interference is inside or outside the FCC-predicted contour line. The FCC only protects within the line. That's the 60 dBu contour line for all FMs, except for Class Bs (54 dBu) and Class B1s (57 dBu).

In response to questions about the study, NPR Labs Senior Technologist John Kean added FCC-protected contour lines to the maps associated with the predicted IBOC coverage and interference study.

Photo by Leslie Stimson

Milford Smith and Mike Starling chatted before their elevated power session.

The FCC and commercial stations focus on protecting stations from interference within their contour line. However non-coms find listening outside the line valuable as donors can live outside the contour.

Mike Starling, vice president and chief technology officer of NPR and executive director of NPR Labs, said, "We're *very* bullish on digital radio. We don't believe in leaving anyone behind." What's not to like about the 10-percent digital increase is the impact on analog, he said.

Dickey agreed, saying, "Ninety percent of your revenue stream is going to come from your analog for the near future and you have to protect that."

Common amplification and space-combining are the only practical ways to achieve the power increase, he said.

Harris Broadcast Systems Vice President for Transmission Research & Technology Geoff Mendenhall said, "No knows where this will go. It may turn out a lot of stations wind up at the –12 or –14 dB level. It's getting to that –10 dB that the challenges are more severe."

In the meantime, iBiquity, NPR Labs and members of the coalition are talking and trying to understand the differences in their tests as well as discussing the practicalities of IBOC boosters and asymmetrical sideband power levels to achieve the increased digital coverage, in conjunction with a power increase.

We may see some of those solutions at the spring NAB Show, Mendenhall said.

Smith said the next step is to get more stations on the air with higher IBOC power levels under STAs to "gain more experience."

IBiquity Digital President/CEO Robert Struble said in an interview that the elevated power issue is "complex," however he said he thinks it will be worked out.

A commercial engineer who wished to remain anonymous said, "This will take a while. I'm hoping some commonality can be found."

FIRST PROTOTYPE ACCESSIBLE HD-R RECEIVER DISPLAYED

Both NDS and iBiquity had a prototype Dice HD Radio receiver for the visually impaired on display. The unit is part of the accessible radio initiative, a joint effort from NPR, Towson University and Harris Corp. to develop dedicated HD Radio receivers for deaf or hard-of-hearing and visually impaired listeners.

Voice announcements are made when turning the radio on or off, as well as for several other functions. Sources credited the International Association of Audio Information Services with coming up with this approach.

By pushing in the tuning knob, the radio "speaks" the display menu to the user. By holding the tuning knob, the radio announces the time. Pressing the "RRS" button turns on the Radio Reading Service.

The radio interface is configured to be easily usable even if the user is not able to see the faceplate.

The Dice radios could be on the market by year-end, sources said.

NPR has been working on a new class of programming for deaf or hard-of-hearing and visually impaired listeners that uses a combination of low bit-rate audio multicast, datacast and conditional access HD Radio technology.

The new services, distributed through NPR and said to be near ready to launch,

See SHOW IBOC, page 20 ▶

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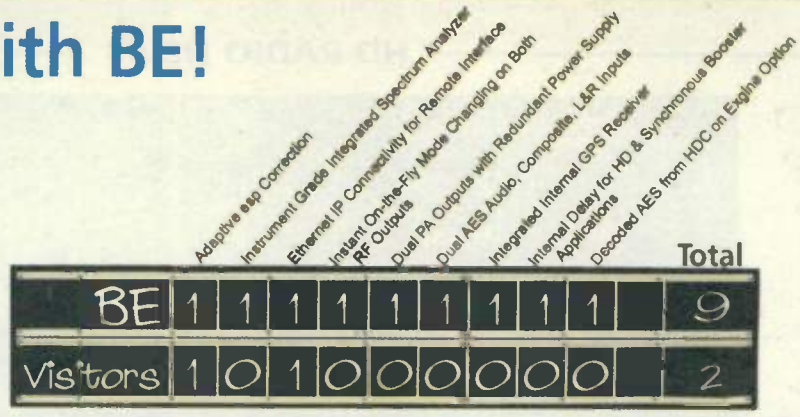

Tomorrow's Radio Today

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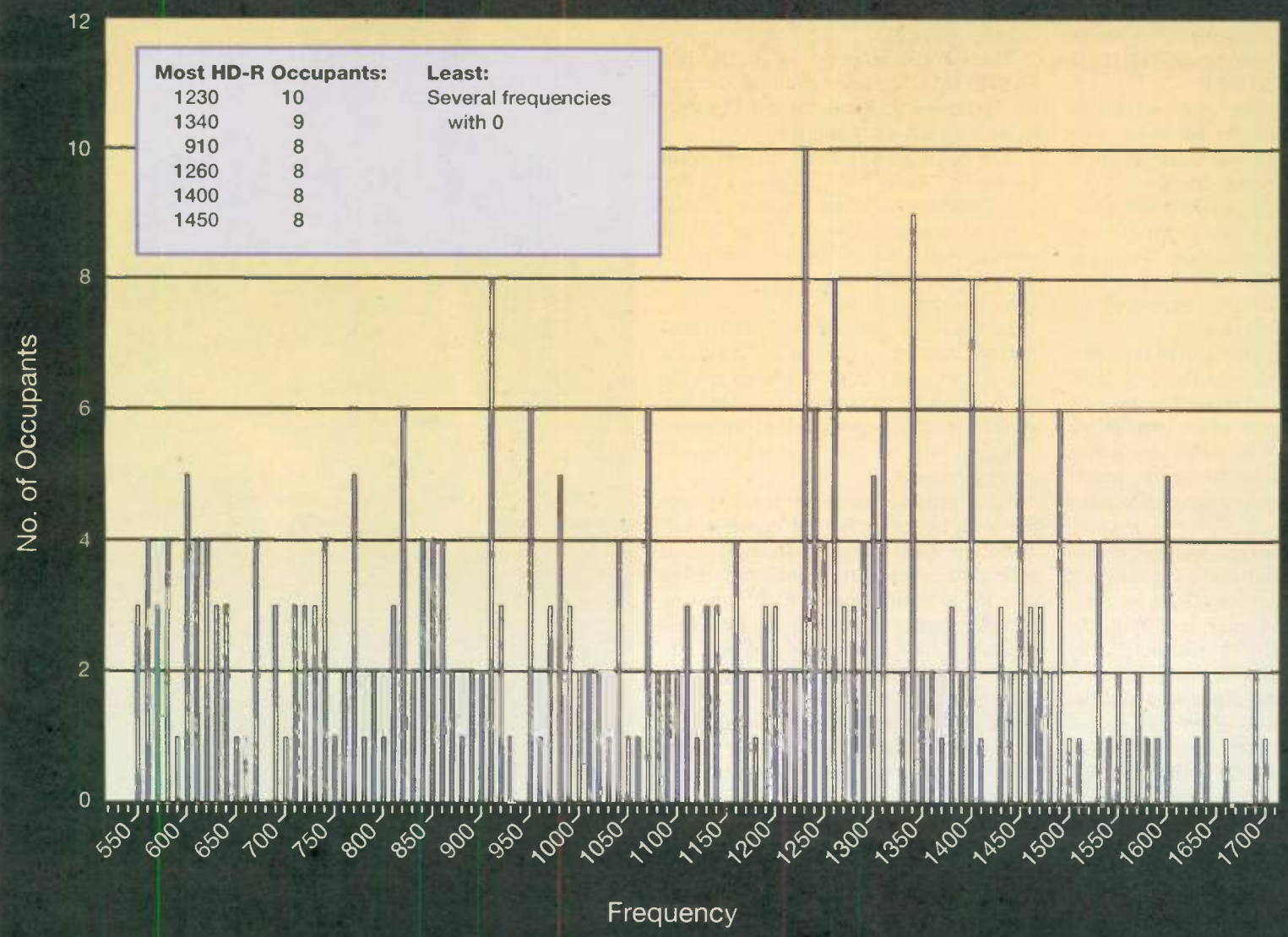
Sponsored by Broadcast Electronics

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 the end of September. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

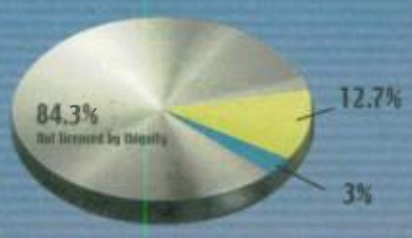
HD Radio Distribution on the AM Dial



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

HD Radio in the United States

Total stations: 14,124



The HD Radio Bottom Line

	Total Licensed	On the Air	FMs Multicasting
	2,216	1,788	928
Last Month:	2,214	1,763	913
Last Year:	1,976	1,494	724

World Radio History

Show IBOC

▶ Continued from page 18

will include a captioned radio text stream for the hearing impaired. Visually impaired audiences will also be able to access a Digital Radio Reading Channel over which the text of daily newspapers, books and magazine articles will be read.

The service will use HD Radio technology's conditional access feature from NDS, which allows a broadcaster to send content exclusively to designated receivers.

'EMBEDDED' EXPORTERS COMING

Along with the first embedded exporters for HD Radio comes a new communications protocol for the transmission equipment — "HDP," which stands for HD Protocol.

HD Radio stations use the exporter to combine multicast audio channels and advanced data services along with a station's main audio channel into a format suitable for transmission.

Announced at the spring NAB Show, the new exporter can be upgraded via USB rather than a CD drive.

Panelists in a session on the embedded exporter said the new generation promises enhanced reliability and more features, while lowering the cost to convert.

One issue with the previous "Ex Gen" architecture was even though the PC was taken out of the transmitter site, there was still a Linux unit in the airchain, said Gary Liebisch, regional sales manager for Nautel. "This removes that."

Dan Dickey, vice president of engineering for Continental, said the new HDP exporter has improved reliability "because it has about 10 percent of the parts of the previous exporter." Its small size yields power savings of about 80 percent, resulting in the "fastest and easiest path to HD," said Dickey.

The current exciter has four methods of accepting data, said iBiquity Digital's Jeff Detweiler, director of broadcast business development, in an interview. With the new communications protocol, the importer, exporter and the exciter all communicate with each other in a simple, common language.

This allows for innovation and manufacturers can design HD Radio transmission products that are more like the rest of their product line, rather than relying heavily on an iBiquity reference design, he and the transmission hardware panelists said.

Those who purchase the new HDP exporters will need to upgrade the software of their importer, exciter and PSD generators.

HD RADIO EPG MEMBERS SEEK REACTION TO REPORT

Members of the project team for the HD Radio electronic program guide are looking for feedback from the industry to their just-released report that describes station business requirements, system architecture and specifications for EPG as well as various ways consumers could use the EPG. The report is at *www.nabfastroad.org*.

The EPG is targeted by the NAB's FASTROAD (Flexible Advanced Services for Television & Radio On All Devices) technology advocacy program.

The NAB FASTROAD project team for the HD Radio EPG initiative includes BIA Financial Network, Broadcast Signal Lab and Unique Interactive. They are all working with iBiquity Digital to improve the radio user interface to make them easier for consumers to use.

In a session devoted to EPG, David Maxson, managing partner of Broadcast Signal Lab, said that right now there's little incentive for listeners to stay tuned to a station without forward promotion. "Stations will be stickier if they have a program guide."

Four possible delivery mechanisms put forth by the group are in the report. They are: each station delivers its own EPG data, each station transmits EPG data for an entire market, each station in a market carries some or all the EPG data of every station in a market and each station transmits a "pointer" to a general EPG resource.

Broadcaster expectations for the HD Radio-based service are that it's organized in a way that minimizes station workload as well as cost and that the information remain secure until published, Maxson said.

IBiquity Vice President for Advanced Services Joe D'Angelo said that in 2005, the technology developer began looking at digital radio and television systems around the world and found EPGs were a part of those systems.

"We designed an EPG that would work over our system. We didn't know if the industry would embrace it and if the workload needed to implement it was reasonable." D'Angelo said the group looks forward to feedback on its proposals.

EPG for radio is harder than for television, due to the mobile nature of radio listening and because the print industry has been publishing TV schedule information for years, while there is no one repository for all that information for radio, said Skip Pizzi, a consultant to BIA for the project who is also a Radio World columnist.

A prototype Web browser-based EPG authoring system, showing the radio station end of the project, was on display at the BIA booth. Unique Interactive, which helped create the EPG for the Eureka-147 DAB system in Europe, created the prototype demo.

Radio World's HD Radio Scoreboard is published in alternating issues. Selected data is from BIA*fn*'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.

BIA fn Financial network

MEDIA ACCESS PRO

www.bia.com

Photo by Leslie Stimson

This is the first accessible HD Radio prototype.

Photo by Jim Peck

Grady Moates of Loud and Clean Broadcast Science helped with demos during the 'HD Radio Measurements Workshop.'

IBOC MEASUREMENT DEMOED

David Maxson, managing partner of Broadcast Signal Lab, moderated an "HD Radio Measurements Workshop."

The RF masks for IBOC are Power Spectral Density Masks; PSD is measured in power per unit frequency — dBm/kHz. It's important to get the PSD correct to minimize potential interference in the broadcast bands, and to maximize the quality and reliability of the hybrid IBOC signal.

"Measuring digital signals is more complicated than measuring analog signals," said Maxson. "Digital signals have a noise-like quality that challenges the measuring instrumentation and the person measuring. There have been situations where two measurements done by two different people result in opposite conclusions about whether a certain signal passes or fails the mask."

Attendees learned how to make a proper Power Spectral Density measurement against the mask.

The workshop included a "CHIMP" demonstration, a Combined Hybrid IBOC Measurement Package for measuring those IBOC signals that segregate the FM analog and digital signals on separate transmission lines. Maxson credits Randy Mullinax of Clear Channel Radio with creating CHIMP and said engineers can build their own CHIMP from basic parts.

How to measure a hybrid FM IBOC signal, taking measurements of an AM transmitter were covered as was an illustration of the effects that mistuned AM arrays have on the hybrid signal, with presentation assistance by Grady Moates of Loud and Clean Broadcast Science.

The NRSC IBOC Standards Development Working Group has been developing a set of guidelines for measuring

See SHOW IBOC, page 22 ▶

World Radio History

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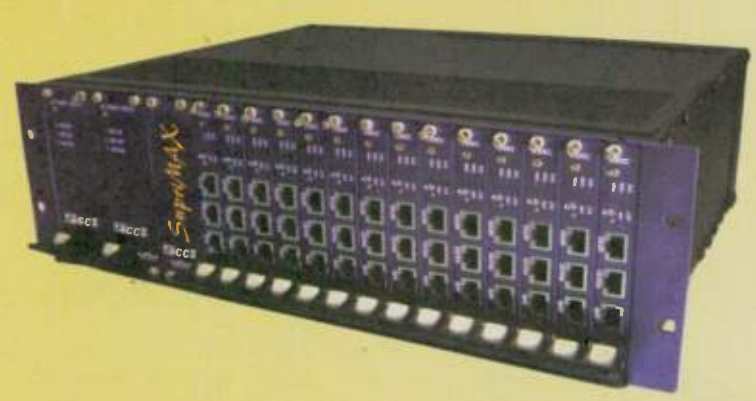

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World Radio History

Show IBOC

▶ Continued from page 20

hybrid IBOC signals, which would serve as a standard against which all other methods can be compared.

METAL THEFT: IT'S SERIOUS

Theft of all metals, and especially copper, is a national business problem. That's according to Bob Brandt, vice president of corporate security for Cox Enterprises.

At a session on copper theft, Brandt said scrap dealers are paying a little over $3 per pound for copper. "It's easy cash." In addition to theft from broadcast transmitter sites, he said, copper and other metals are disappearing from vacant houses, churches and open fields.

There are few convictions for metal theft, and those who are convicted of the crime face short prison sentences, he said.

Clear Channel Radio Senior Vice President Engineering & Capital Management Steve Davis showed several photos of company transmission sites that had been hit by thieves.

"They will go to extremes to steal copper. Simply burying it is not enough," he said, adding that at one site that was hit multiple times by thieves, the copper ground wires are now buried and covered with tar and gravel.

Davis advised using webcams to monitor transmission sites, coupled with alarm systems. Brandt advised managing risk by encasing ground straps in concrete, using cut-resistant fencing, razor wire and intrusion systems that have the ability to notify someone when there's a break-in.

© NAB

WHUR General Manager Jim Watkins accepts the NAB HD Radio Multicast Award.

While 26 states have copper theft laws, there needs to be a national law penalizing such theft, Brandt said. Rep. Bart Stupak, D-Mich., introduced the Copper Theft Prevention Act of 2008 (H.R.6831) in Congress this August; it would require secondary copper recyclers to keep records for at least two years of all copper purchases and prohibit cash payments of more than $500. The bill provides for a civil penalty of up to $10,000.

As commodity prices rise, so does theft. "No legitimate dealer intentionally buys stolen material," said Chuck Carr, a vice president with the Institute of Scrap Recycling Industries. The problem is, by the time the scrap dealers see the material, it's hard to tell the difference between stolen and scrap metal.

Scrap recycling was a $27 billion industry in 2007. "We provide raw materials. We are the first step in the manufacturing chain," said Carr.

"We don't want copper theft. We want it to go away."

To report copper or other metal theft, send the information in an e-mail to *theftalert@isri.org*. ISRI will send an e-mail to all of its recyclers to be on the alert.

WHUR WINS HD2 AWARD

WHUR(FM), Washington General Manager Jim Watkins accepted the NAB HD Radio Multicast Award at the Radio Luncheon.

The Howard University licensee was recognized for innovative programming on its multicast channel WHUR-World.

This is the second presentation of the award. In 2007, the charter winners were KBCO(FM) Denver's The Studio C Channel and WRIF(FM) Detroit's Riff2.

"WHUR-World HD2 has successfully combined non-traditional music, news, community involvement and information into a fresh new variety format that creates a new identity for HD Radio," said NAB Executive Vice President for Radio John David.

The channel is an extension of the university's adult urban contemporary station. In addition to personality-supported shows, the programming includes jazz, hip-hop and worldbeat music, along with business, financial and domestic violence talk shows.

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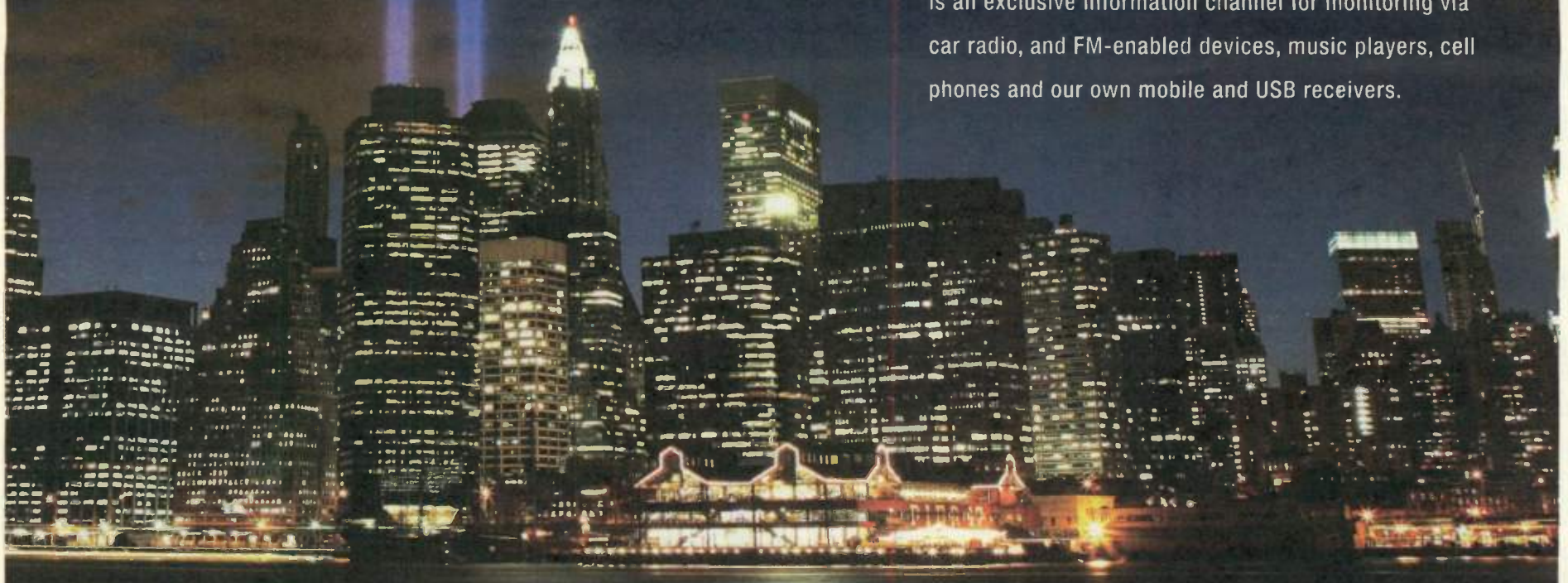

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RADIO IT MANAGEMENT

The Wireless Broadband Solution

Look Closer at Evolving Technologies in the IT World for the Next Equipment Solutions

by Dan Slentz

Until moving on to another engineering opportunity recently, I was chief of a small-market AM station in Ohio that also is part of an FM/TV combo.

Many times we were faced with finding a less expensive way of doing much more.

With theft of copper from AM sites, site security in general, cost of equalized phone lines and general expenses involved with remote transmitter sites, we began looking for something that could solve these problems and possibly give us new capabilities.

TrangoLink-10 from Trango Systems is one of a handful of wireless Ethernet systems available to the IT market today. As we began experimenting with this unlicensed technology, we found we could integrate it into live TV news remote broadcasting easily. As we dug a little deeper, we started thinking about how we could apply it to our AM and FM radio stations.

I've found that the marriage of technologies from consumer A/V, cable TV, IT and broadcast can create some exciting possibilities at cost-effective pricing.

The TrangoLink-10 unlicensed 5.8 GHz wireless point-to-point radio can deliver up to 10 megabits per second of Ethernet traffic over long distances, up to 40 miles.

As the AM transmitter site is only located a few miles from the station (and the TV tower), we could easily shoot this wireless signal from a lower portion of our TV tower to the roof of the AM transmitter shack. It should be noted that this technology has a range of 40 miles line of sight or more; the company says some customers have achieved links of 70 miles under the right conditions.

This unlicensed wireless technology provides a secure 10 Mbps of bidirectional connectivity from point A to point B. Trango now has a 45 Mbps unit (TrangoLink-45), and there are other companies now selling units with varying bandwidth.

Should a licensed wireless broadband system be needed, there is also wireless gear that can be purchased for fixed-point connections that functions much like the unlicensed but provides a more secure frequency (as might be needed in larger cities where frequencies are more congested).

Utilizing this 10 Mbps of throughput, we began looking at streaming (unicasting) the audio from our AM studio to our AM transmitter over our own wireless broadband connection.

The advantage of this is that we had ample space to also drop a VoiP phone on the same connection, which would give us a "free" telephone at our remote site. This phone would even include station pages and have its own voice mail and intercom number.

Looking further, the station can also extend its own intranet (and company Internet wired connection) down to the remote AM site giving it a high-speed connection to our own servers as well as the Web.

With site security a topic in many recent issues of Radio World, one of the big benefits of this system is the ability to put multiple security cameras at the site and feed them all or put them on a sequential switcher back to the station for 24 hour monitoring.

Even adding gear like the Dannager Plan B Deluxe changes when this system is used. You then have an Ethernet connection directly from the station into your Plan B. This allows instant changes and full access to the hard drive-based audio player.

As broadcasters find the fine line fading away between IP-based gear and traditional radio gear, perhaps we need to look closer at evolving technologies in the IT world for our next piece of equipment. I've found that the marriage of technologies from consumer A/V, cable TV, IT and broadcast can create some exciting possibilities at cost-effective pricing.

The author is director of engineering at WSFL(TV) and is former chief of WHIZ(AM/FM/TV/DTV). He and WHIZ are this year's recipients of SBE's Technology Award "for adapting both consumer and information technology into the broadcast world by using wireless broadband gear along with consumer streaming technology, giving them the ability to create live TV broadcasts for a fraction of the traditional microwave equipment cost."

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Who Reads Radio World?

Paul H. Sakrison
Director of Operations & Engineering
KLAA(AM) "AM830,"
Los Angeles, 50 kW ND-D, 20 kW D-N

Favorite station growing up: KFI, Los Angeles

My first radio job: KNAC(FM), Long Beach, Calif., recording church services, helping with production and as an unauthorized engineering assistant

My radio mentor or hero: George Murray, retired from Liberman Broadcasting, and Ron McCoy, former program director at KNAC(FM)

Favorite piece of equipment: Harris DX-50, which sounds great and seriously modulates 24/7 without blowing up.

Why I believe in radio: It's about the only thing you can do while driving when you get tired of the music on your iPod and there's nothing new you want to buy. I enjoy news, talk and sports so I know what's going on, and you can't get that on your iPod. In fact, the longer you have your music player, the more you are living in the past. Radio is also the primary conduit to the public in an emergency when the power goes out.

Why I worry about it: Public stock-owned stations have the best signals but are controlled by accounting and legal departments, who are not skilled in growing, updating and improving on-air product. They always have a reason not to act now. Music stations need to add value so they are better than just listening to a music player, like talking about the music; titles and artists. There's too much daily emphasis on Web streaming and HD2+ channels that are heard by 1 percent, while de-emphasizing the main channel that is heard by 99 percent and brings in the big money. For engineers, I have a big concern about AM directional antenna maintenance as those of us who know the "dark arts" retire and leave the industry.

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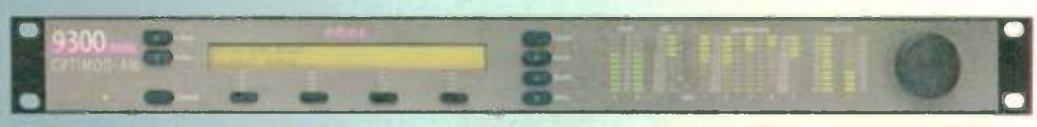

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World Radio History

Nanotech Ready to Rock the Radio Industry

Atomic Size, Low Power and Noise, High Fidelity And Linearity Are Just the Beginning

by Ed Ritchie

Is radio the next hot industry for nanotechnology?

With major university programs announcing breakthroughs in nano-scale radio devices, something is afoot. But why are researchers focusing so much attention on radio? Because when it comes to marketable products, nano has been big on promises, but small on delivering, according to Dr. Peter Burke, Ph.D., associate professor of electrical engineering and computer science at the University of California, Irvine.

"In electronics there has been a shortage of demonstrations," says Burke. "We have had many 'proposed' real-world applications, but not enough demonstrations."

Burke notes that announcements touting denser memory or faster CPUs require low-cost manufacturing which hasn't arrived yet for nanotechnology, whereas his goal was to show a real-world application.

In October 2007, Burke and his team announced the world's first working radio system that could receive radio waves wirelessly and convert them to sound signals through a nano-sized detector. In this age of micro computer chips, the announcement was still a newsworthy event.

The "carbon nanotube radio" device is thousands of times smaller than the diameter of a human hair. Burke's demonstration had the detector integrated into a complete radio system and used it to transmit classical music wirelessly from an iPod to a speaker several feet away from the music player.

While carbon nanotubes are still a very young technology, they detect radio waves by using the same principle as an old standby of AM, the crystal diode radio.

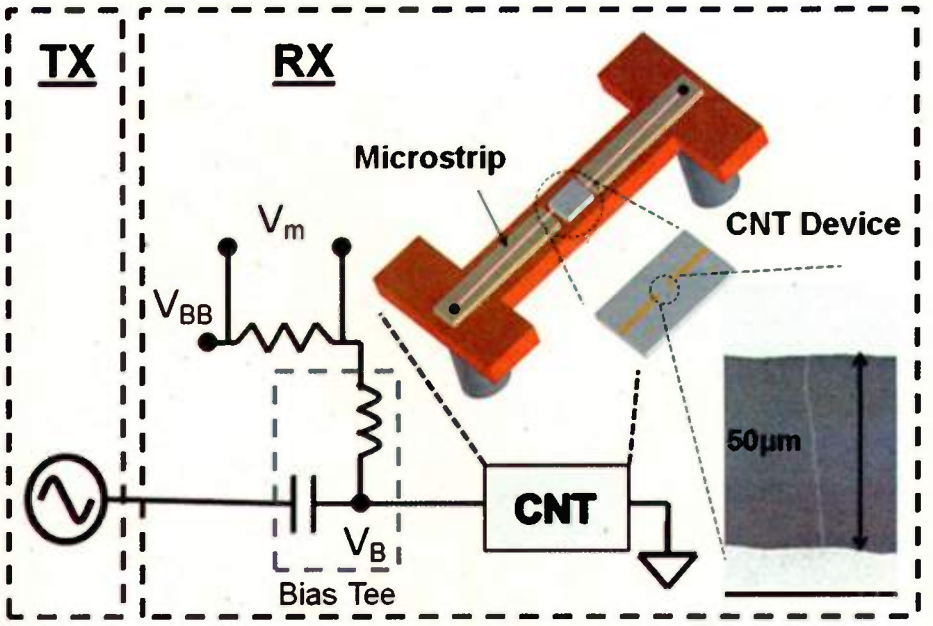
"The only difference is that instead of the crystal we're using nanotubes," said Burke. "There's no limit to the frequency it would work at, and we actually used a one gigahertz carrier wave that we generated in the lab because we wanted our own little radio station."

Burke is the first to admit that his wasn't the first nano-sized radio wave detector demonstration, but he says the project broke new ground by creating a complete, nano-sized radio system.

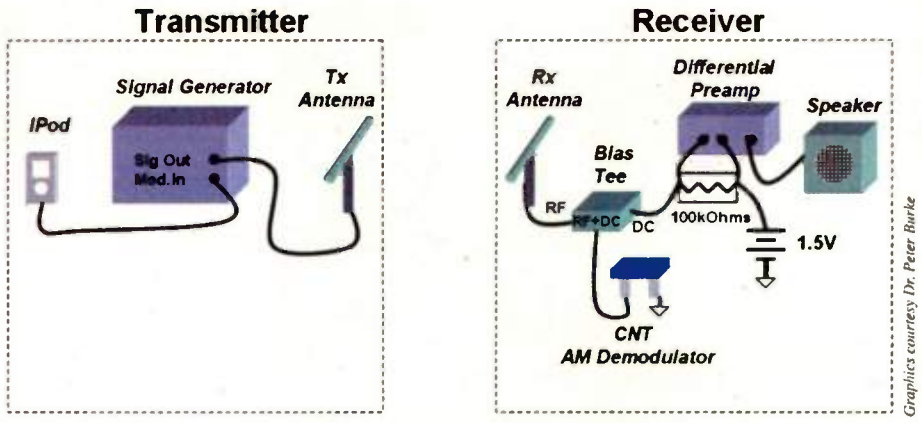
Moreover, the study shattered doubts about the feasibility of manufacturing nano-scale radio component, ones that could lead to a "truly integrated nano-scale wireless communications system."

In fact, just such a system was recently announced by John Rogers, a professor of Materials Science and Engineering at the University of Illinois.

Rogers developed a nanotube-transistor radio system based on a heterodyne receiver design consisting of four capacitively coupled stages: an active resonant antenna, two radio-frequency amplifiers and an audio amplifier. Headphones were plugged directly into the output of a nanotube transistor. The design incorporated seven nanotube transistors into each radio. During the demonstration, researchers tuned to WBAL(AM) at 1090 kHz in Baltimore and heard a traffic report.



Carbon Nanotube Diagram



Graphics courtesy Dr. Peter Burke

Carbon Nanotube Radio Setup

Making the tiniest radio isn't the ultimate goal for Rogers. Instead, the nanotube radio represents a milestone for proving that the technology is commercially competitive.

In benchmarking studies against silicon, measurements indicated significant advantages in comparably scaled devices. The ongoing research in nanotechnology has produced evidence that carbon nanotube transistors can be used for manufacturing low-power, high-speed transistors.

Not surprisingly, such potential is receiving support from industrial sectors and the U.S. government. Roger's project was done in collaboration with radio frequency electronics engineers at Northrop Grumman Electronics Systems in Linthicum, Md. The National Science Foundation and U.S. Department of Energy provided funding.

The interest is justified, says Burke.

"The noise, linearity, and fidelity that are important for radio communications can actually be improved with this technology," he said.

See NANO, page 31 ▶

The noise, linearity and fidelity that are important for radio communications can actually be improved with this technology.

— Dr. Peter Burke, University of California, Irvine

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World Radio History

Where Will Radio Bounce Next?

As Mobile Multimedia Comes of Age, Radio Must Reinvent Itself Yet Again

The Big Picture

by Skip Pizzi

We're well aware of the resilience of radio and its ability to prove the doomsayers wrong time and again. The medium has not just weathered numerous onslaughts from other, younger competitors, but thrived and grown in the process.

This has led some to label it "the perfect medium," given its combination of ubiquity, cost-effectiveness and agility to adapt itself to a changing environment, both technically and commercially. Indeed, would-be competitors still have a high bar to jump if they wish to steal significant market share from the radio broadcasting medium.

In the past, whenever a new competitor stands up to potentially block radio's path forward, radio simply has bounced off, retaining its momentum on an altered trajectory.

Yet such competitors continue to emerge in this contact sport, so radio cannot rest.

Mobile multimedia could challenge radio's long-standing lead in portability.

The latest entrant is mobile multimedia, which could challenge radio's long-standing lead in the area of portability. How and in what direction will radio adjust its course to maintain velocity with this new obstacle?

Mobility rules

The new players in the mobile space are myriad.

First is wireless broadband Internet, currently rolling out via a number of mobile networks, and served by numerous platforms and devices. The two main flavors of this service are WiFi and 3G, and although the devices, coverage and service plans available to consumers vary greatly among those technologies, their bottom line within this discussion's context is the same: Users of any such service generally have access to any streaming media Web site on the Internet.

Of course, one simple approach that radio has already begun is attempting to beat these players at their own game. Many radio stations have launched their own streaming media sites, some that simply duplicate their on-air service, while others include multiple additional streams and/or on-demand content offerings. This is an important competitive strategy to continue to pursue.

Another counteracting method is the industry's attempt to put broadcast radio receivers on these new devices. This may not fare so well, given that wireless operators generally control the design of these devices, and the inclusion of radio receivers on board is not necessarily in those operators' interest. That could change as new device-openness rules and agreements come into force, but for now this strategy remains largely an uphill struggle.

Several other new options are coming to the table, however. The interactivity that some mobile devices have added for the purchase and downloading of music discovered via FM radio is a welcome trend that may be well exploited soon, to radio's ongoing benefit in this new environment. A few third parties have also targeted radio stations as part of their strategies for building mobile social networks, and radio may enjoy future fruits from such partnerships, as well.

TV goes mobile

The next competitor on the horizon is mobile television, which also comes in two flavors. One is the sort provided by mobile telecom operators, either within their 3G networks, or via a third-party broadcast delivery service such as Qualcomm's MediaFLO.

The other approach comes from the fast-moving world of ATSC-M/H (Mobile/Handheld), the DTV standard under development for mobile broadcasting by local terrestrial television stations in the United States.

The latter service could begin to be

See MOBILE, page 31 ▶

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World Radio History

A Heritage Project for DR Archives

In Denmark, a Big Radio Organization Embarks on an Ambitious Preservation Job

by Marc Maes

Danish public-service broadcaster Danmarks Radio is implementing a digital archive project to safeguard its history for the future benefit of journalists, historians and the public.

According to Cultural Heritage Project Director Tobias Golodnoff, DR has several main goals: to preserve and safeguard audio material, to ensure that DR makes the archives broadly available and, along with the rest of the arts sector, to build a digital strategy to secure archives of benefit to the educational sector.

Internal analysis

"DR played a pioneering role in bringing digital to radio, with Web radio in 1996, the launch of DR Classical, offering round-the-clock classical music in 1999," said Henrik Heide, commissioning editor with DR.

"And today," said Heide, "DR operates some 30 Internet radio channels and offers 15 DAB radio channels, with over 250,000 DAB receivers sold in Denmark."

In 2007, the combined DR channels had a 69 percent share of the market, leaving commercial competitors Radio 100FM and SBS far behind, with 7 and 4 percent respectively.

DR, financed by the government under a four-year agreement, employs some 3,000 staff and recently moved to new headquarters.

However, said Golodnoff, the public service contract with the government's Ministry of Culture does not say anything about digitization or archiving.

During the planning phase for its relocation, DR conducted an internal analysis to see what it would cost to secure its archives.

The estimate was about 300 million Danish kroner, or about $58 million. "Money we did not have," said Golodnoff. "In 2006," he said, "the Danish government issued special funding of 10 million euros ($14 million) to start the digitization process and I am convinced that, in the next two or three years, we will somehow find the other resources necessary."

DR set up a special department, with Golodnoff as project director, assigned to digitize the archives and to prepare them for production.

Vintage material

"We are talking about some 575,000 hours in total, of which 80 percent are radio sound files," said Golodnoff, "basically DAT and quarter-inch open-reel tapes."

In all, said Golodnoff, DR has 350,000 hours of audio stored on DAT — "the complete 1/1 collection of everything we broadcast on all of DR radio channels since 1989."

Another 120,000 hours of quarter-inch tape contain live recordings, production footage and vintage material. Archiving vinyl records and CDs does not form part of the project.

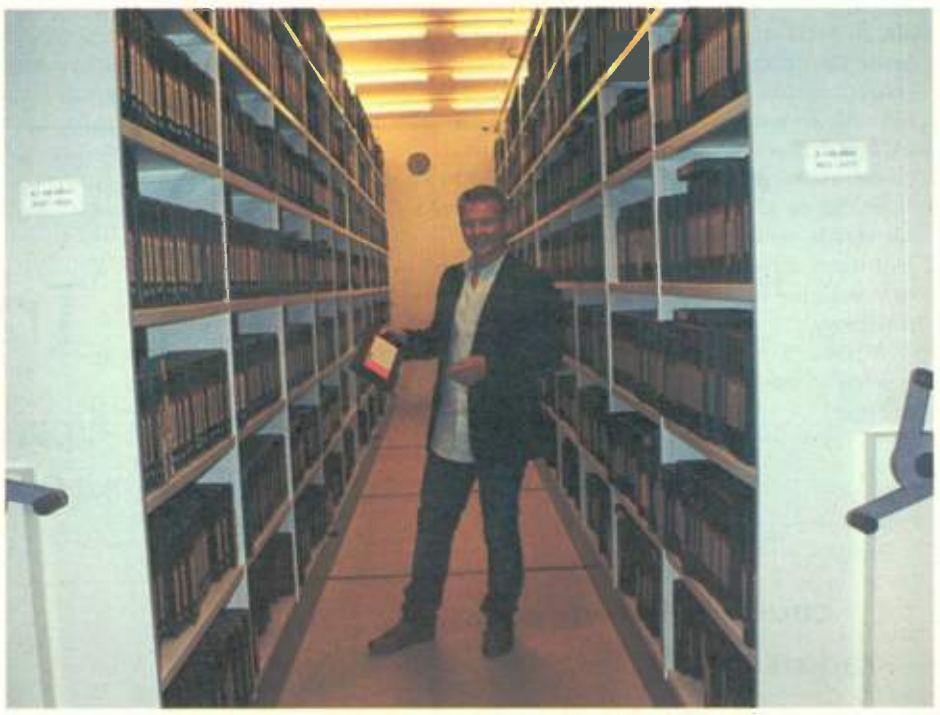
The digitization project is different from the DR digital log, a self-developed system DR uses to back up its programming. That archive is shared with the DR online environment, the disk-drive stations and desktop computers, allowing DR collaborators to produce radio from virtually any workstation in the building.

Golodnoff said that even though DR has a well-equipped digitization department in-house, the public broadcaster opted to contract with an external company to take on the huge assignment.

"We can digitize any format available but we operate differently from archiving companies. We digitize 'ad hoc,'" he said.

Special consultants

"It is quite expensive too and, for the archiving project, we tried to use economies of scale, covering the whole digitization from scratch to end," said Golodnoff.



Cultural Heritage Project Director Tobias Golodnoff

"There are a lot of private vendors that are better equipped for this kind of digitization," he said. "Also, when, in 10 years or so, the process is finalized, we will not need that kind of specific competence internally, so it would be a waste of money to build up a huge digitization unit we would then have to close."

However, said Golodnoff, the in-house DR digitization team do "excellent" work and are operating as special consultants for the whole project. "We have got really good deals because we have these very skilled experts on board and know exactly what we would like our collaborators to help us with."

DR, as a public broadcaster, issued a European Union-wide call for bids for the assignment, which included two video archiving tasks alongside the extensive radio inventory.

Belgian company Memnon won the tender for the complete DAT project. The quarter-inch material is in better condition and will be part of a later digitization phase, said Golodnoff.

DR signed the contract with Memnon — said to be the largest digital archiving assignment in Europe in recent years — in July. The Brussels-based company gained experience with earlier jobs for Radio Suisse Romande, the British Library and the Institut National de l'Audiovisuel in France.

New knowledge

Since its launch in 2005, Memnon had already digitized over 60,000 hours of archives.

"The DR contract is very important for us," said Michel Merten, founder and managing director of Memnon, "because it underlines our ability to digitize huge quantities of audiovisual archives."

The industrial-scale archiving job for DR involves the use of Sony Broadcast DAT players to create thousands of petabytes of PCM WAV audio files.

"Once digitized, the DAT collection will be interesting for research because it will contain everything that was ever broadcast since 1989. Cultural heritage is a large investment, but it does make sense," said Golodnoff.

According to Golodnoff, the project will help DR make "better and more" radio. As well as safeguarding the heritage, he said, it will also generate a lot of new knowledge. "That is undoubtedly the most visionary part of this digitizing project."

Since the archive will remain part of the public domain, DR will not use it commercially but will make the material available to the public via the Internet, hopefully in 2009.

Marc Maes is a free-lance media and music industry journalist based in Antwerp, Belgium. Contact him via e-mail at maesant@antwerpen.be.

World Radio History

Nano

▶ Continued from page 28

"It's still speculative but there are good physics reasons. The current flows in only one direction because the wire is so tiny. It can only go forward or back, but not left, right, up or down. In the Illinois work there are a lot of wires in parallel to get enough signal, but each electron flows through one tube at a time. Of course, no two electrons can be in the same place at the same time so the noise and current that flows is actually correlated and the randomness is somehow reduced because of this principle."

With such advantages, the next question would be how long until we see products.

Burke notes that major corporations and research institutions are engaged in a race to bring such products to market, and he too is on a fast track to commercialization.

In 2006, he launched RF Nano, with $1.5 million in venture capital, plus funding from the U.S. Army and the National Science Foundation, for carbon nanotube antennas, FETs and integrated nanotube systems. Burke says he has received interest from radio industry manufacturers and others in related fields, but there are still some manufacturing issues to address.

Rogers is a little more optimistic. He announced that nanotube devices and circuits are now possible, thanks to a novel growth technique developed with colleagues at the University of Illinois, Lehigh and Purdue universities.

The breakthrough produces linear, horizontally aligned arrays of hundreds of thousands of carbon nanotubes, and they function collectively. Moreover, the process produces a thin-film semiconductor material so the arrays can be integrated into electronic devices and circuits using conventional chip-processing techniques.

The analog radio frequency market offers great potential for Rogers, and a scenario where products filter down from the military is likely, according to predictions from Dr. John Przybysz, Ph.D., a University of Illinois alumnus and a senior consulting engineer at Northrop Grumman.

Przybysz says nanotube technology is a breakthrough in power requirements for military sensor systems because they perform equally with other microwave transistors but use much less power than today's semiconductor devices. For example, batteries that expired after two days of use could now last up to two weeks due to the lower power consumption of nanotube transistors.

Ultimately, whether it's a military application or commercial, nanotechnology is viewing radio as an industry with high potential for short-term applications.

Looking a little farther out, Burke believes that the potential isn't limited to traditional radio communications.

"Our radio receiver is atomic scale but the battery and antenna are large," says Burke. "If we eliminated the battery and reduced the antenna we could insert it into an individual cell so we communicate information back and forth between the cell and the outside world. It's more futuristic, but it's also more exciting."

Comment on this or any article to radioworld@nbmedia.com. *Contact the author at* eritchie@pacbell.net.

Mobile

▶ Continued from page 29

put in place soon after the analog TV shutdown, and although some of the telco-delivered services are already available, these too will likely ramp up strongly around that same time.

Although all of these services target *television* delivery to mobile and portable receivers, they all also include the provision to supply *audio-only* services. As such, they represent a considerable new threat to radio listening on the go.

Once again, it is unclear whether the receivers of any mobile television service will also contain broadcast radio tuners. Thus it may be wise for radio broadcasters to also partner with these service providers to deliver radio content via their new conduits.

Many of these services will be locally compiled, so it's conceivable that radio stations could align with the various service providers to present either discrete content elements or full-time service streams on the new delivery platforms. Getting in early will likely be advantageous, so it's not too early to begin these discussions now.

Working with fellow broadcasters on the ATSC-M/H side could be an easier negotiation and a better fit for radio stations, but some popular radio services also might find themselves a spot within a suite of telco-operated mobile multimedia services, in their home markets or elsewhere.

Given these developments and their relatively fast pace of progress, it makes sense for local radio broadcasters to become familiar with these technologies (if they aren't already) and stay abreast of the latest details as they emerge.

Note also that beyond simply arranging for carriage on these new services, radio producers also may need to create new content targeted to the specific platforms involved.

Radio has always had great strengths in the mobile and portable environments. It may need this next nudge to remain alive in the competitive pinball machine that digital media has become.

Skip Pizzi is contributing editor of Radio World.

Finally, a super-compact ultra-portable broadcast mixer that's ready to go when you are. It's loaded with the staples big professional radio consoles have to ensure your shows come off without a hitch. And unlike the big boys, it's got a bell and whistle or two that makes it the essential centerpiece of your next remote broadcast or emergency studio.

Intuitive and easy to use, with large color-coded controls and bright LED meters, it gives you superb audio quality with ten mic and line-level inputs across six mixing channels for real versatility. And you can seamlessly add a guest announcer with their own headphone mix with our optional Multiphones MiniPod.

With its built in DA/AD audio codec via a USB port, simply connect the SixMix to any USB-compatible computer and you're on the air. Use your favorite software to serve up tunes or any recorded program material through the SixMix. Push your program back to your computer for recording or streaming. Need to send a separate feed to another PC or server? There's even a dedicated S/PDIF port to handle it.

Factor in its cue speaker and automatic monitor muting, mix-minus output, comprehensive headphone and monitor systems, plus a wealth of output options and it's clear to see that SixMix will transform your laptop or desktop computer into a full-fledged professional broadcast studio.

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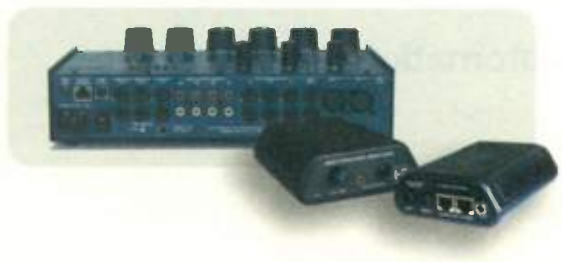

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World Radio History

USER REPORT

Orban Optimod Over the Air, Down Under

3G and Broadband Radio Network Uses PC-Based Optimod to Prep Its Signal

by Ben Haylock
Technology Systems Manager
Stripe

SYDNEY, Australia Stripe is Australia's first 3G and broadband radio service, delivering multiple channel, digital quality stations nationwide. The service supports access via 3G mobile phones, and via fixed or nomadic broadband Internet.

We're real, live radio, broadcasting in LC-AAC and HE-AAC for the ultimate in quality at our chosen bitrates.

Selecting a processor

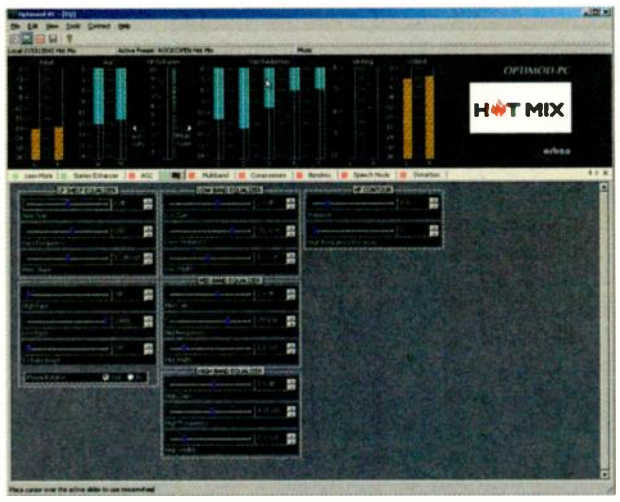
I selected the **Orban** Optimod as our encoding and processing system in July 2007, based on a thorough knowledge of, and examination of, the systems on the market.

Too many initiatives in IP radio and television have never gotten off the drawing board, or never gotten out of the sales executives' PowerPoint presentations. Many large vendors were not able to bring their technologies to market in a realistic time frame for me to consider them.

Indeed, my insistence on pursuing only vendors that had released and demonstrated testable solutions has served our business well. The other major competitors in consideration had announced products in April 2006 and as of December 2007 had not yet provided me with a production sample for evaluation.

The Optimod card is a full-length, and full-height, PCI card. This is an important consideration when designing a host hardware system, as many widely-used commodity servers cannot accommodate its size. Then again, with an audio solution as good as Optimod, you ought to be selecting server hardware that is a notch above "commodity."

The card ships with an optional factory-built breakout cable, with all of the analog and digital inputs, and outputs, ready to go. Secure the cable to the card via the multipin interface, and then interconnect with your radio plant. I elected to purchase some premade cables, and to have others made to my requirements by a local integrator, to Orban's precise and documented specifications.



One of Several GUI Interfaces Available

My first systems took one card only, and processed a single Stripe station. Our current platform build uses multiple cards on the one host server, via an external industrial-hardened PCI chassis. The Orban multiple-card driver handles all the communication in this scenario, no sweat. The card, DSP and driver have also been engineered to be clever; if the host computer suddenly powers off but the chassis is still powered, the Optimod cards will continue to operate.

This means users can keep using the inputs and outputs of a radio source, including the post-processed monitor output, providing the user with the ability to manage the chained/redundant flow of signal to an auxiliary encoding host.

Tweaking

Our designated digital audio specialists control the Optimod card via a control panel and its fine-grained processing interface.

Are you a slider master? Tweak them to your heart's content. Are you a "less/more" person? Nudge those controllers to manipulate a preset. Do you use external engineering consultants? Let them work their magic on your system, then save those settings as a preset for your business.

Having an entire Orban processor on a card gives users the power to meet their source requirements; but the destination outputs are where the Opticodec software steps in. "Talking" natively to each Optimod card, users are provided with the ability to start an independent instance of Opticodec for each type of output chosen for encoding. According to Orban, future revisions of Opticodec (and the Optimod driver) will provide a service-oriented, unified user interface, add a method to control and manage all of your encoding types.

We prepare our radio stations for delivery to 3G mobile phones, and to broadband (or not-so-broad-band) computers and devices running Windows, Mac OS X or Linux. Each encoded bitstream is standards-based MPEG-4 audio, tailored for each delivery method. Targeting the native media player on a 3G handset, and the Flash 9 player on personal computers, gives us an "effective net zero" installation requirement for our listeners.

The Opticodec is the only way to deliver real, live, radio in the highest quality possible, natively to a simple Flash-driven Web page or Adobe Air standalone applet.

The bitstreams exit the encoding cluster over TCP/IP on Gigabit Ethernet, and are transmitted to our delivery infrastructure.

The Orban team clearly has put in extraordinary effort to ensure "compatibility with standards adherence" to major IT or telecom vendors' systems; we were on-air the first time we clicked "encode." No fuss, even though we use a sophisticated network topology providing resilience, redundancy and availability for our platform.

The proof is in the listening. Our unsolicited reviews from listeners have them jumping out of their skins at the programming and the sound. Many listeners use digital audio cables to interface with home theatre systems, and they apparently often upset their neighbors when they crank up their favorite tunes.

Stripe listeners usually run through a spectrum of experience with us: happiness that it "just works" and they have audio clarity; amazement, that when they prick up their ears, Stripe sounds really great; doubt and skepticism, that we can deliver such quality reliably at such low bitrates; astonishment that other radio networks persist with substandard IP delivery; and eagerness to experience more content, more stations, more often because they find it a pleasure to listen.

For more information, contact Orban at (480) 403-8300 or visit www.orban.com.

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World Radio History

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ANALOG is good. There are over 4000 analog Millenium consoles in service today and we continue to manufacture and ship analog consoles every day. That's because these boards are inexpensive, sound great (with specifications that rival and exceed many digital designs) and have enough features for many small and medium market applications. For more demanding applications, our analog consoles optionally can be equipped with additional mix-minus outputs, distributed output busses and redundant supplies making them even more capable and still a great value.

Going DIGITAL is a process. Radio Systems eliminates some of the stress with our NO CHARGE Digital upgrade program. For the life of your console we will swap any analog plug-in card for a digital one (or vice-versa) allowing you to gradually transition your studio to digital. You can even start out all analog and convert one channel at a time as digital arrives in your facility. But from day one your Millenium Digital console will out-put pristine digital audio to feed your air-chain processor and produce up to ten fully configurable mix-minus feeds.

At Radio Systems, our NETWORK is IP Audio by Livewire®. We've adopted this proven multi-channel standard from Axia® and installed it in our digital consoles. But we left local inputs as well to create the perfect hybrid of stand-alone and network capabilities. This way Millenium Network consoles easily mix local studio sources and connect to all Livewire enabled devices using standard Ethernet switches.

StudioHub+® is the glue of our entire console line. Use our award-winning CAT-5 wiring system to simply and quickly plug any source into any console channel. Or, easily configure custom talent panels and even interstudio tie line connections. And its value doesn't end after the installation is over. RJ-45 connectors allow new sources to be added at any time and makes trouble shooting easy.

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World Radio History

USER REPORT

CloseNow Solves Closing Confusion

Small Ohio Multimedia Cluster Helps Develop Emergency School/Business Closing Software

by Kurt F. Heminger
Vice President
WFIN(AM)/WKXA(FM)
Findlay Publishing Company

FINDLAY, Ohio Operating a small multimedia company in northwest Ohio, school delays and closings are an important part our business.

Having the most up-to-date and accurate delay and closing information is vital, as our radio listeners have come to depend on us for this important information.

Locally, our company includes two radio stations, WFIN(AM)/WKXA(FM), two daily newspapers and an Internet design/hosting business, among other media-related divisions.

In the old days, up until about four years ago, like most other radio stations, school officials would call our radio stations to be added to our list of delays and/or closings.

This list was read on-air and could be quite lengthy. This was challenging as our morning show hosts and news anchor were not only having to provide entertaining and informative morning shows, but they were also answering the telephones to receive the school delay/closing information from the school administrators, and making sure each studio had an up-to-date and accurate list.

Of course, Little Johnny was also calling to see if he had to worry about the homework he didn't complete last night.

With the arrival of the Internet, one of our computer-savvy morning show hosts created a spreadsheet that we posted online, indicating the status of all area schools. This was a tremendous leap forward, but we wanted to take this to the next level.

What we needed was a software vendor that had an existing software application for school delays/closings providing school administrators access to change their school's status either through a Web-based interface or through a dial-up application.

The WKXA Studio With Custom CGS CloseNow for Radio on the Screen

We needed this information to be posted automatically online, and we wanted our listeners to be able to sign up for e-mail and text message alerts for their particular school. It was a tall order.

Early 2007, we talked with various vendors and **CGS InfoGraphics Automation** was the only one that *almost* met our needs.

They had most everything we were looking for; and they were planning to provide text alerts in the fall of 2007. We felt confident partnering with CGS for this important segment of our radio station information. We were, if not the first, one of the first radio clients for CGS and what would be called CloseNow for Radio.

During the summer of 2007, we ordered our server and began creating the database for all the schools in our listening area. This was not a huge chore as we already had a lot of the information from being in the school delay/closing business for a lot of years.

We had the CGS server configured and in place soon after the new school year started. Letters were sent to all the schools with their unique organizational ID, password and detailed instructions on how to access and use the automated system. Schools can still call the radio station in the event they misplace their log-in information, etc. Text alerting became a reality in November, so at that time we launched the e-mail and text alert service. Through CGS's tech support team, we worked through various issues and bugs throughout the school year.

Feedback

School administrators love the fact they can call in and change their school status from the road while checking road conditions or from the computer and don't have to worry about getting a busy signal when calling the radio stations.

Our telephone traffic has decreased substantially since we've implemented CGS.

As with any project, there have been challenges. The only major problem we've encountered was sending text alerts to Verizon Wireless customers. The problem was that due to spam controls within the Verizon network their users were not able to receive our text alerts. As Murphy's Law would have it, most wireless customers in our area use Verizon. This was a major issue that has since been resolved.

At times, I've felt we have beta-tested this product for CGS. I guess that comes with the territory, when you're pushing the edge on something new. From day one, we've asked for a lot of modifications since our needs are quite different than those of television.

CGS understands this and has been, in my opinion, open and responsive to our requests. I think together we have created a solid radio school delay/closing information system.

Additionally, this has been an additional source of NTR for our radio stations, as we've secured sponsorships for the Web page, e-mail and text alert messages. For additional exposure, our newspapers link to the radio station's delay/closing page. Also, our county sheriff has been so impressed with the ability to distribute timely information, we've created a mechanism within CGS for sheriff officials to access the system to propagate certain local emergency information.

With CGS, we believe we have a dependable method for providing accurate and timely school delay/closing information and local emergency information to our community.

For more information, contact CGS InfoGraphics Automation at (859) 299-4081 or visit www.cgsautomation.com.

TECH UPDATE

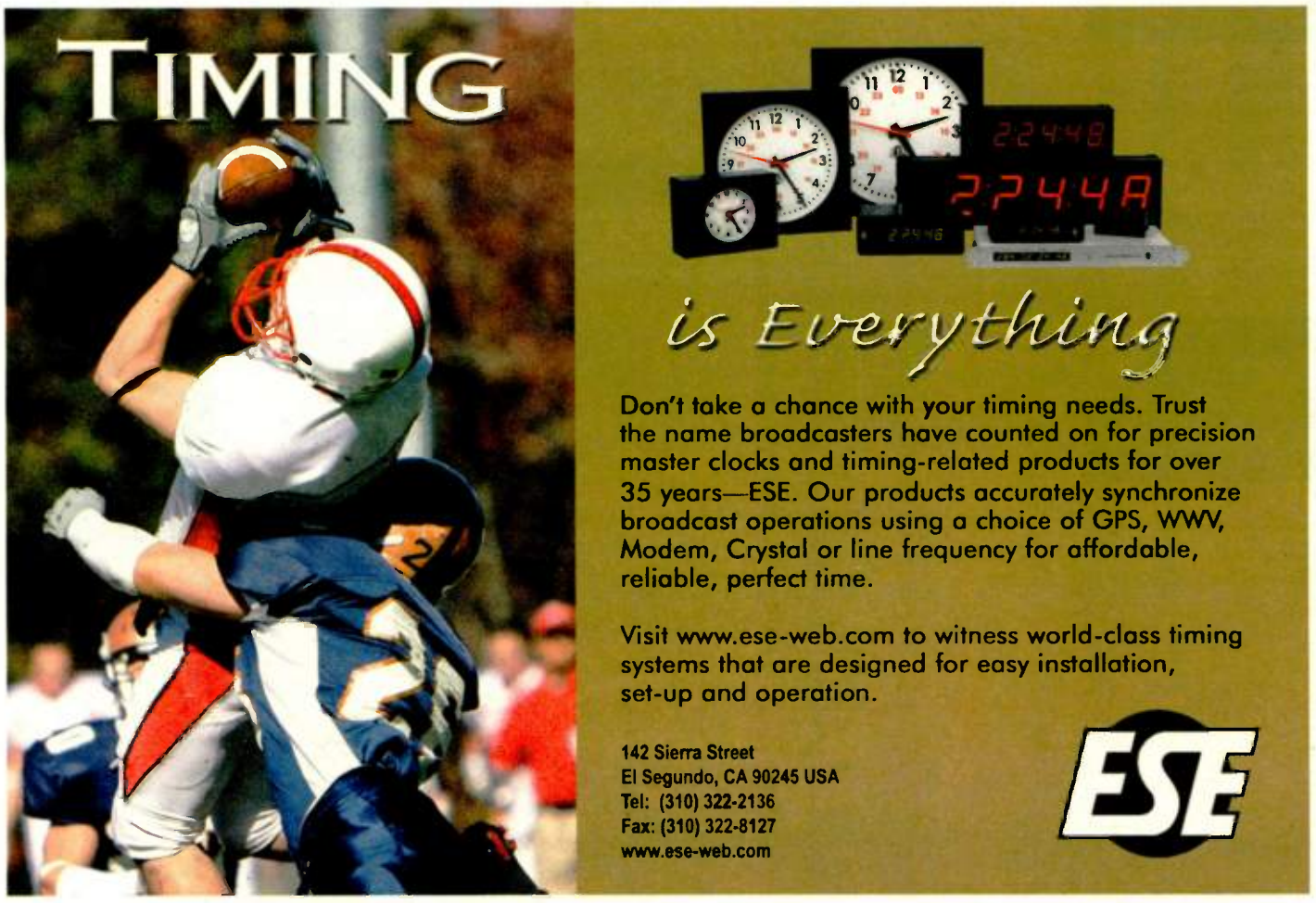
YouCastr Bets on Sports

YouCastr labels itself as a "live Internet sports broadcasting network," aiming to set it apart from the streaming competition. Its YouCastr Pro service is the streaming service, streaming only sports talk radio stations.

Besides Flash-based streaming YouCastr Pro offers live chat, live polling, live broadcaster questions and automatic podcasting of shows. Station and listener blogs are also available.

YouCastr Pro can provide analysis of listeners including show analytics, episode analytics, listener engagement indices, listener demographics and aggregate data over specified times. YouCastr Pro is aimed at simplified installation and operation. Typical installations involve a single station-based computer feeding the YouCastr server system.

For more information, contact YouCastr at (617) 968-3624 or visit www.youcastr.com.



World Radio History

TECH UPDATES

Barix Instreamer Aids Web Streaming

The **Barix** Instreamer range of IP audio encoders is suitable for radio broadcasters who wish to stream radio programming online in real time.

The Instreamer-100 is an intelligent streaming component that can feed live audio directly into a server infrastructure for Internet radio distribution and live online broadcasting. Audio is encoded in real time, and the generated audio stream can be distributed over the Internet via Shoutcast/Icecast servers.

The Instreamer-100 converts audio from any analog or digital device into high-quality MP3 streams, which provides a bandwidth-efficient way to transport audio over an IP-based network to multiple studio points for local broadcasts. Audio quality is maintained throughout the distribution chain, and can be received and decoded at the destination studios using Barix Exstreamer IP audio decoders.

The Barix Instreamer-100 can be managed via a Web browser interface using PCs, Web pads, PDAs or other Web-enabled devices. With serial and Ethernet control APIs, open IP standards and the MP3 format, the device can be integrated with other components or controlled by automation systems.

An optional stick-on transmitter allows for additional IR-enabled devices to be controlled remotely via the network connection, enabling users to control audio sources from an external site.

For more information, contact Barix at (866) 816-0866 or visit www.barix.com.

Targetspot Is an Ad Marketplace

TargetSpot is an advertising marketplace designed for Internet radio.

The online ad platform allows advertisers to create, buy and place advertising messages on hundreds of streaming audio stations, including outlets of CBS Radio, Entercom Communications Corp. and Nassau Broadcasting.

The company says it enables traditional and Web-only broadcasters to generate revenue from online streams by offering targeted, high-quality audio, preroll and banner advertisements to a range of advertisers. Advertisers use TargetSpot to reach engaged streaming audio listeners through national campaigns and/or target listeners by station, location, listening preferences and demographics.

For more information, contact Targetspot at (212) 631-0500 or visit www.targetspot.com.

Iviplanet Streaming, for Pros or Beginners

Iviplanet can provide streaming for a station's current feed or for those just starting. The company said it can provide packages containing all of the hardware needed to get going in Internet Webcasting.

Iviplanet recently launched a new user control interface, enabling users to have control on the Windows Media streaming service. This interface allows pull or push mode configuration; displays current connected players; provides statistics minute-by-minute, 24 hours a day, weekly and monthly; provides outgoing bandwidth details; assembles by-country audience details; offers banning and access controls; and creates an automatic URL page with listings of a client's station logo, available Web streams, player options and content summaries.

The company says it is managed by audio engineers, video and audio broadcast professionals and IT programmers. Iviplanet works with both broadcast and Internet-only stations, providing services from setup, configuration and help in selecting equipment; it is also a software developer.

For more information, contact Iviplanet at (866) 706-6247 or visit www.iviplanet.com.

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World Radio History

TECH UPDATES

BE's SoniXtream Adds Live iTunes Streaming and Ando Media Ad Metrics

Ando Media ad metrics and iTunes streaming are the latest additions to **Broadcast Electronics'** SoniXtream Internet broadcasting system.

It is used by radio stations to add music and other programming to their Web sites. It is a suite of applications including ad insertion and Internet delivery tools. BE says SoniXtream eliminates AFTRA concerns, network uptime issues and other Internet streaming functions outside the scope of the typical radio station.

SoniXtream supports Windows Media and MP3 streaming, including live hosting services and tools for customizing Web tuners based on station branding and preferences, such as enabling rich media graphics to be displayed in synchronization with audio. The system has browser-based program scheduling tools and format clocks that can include ad positions for inserting in-stream ads as a replacement of AFTRA-based on-air ads.

Now, a new capability enables SoniXtream stations to stream content live to iTunes devices (a category within iTunes acts as the portal for streaming station content), with live streaming to iPhones to follow this year or early next.

Also new: Ando Media ad insertion and Web support brings new ad injection and detection capabilities to the SoniXtream station, with real-time audience measurement support and services for targeting ads based on detailed impression data.

SoniXtream customers have access to usage statistics to predict and measure advertising exposure. BE says this feature is important because Internet advertising is based on cost per 1,000 impressions (CPM). Advertising schedules are usually sold in blocks of impressions, or frequency of impressions over a defined period of time.

Ando Media generates the total number and demographics of listeners at any given time, plus converts online listenership data into traditional radio metrics, such as average quarter hour (AQH) and cume information.

SoniXtream studio packages include hardware, software, hosting services, Web-based management tools, ad-insertion application, brandable media player and optional music channels.

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

STATION/STUDIO SERVICES

Power of Omnia on a PC

Omnia A/X is a software audio processing solution for workstations from **Omnia Audio**.

It works with Windows Media, Real Media and MP3 streaming encoders to deliver improved sound quality to audio streams.

By controlling dynamics and spectral balance, Omnia A/X placed in the signal chain ahead of the encoder will create consistency, enhance clarity and remove audio grunge, the company says.

Omnia A/X software for Windows performs processing calculations natively, within the PC processor, eliminating the expense of special cards or external devices. The company says users need not worry if their target platform can handle it, as Omnia A/X is entirely software driven.

The system provides three bands of automatic gain control plus wideband AGC, a distortion-controlled final limiter, bass enhancement and factory presets to simplify setup. It integrates with Windows Media, Real Media, MP3 streaming encoders and audio production software for dynamics control of Webcasting, audio production and audio-for-video.

Omnia A/X uses only about 20 percent of the resources on an 800 MHz Pentium III and can be combined with a streaming encoder on a single machine.

Omnia A/X looks like a sound card to the host computer, so it is compatible with most applications that use the wave in/out driver interface. It's suitable for audio-for-video, as well as for audio-only streaming.

For more information, contact Omnia Audio at (216) 241-7225 or visit www.omniaaudio.com.

Vorsis VP-8 Multimode Processor Tackles the Web

In addition to processing modes for analog AM, FM and HD/DAB, the **Vorsis** VP-8 has two modes dedicated to process bitrate reduced audio used in streaming: MP3/AAC>48 kbps and MP3/AAC<48 kbps.

Broadcasters understand the value of audio processing: to create a desired "sound," and to condition the audio for the transmission medium. The VP-8's processing for streaming preconditions the audio in such a way that allows the codec to code the audio making far fewer mistakes. To this end, when adjusting the VP-8, always listen to the codec's decoded output, never to the processor's output; the processor's output can often sound unnatural or distorted because it's precompensating for the codec imperfections, the company says.

The VP-8 is a 1RU standalone processor with analog and AES digital inputs and outputs. Audio is first preprocessed by a phase-linear four-band AGC/compressor with adjustable crossover points, then by an eight-band limiter and final limiter. Eight bands allow more flexible peak control, audio tailoring and codec optimization than traditional processors with fewer bands. The four-band parametric EQ may be placed before or after multiband section.

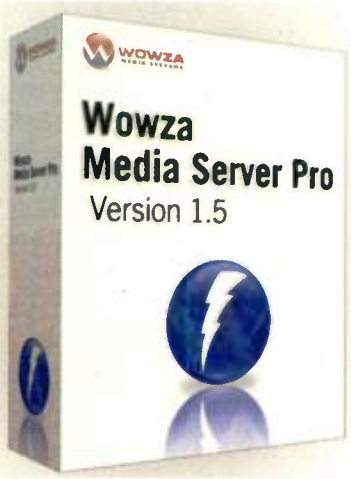
Setup is via a Windows-based GUI interfacing to the VP-8's TCP/IP network connection. Dozens of factory presets help you get started quickly, and for many streaming formats are suitable out of the box. Presets can be saved in the unit and on the GUI's computer for backup. In all Vorsis processors, there are no "hidden" controls; everything is available in the GUI for those inclined to customize their sound. Confidence monitoring via headphones can be "patched" to any processing section.

For more information, contact Wheatstone at (252) 638-7000 or visit www.vorsis.com.

World Radio History

TECH UPDATES

Wowza Offers HE-AAC And MP3 Streaming



Wowza Media Server Pro's SHOUTcast/Icecast-to-Flash streaming capability delivers HE-AAC and MP3 audio to audiences on the Internet.

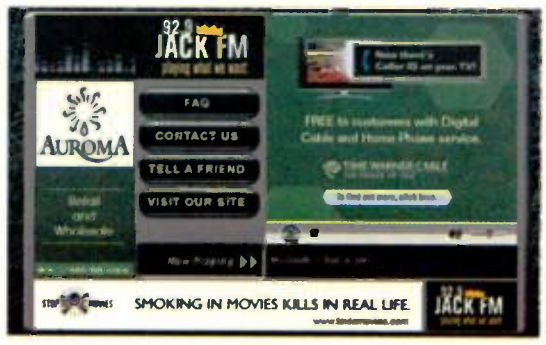
Launched in February 2007, Wowza says it now has 10,000 global licensees, among them such broadcasting entities as Astral Media and Bonneville Chicago Radio Group, and, through Wowza-certified streaming service provider StreamGuys, numerous National Public Radio stations.

SHOUTcast/Icecast Web radio netcasters gain benefits by deploying Wowza Media Server Pro, including protecting their investment in existing SHOUTcast/Icecast servers. It lets them reliably stream HE-AAC and MP3 audio to huge Flash audiences, use common encoders such as Orban and tools including SAM Broadcaster; and relay metadata from SHOUTcast to Flash, including song titles and artists' names.

Wowza Pro also lets broadcasters expand their streaming offerings beyond audio. Stations can engage listeners with interactive features such as text or audio chat; stream high-quality live or on-demand video in Flash-supported formats H.264, On2 VP6 and Sorenson Spark and use standards-based live RTSP/RTP and MPEG-TS H.264 encoders, another Wowza exclusive.

For more information, contact Wowza Media at (888) 778-7997 or visit www.wowzamedia.com.

Full-Service Internet Package from Abacast



Abacast helps online stations become profitable business models through development of custom universal media players.

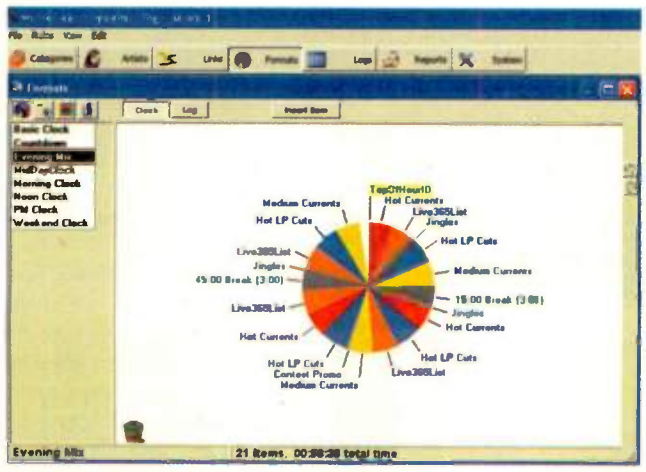
The players feature ways to help push station promotions and advertising and are a way to create an online station presence.

The players include a custom skin with station logo, synchronized banner ads, rotating banner placement as well as click-to-buy campaigns, and can be integrated into the station's marketing campaigns. Video gateway ads, live feeds into the DJ's studio, as well as Flash slideshows promoting the station's exploits add a visual element for the online audience. Interactivity can be added such as chat, local RSS feeds and local weather to create a localized social atmosphere.

On the back end, the players feature delivery options via Unicast, P2P or a combination of both and are multiplatform through WMP, Flash or Silverlight so audience members won't have to make multiple clicks to open up the station's player. Each custom player is designed to meet requests of the station and can be part of the Abacast online radio solution, which includes ad injection and royalty reporting.

For more information, contact Abacast (360) 834-5229 or visit www.abacast.com.

Music1 SE Concentrates on the Web



Music1, a Windows-native music scheduler, was introduced to the broadcast radio community in 1994. The company says it was the first music scheduler used for Webcasting by the first full-time Internet-only Webcaster, HardRadio.com in Dallas.

Its newest upgrade includes redesigned "view" functions for both Categories and Clocks, providing more customization for how users arrange and view library data on the screen.

Music1 SE version 2 added an auditioning player. The user can click and hear any song as he or she works with Music1. The player is incorporated into the scheduler and is not dependent on any automation system.

Music1 schedules all elements including jingles, liners, links, voice tracks, long-form programs and automation system commands. The nonmusic scheduling functions are incorporated into Music1. Additional software or plug-ins are not required.

There are two editions of Music1 for Webcasters: Music1 SE and Music1 Version 6.

SE is Webcasting-specific. It outputs the common and M3U–type playlist file. This file type can be used by popular Webcasting playout systems such as SAM Broadcaster and OtsAV, as well as common media players WinAmp, Windows Media Player, MusicMatch, etc.

Some Webcasters choose to use the professional, commercial radio edition, Music1 Version 6, which has more advanced functions.

For more information, contact Music1 at (512) 392-2415 or visit www.gomusic1.com.

Coming up in Buyer's Guide

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January 14, 2009

World Radio History

TECH UPDATES

Giving Stations Some Internet Backbone

Backbone Networks makes it easy for organizations to create and operate their own professional Internet radio stations, using nothing more complex than an Apple Macintosh computer.

Backbone supplies Backbone Radio automation software for free. For a fee it also provides the hosting services, bandwidth and reporting access that a station needs to launch a station.

It says it also provides "community" by establishing networks among stations, whereby they can share and syndicate one another's content, ideas and know how. This network feature also enables third-party content and service providers, such as music and advertising, to find new outlets for their offerings.

In 2007, Backbone Networks, in cooperation with the Intercollegiate Broadcasting System, launched an Internet radio network, one that aims to enhance the student radio experience. The IBS Student Radio Network by Backbone, IBS-SRN, enables student-operated stations to syndicate live and produced programming among member stations, as well as access royalty-free programming from third-party sources, including music, news and sports content.

The term "community" connotes both the regional community that a station serves and the community among stations and the students who run them. This was showcased in September with the Internet's first multivenue music festival, IBS-Palooza. Approximately a dozen colleges and universities participated in the nationwide live music event. Proceeds from on-campus gate receipts or click-through donations went to local charities. Students from participating schools cooperated in scheduling, sharing content among their live, local band concerts, and event promotion. Future IBS-Palooza events are planned.

Backbone Radio's automation and management software builds upon Apple's QuickTime MPEG-4 AAC as its streaming format, ensuring acceptance across listening platforms. Backbone stations access Apple's iTunes store in preparing streaming content, including artist/album annotation and cover art images that display to listeners' free QuickTime players. Select IBS-SRN stations are available on iTunes' College Radio category. Backbone Networks stations are targeted to be available on the Apple iPhone Q1 2009.

For more information, contact Backbone Networks Corporation at (508)753-5665 or visit www.backbone.com.

RadioStreamHost Offers All-in-One Package

RadioStreamHost.com stream hosting is focused on live and on-demand audio streaming. It also hosts station Web sites.

The company's service plans are customized per client. Clients can choose to start small and grow without spending money on bandwidth and other things they might not need during the early stages of development of their online presence.

RadioStreamHost.com hosts streams and/or Web sites for commercial broadcast stations, Internet-only stations, community radio services as well as personal and business Internet broadcasters. Client streams play back on major players including Windows Media, Real Player, WinAmp, iTunes and QuickTime.

RadioStreamHost.com also offers customizable pop-up players that create opportunities for clients to generate revenue by selling banner ads, of which they keep 100 percent of any revenue produced. RadioStreamHost.com does not profit or space-share on the players as some companies do.

The RadioStreamHost.com system consists of encoder software that installs on Windows or Mac computers. This software sends a small stream of the station's audio to the RadioStreamHost.com server network. Each client has a Web-based server control panel which gives them control of their server and account and includes listener statistics, listener timers, ability to upload stream preroll ad inserts and more.

Player links are provided to customers who then add them to their Web site. RadioStreamHost.com also provides consulting services to help stations design digital media strategies.

For more information, contact RadioStreamHost.com at (206) 774-9196 or visit www.radiostreamhost.com.

StreamGuys Launch RevenueStream

Internet streaming company **StreamGuys** now offers RevenueStream, a subscription-based service available to radio broadcasters looking to monetize programming over the Web outside of the traditional ad-supported model.

The service allows broadcasters to offer premium audio content alongside free streams, delivering first-rate content at higher audio quality for subscribers.

StreamGuys supports Windows Media audio/video and Icecast MP3 audio, with QuickTime and Wowza-enabled Flash audio support in the works. StreamGuys can enable subscription controls for existing streams or launch a new service; the company says it uses its existing aggregated server infrastructure to provide a robust streaming platform for global Internet delivery.

Low- and high-bandwidth streams are available for top-level service subscribers and connections from dial-up to the fastest broadband speeds are compatible.

Designed as a professional service, RevenueStream delivers a higher-quality, more secure stream than what is possible with streaming services and Web sites used by nonprofessionals, StreamGuys contends. The streaming capacity available through its server infrastructure also ensures that clients are provided additional space during large bursts of traffic or popular live events.

Security is provided through password protection, and a direct connection to the StreamGuys server architecture ensures that subscription content is blocked from those who have not purchased the service. Broadcasters can manage billing services through the same Web interface to the StreamGuys infrastructure, or enable automatic billing through an automated system that interfaces with PayPal.

For more information, contact StreamGuys at (707) 667-9479 or visit www.streamguys.com

Scheduling Software With a Beat

OtsAV Radio Broadcaster is music scheduling software with a little difference. Developed from software used by club deejays, OtsAV Radio Broadcaster offers features not normally seen on more traditional music schedulers.

Hip features such as pitch adjustment, MIDI compatibility, advanced mixing tools, fade controls and beat-per-minute tools are a few items designed to excite musically-oriented presenters. Mixing in live sources is not complicated with OtsAV Radio Broadcaster.

It also offers standard features such as dynamics and compression, EQ, playlist generation and logging and search functions. OtsAV also offers a "Webcaster" version that is compatible with streaming programs such as SHOUTCast.

For more information, contact OtsAV at 011-61-7-5570-3333 or visit www.otsav.com.

World Radio History

PSST... NEED A CONSOLE? BGS HAS ALL KINDS!

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RADIO SYSTEMS MILLENIUM DIGITAL

Millenium Digital gives you fantastic "bang for the buck!" Available in 6-, 12- and 18-fader sizes, Millenium Digital gives you analog and AES/EBU inputs (with built-in sample rate conversion) on every channel, 3 mixing buses with analog or digital outputs, and up to 10 fully-programmable mix-minus outputs. Choose the new Millenium Digital Network model for easy connection to Axia IP-Audio networks!

HARRIS NETWAVE

The newest console from Harris is at home in any facility! With four mixing buses, two mix-minus channels, easy-to-use talkback and telco interfaces and universal input modules for analog and digital sources, NetWave is perfect for stations in smaller markets that still want the power of a Harris console. Comes in 8-, 16- and 24-input sizes with optional networking capability and a "heads up" meter display!

ARRAKIS ARC-15

On a budget but don't want a "budget console"? Check out the new Arrakis ARC-15, with five selectable high-performance mic channels with Phantom power, dedicated phone input channel, direct PC audio input, built-in talkback capabilities and an optional 16x3 stereo switcher to help handle even the biggest jobs. Two stereo buses with mono mixdowns and both balanced and unbalanced I/O make ARC-15 a versatile, cost-effective performer!

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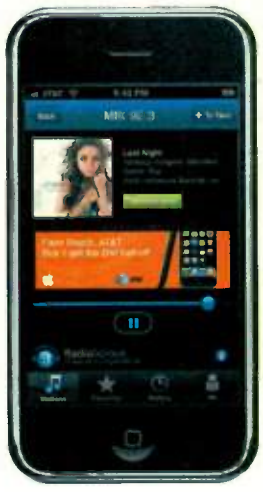
World Radio History

TECH UPDATES

Radiolicious Takes Radio Stations to the iPhone



MySimBook has debuted Radiolicious, a native iPhone radio player. The company says Radiolicious offers options for all broadcasters and streaming types.

Radiolicious is the first native iPhone application that streams WMA on the iPhone, the company said. Virtually any stream type is supported. Radiolicious is operable via all networks including Edge, Wi-Fi and 3G.

Installation for broadcasters is seamless and requires no additional equipment or bandwidth for radio stations. Being a native application, battery life for the iPhone is conserved.

Radiolicious also provides interactive features for the broadcaster. This includes receiving song requests and wall comments, selling songs and running contests.

For more information, contact MySimBook at (888) 311-3350 or visit www.mysimbook.com/radiolicious.

The Good Sound of Crickets Chirping

HipCricket's services are designed to drive new revenue and customer loyalty for broadcast stations and consumer brands through mobile marketing. HipCricket produces interactive mobile campaigns.

Each client station campaign is customized to consumers' preferences; programs are permission-based so consumers only receive text messages, alerts and mobile interactions they request. HipCricket services for stations to use with listeners include interactive polling, song requests, song and program alerts and customized traffic reports. Offerings for sales teams can run from exclusive sponsorships to directed coupons to contests.

HipCricket provides on-site training and customer support is available 24/7.

The company said it has delivered approximately 24,000 mobile campaigns for CBS Radio, Clear Channel Radio, Premiere Radio Networks, Sandusky Broadcasting, NBC, Coca Cola, Staples, Hershey's, Jameson and hundreds of other clients.

The company said it also recently launched the first comprehensive Hispanic mobile marketing network.

For more information, contact HipCricket at (425) 452-1111 or visit www.hipcricket.com.

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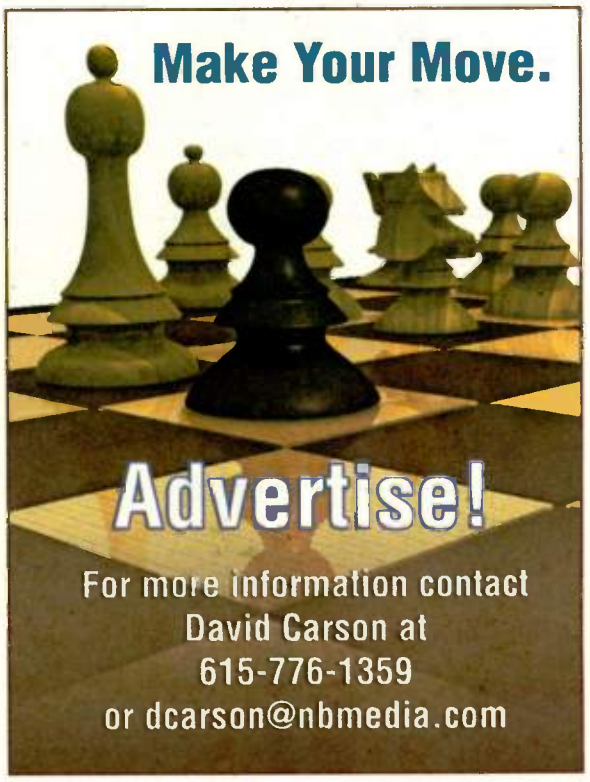

World Radio History

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AUTOMATION EQUIPMENT

WANT TO SELL

Now available, radio automation for the Linux operating system. Schedule music, voice track, create shells, auto or announcer assist mode, set intro and ending cues, hit the vocal every time with your voice tracks, execute exact time events, join networks, and more. The software is free, there is a small duplication fee. For more info call 406.665.1832.

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Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035

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AM in Rome, NY, translators in Temple, TX; Jacksonville, NC; Ocala, FL. mraley@bbnradio.org.

FM's in NY, WA, GA. CPRradio@bellsouth.net

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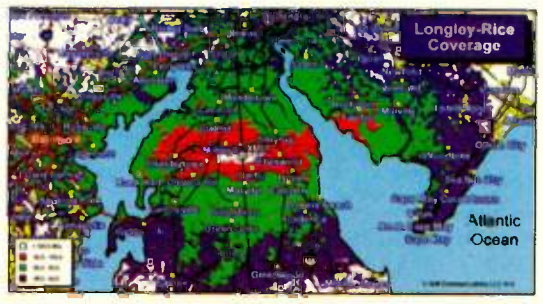

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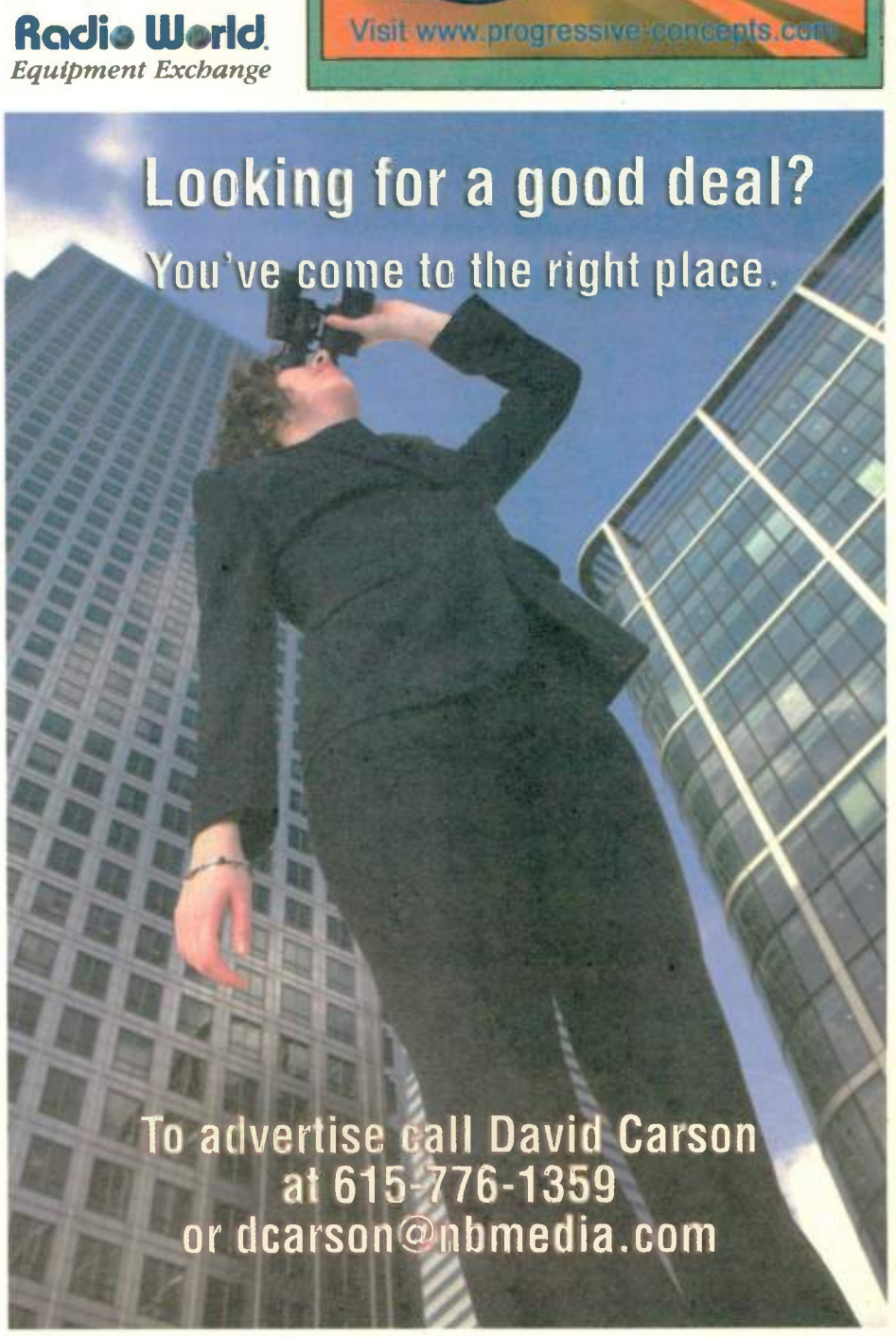

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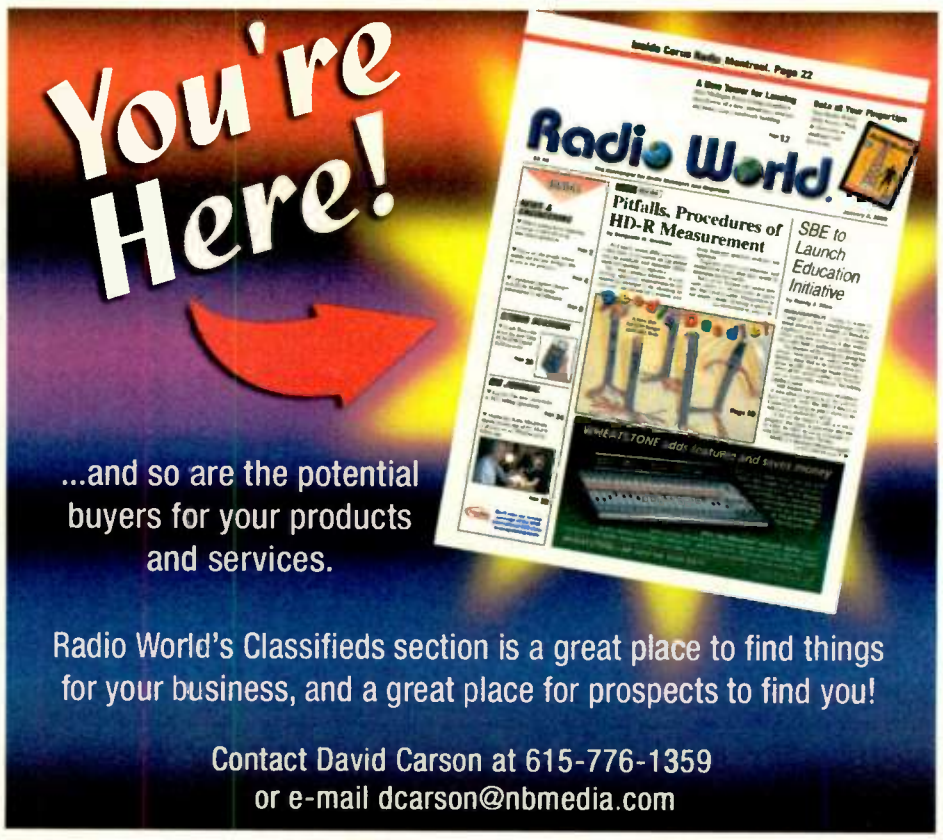

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NEWS MAKER

Stop Listening to The Negativity

Rehr Says Radio Must Hammer Home the Message About Its Reach & Growth

NAB President/CEO David K. Rehr addressed the 2008 NAB Radio Show in Austin in September. Here is the text of his remarks.

It's great to see all of you here.

We all know that radio broadcasting is at a very critical juncture.

Never before has our business faced so many challenges — a rapidly changing media landscape that makes us feel unsure and unbalanced, turbulent economic conditions that impact our bottom lines, and regulatory and legislative hurdles that threaten the way we conduct our business.

This is a tough world that radio broadcasters are operating in today. But there's a greater issue that I want to address that's, frankly, more troubling.

In fact, I believe it's something that could possibly jeopardize the future of this entire business. I'm talking about the negativity that's pervading the radio business and threatens to paralyze us.

opportunity before us. It is the beginning of a new era for radio.

And many of you have already started to embrace the possibilities. But in order for us to move forward and build a successful future we cannot continue to operate as we have in the past. We must stop listening to the negativity and false messages, many of which come from our own people. And we must commit to spreading the positive news about radio.

Because if we don't, we leave a vacuum to be filled by our critics and the negativity that's invading our business will continue to spread like a virus — infecting everyone.

And the result of this negativity?

The stagnation of the industry and the devaluing of your business. If you can't believe in radio … if you can't believe in all the possibilities and imagine a brighter future, then how can we expect our people — our listeners, our advertisers and our customers — to believe in this great medium?

Collectively, broadcasters are the number one provider of public service. And we don't need the government to step in to tell us how. NAB is driving that message home in Washington each and every day.

It's not surprising that some of you may be feeling this pessimism. It's like a dark cloud hanging over our heads. And we feel bombarded by negative — and often false — messages about radio that reinforce these feelings.

We hear that radio is obsolete, that it's not adapting fast enough to the digital age. We hear that listenership and revenues are declining. We hear that people don't value radio as they once did. But what we're not hearing enough are the stories of radio's successes.

And there are many.

Radio connects, informs and inspires an estimated 235 million listeners each week. And what we rarely hear is that number is up 3 million listeners from last year. That's a vast universe that we are touching.

Now I want to share a clip with you, that may send you back a few decades *[plays clip]*.

That song, "Video Killed the Radio Star," was released in 1979. And it captured what many people were feeling at the time about radio.

Throughout the years, some people thought radio would fade away.

First eight track tapes, then cassettes, then music videos and CDs — every time innovation occurred, the end of radio was predicted. But this song was released almost 30 years ago, and radio is still strong.

Millions of people listen to the radio every single day. People spend more time with radio than on the Internet and reading newspapers. There is an exciting world of

Right now, radio needs people who believe. And I hope everyone in this room is a believer. We need people who are bold and who will take charge of leading us into the future.

Many of you have said to me that this industry needs leadership, that to move forward, someone has to step up — radio's corporate CEOs, big group executives, small-market owners … that someone else needs to go first and all of us will then follow. That we need to let another person take the risk and all of us will wait, assess and explain why it will or won't work.

That thinking is a prescription for defeat. Instead, each and every one of us must be a leader. We can't wait for others.

Each and every one of us who believes in radio must support each other and our efforts to move this business forward.

We all know there are many reasons to believe in radio.

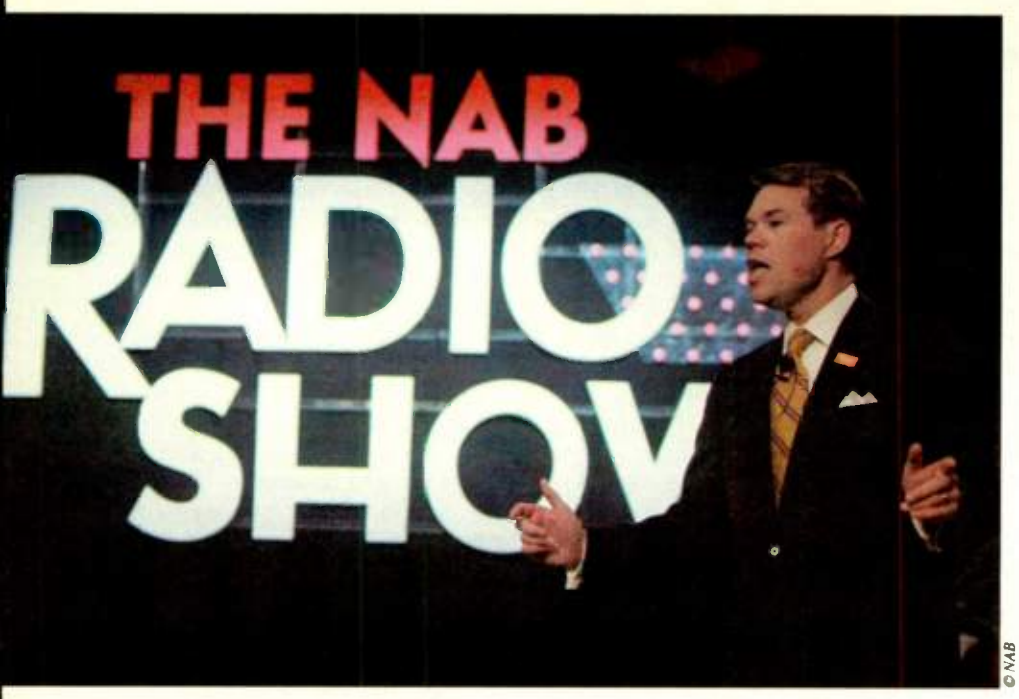
Opening doors

First, technology is opening exciting doors for us. There has been more innovation in radio in the past five years than in the past 50. We've invested millions of dollars in new technology — HD Radio and new delivery devices, and we've made huge strides toward improving the quality and diversity of content.

We're undertaking an effort to increase the number of FM radio receivers in cell phone handsets.

In fact, a recent NAB study shows this platform could reach an additional 260

World Radio History



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million consumers. Let me say that again, 260 million consumers — there's great opportunity for us to seize.

Another area for growth is HD Radio.

Radio stations are harnessing the power of the latest digital technology to deliver content with superior sound quality and more programming choices. More than 1,700 stations around the country are broadcasting in digital — with the ability to reach over 200 million listeners.

We're working with the HD Digital Radio Alliance to educate the public, manufacturers and the auto industry about the possibilities of HD. We're targeting auto makers and dealers with the message that your car is not "fully equipped" unless it includes an HD Radio.

We've taken the "fully equipped" message to the auto shows in Detroit, New York and Los Angeles. We've launched an aggressive outdoor marketing campaign, using billboards to grab the attention of auto manufacturers driving to and from work in Detroit — and they're listening.

There are amazing possibilities with HD Radio, including more niche channels than ever before — from Latin fusion to underground rock to a psychic channel.

We're also bringing a whole new generation to radio through the iPhone. We're thrilled that the latest iPhone has radio applications, giving consumers a taste of the best that radio has to offer. In fact, AOL Radio powered by CBS is one of the most downloaded applications for the iPhone.

At Apple stores, the iPod radio attachment has been one of the best-selling extras since its debut. People want to use their iPods to access the ultimate playlist: radio.

Starting yesterday, every Microsoft Zune portable media player will let consumers wirelessly download or stream millions of songs on the go. Zune owners will have the ability to tag and purchase songs directly from the radio.

Internet streaming is another area of growth, with more than 4,200 stations already streaming their signals online. And others would like to do it, if it makes economic sense.

That's why NAB has been working to address the outrageous Copyright Royalty Board decision that dramatically increases streaming rates. The Internet is also presenting a new world of revenue possibilities, which we have yet to take full advantage of.

A recent study shows that Web revenues barely account for 2 percent of total company revenues for most radio stations. And yet, all media local online revenues are growing at a phenomenal rate of 50 percent this year. And radio should get its fair share.

We need to invest in our future. That's why we're exploring new opportunities for radio through our technology advocacy program, FASTROAD. This program is playing a key role in exploring, developing and accelerating the adoption of new broadcast technologies and NAB is proud to be at the forefront of new radio technology innovations.

One-year anniversary

We're looking to the future of radio, which brings me to another reason to be excited — the Radio Heard Here campaign.

The entire industry has united behind an initiative we've put in motion to reignite the passion for radio. One year ago at this very show, we launched a major effort to reinvigorate radio.

The initiative — Radio 2020 — represents our clear vision as an industry for radio's future. In April, we launched the consumer phase of Radio 2020 — called Radio Heard Here. Think of this as radio's version of "Got Milk" or "Beef, it's what's for dinner."

Those iconic campaigns were put in motion because people needed to be reminded of the value of these important products that are too often taken for granted.

Through Radio Heard Here, we're going to change consumers' and advertisers' perception about radio's future.

The effort includes:

- Broad-based advertising, with radio, print and online ads, and branding available for stations across the country to use.
- Public relations efforts, targeting the industry, trade and mainstream media and other key influencers.
- Outreach to industry and trade partners, educating agencies and universities on how to write and place effective radio ads.
- And a communications component, involving videos produced for YouTube, MySpace and others — starring you, radio's biggest fans.

We've launched a great Web site for consumers at *RadioHeardHere.com*, where they can learn more about radio, find the most played songs, see new innovations and listen to great radio commercials.

Last month, each station received talking points and an insider's guide containing everything you need to share about radio's bright future.

You received a print advertising kit and most importantly, you will soon receive radio spots that remind listeners why they fell in love with this great medium.

Let's listen to one now *[plays clip]*.

When we tested these spots, listeners loved them — especially younger listeners. So far the response to this campaign has been extremely positive. We are arming you with the facts and good news about radio, and we need your help to spread the word about radio's bright future.

If you have to remember four things about radio, remember these:

1) Radio reaches everyone — 93 percent of Americans listen each week.
2) Radio is driving technology. With 1,700 HD stations on the air, more than 4,200 stations streaming online and 13 percent of cell phones now radio capable.
3) Radio offers more choices than ever before. In the last 10 years, format variety increased in the top 100 markets. And HD is offering immense opportunity for new and more innovative formats. And it's free.
4) Radio is resilient and growing. Radio's audience has grown 15 percent since 1994. In a time of more media choices in the history of the world, radio is retaining and adding listeners.

We want to repeat these great things about radio with everyone we know. Together, we are going to reinvigorate this great business and make radio new again.

On the Hill

We are also being aggressive on your behalf in Washington. Here are just a few highlights of where we stand.

First, let's talk about the performance tax. Early in the debate the record labels told Congress this was a performance "right" for artists.

But we have been successful in making policymakers understand what this is really about — a tax on local radio stations that would benefit foreign-owned record labels. The chorus of lawmakers recognizing the immense promotional

See REHR, page 46 ▶

◆READER'S FORUM◆

UREI Is No Match for Bill

What a find, to open RW and see Bill Sacks making the big time (June 4)!

About eight years ago, my good friend Randi Steele was moving from Flushing, Queens, to Woodstock, and was using the original UREI 1178 Compressor/Limiter from the notorious and legendary Radio New York International pirate ship the "Sarah," as naught but a doorstop, literally. So I inherited this little non-functional piece of history from Randi.

By sheer dumb luck, I found Bill Sacks through a friend, and discovered he could not only fix the UREI, but rebuild it better than the thing even was designed.

Now a sentimental favorite among processing gear-heads (you'd need an adjustable-rate mortgage to own an original, and its newer replica edition ain't cheap, either), UREIs were just unremarkable FET limiters, somewhat versatile but not especially known for their "warmth" and cleanliness; Randi was never too fond of this one.

I called up Bill cold, and he told me how he had devised a test switch, which "replaced" all the capacitors and whatnot with different sets and configurations of his hand-picked components, until he found the parts, not only for straight audio, but the power conditioning that would turn this beast into the world's smoothest hot buttered sound ... still with adjustable parameters, but now, a completely different (and worlds-better) unit.

Outfitting the box as a finishing touch with unbalanced RCA input and output jacks with for consumer use, he shipped the thing back to me and it blew me away totally. To this day, my original, modded 1178 sits in my home system as the Level Devil on my video. It may be the smoothest processing I've ever heard. It hasn't deteriorated any in eight years, either.

I keep Bill's masterpiece right here at home in an honored spot befitting a slice of Pirate Radio History ... about 4 feet from a dismembered chunk of the Armstrong Tower in Alpine, N.J. My late and wonderful friend Evan Dakes of WWOR(TV) used to tweak me with pointless arguments that it "wasn't really" from the tower!

I'm an admirer of anyone who is talented enough to do custom work (electronics, cars, etc.), and Bill did an incredible job, at a fabulous rate, with a rather over-hyped unit (and I can hardly wait to hear what he can do with the Orban XT). Hope your recent article turns out to be the first shot in more widespread recognition of his creative and technical abilities.

Russ DiBello
a.k.a. "Famous Amos"
Air Talent/Consultant
New York

Hey, That's My Transmitter!

I thoroughly enjoyed Charles Fitch's article about the Collins 20V series transmitters in the May 21 issue, and particularly liked seeing the pictures of our old Collins transmitter from KSIX Radio.

I gave that rig to Fred Hoffman when we moved the KSIX transmitter site. Fred is an avid ham operator (and collector of all things RF), and I knew he would do the Collins proud when rebuilding it.

KSIX went on the air in 1947, and I believe the 20V3 was the second transmitter on the air, and was used until the late 1980s.

Jim Withers, Owner
KSIX(AM)
Corpus Christi, Texas

The author is a Radio World contributor. Opinions are his own.

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NewBay Media

The Wag in Radio's Long Tail

Overlook the Potential of Multicasting at Your Own Risk

Until HD Radio added high-quality supplemental program channels to a single FM frequency assignment, our new digital transmission platform didn't really have a killer app. We now have HD Radio stations in various sizes of markets deploying a variety of new HD2 and HD3 format offerings, though to our tastes, not nearly enough of them, and not nearly different enough from radio's traditional offerings.

IBiquity CEO Bob Struble recently mused about the burgeoning opportunity in his online commentary. Struble says multicasting allows radio to address the "Long Tail" effect in digital media, a phenomenon espoused by Wired magazine's Chris Anderson and explored previously in these pages by RW's Skip Pizzi.

For Struble, analog radio is challenged by the long tail because it cannot effectively serve the relatively few consumers who prefer reggae, death metal, comedy or mommy talk: "You simply cannot program niche formats on analog stations and make the numbers work — listenership and revenue potential are too low to cover capital and operating costs," he says. HD Radio multicasting, he feels, is the answer.

New niche formats appealing to smaller, targeted and loyal audiences can push radio's reach farther out from the main body of mass-appeal standard fare.

A lot of the new "secret stations between stations" are merely simple automated jukebox formats with short liners and IDs but there is a growing stable of exceptions that feature programmed unique content. RW was first to report on many of these, and one such station — WHUR-HD2 in Washington — earned the second annual NAB HD Radio Multicast Award this fall.

Radio station employees who are creating and maintaining these formats have been enjoying the fruits of their labor on both HD Radios and their Internet streaming versions. Most large markets now have a decent selection of HD2 and a few HD3 stations; and the public is going to start taking notice.

The HD Digital Radio Alliance recently told its members they could start airing commercials on supplemental channels, ending a voluntary self-imposed ban. This has encouraged another trend of note: simulcasts of news-talk AM content on FM HD3 channels in New York and other cities. Expect that lead to be followed. HD Radio service in many locales can offer a useful and noticeable improvement over noisy, low-fi AM reception. This can also augment and extend coverage, especially at night.

In areas where decent HD penetration and lack of obstructions allow relatively consistent performance, the new supplemental stations are becoming a primary driver for consumer interest in HD Radio. Most folks attracted to the new offerings find them first on Web site links and then realize that buying an HD Radio will extend coverage to the car.

Smart stations picking up on this are cross-promoting the newfound HD Radio advantages on their sites and main on-air programming.

HD Radio is off to a slow but steady start and we think it is about to pick up momentum. The anticipated digital power boost will allow HD to gain traction more rapidly. This will achieve more consistent performance, critical to HD2 and HD3 success, and in turn drive higher rates of adoption and market penetration.

As more clusters light up supplemental FM-HD channels, more of them likely will become home to a sister AM station's programming. This might be seen as an easier and cheaper path to upgrading AM to an alternate form of digital than adding AM-HD. It is not inconceivable that a big chunk of AM offerings will be found on HD2 and HD3 channels, eventually rendering moot the need to maintain some marginal and aging AM facilities.

Even with the recession and staff cutbacks, savvy station programmers and managers should seize the early opportunity to develop compelling HD2 and HD3 format choices beyond just AM simulcasts. Those who do this reasonably well will have a big leg up when the economy returns to something like normal.

— Radio World

Rehr

▶ Continued from page 45

value provided by local radio airplay grows louder with each passing day.

We now have the support of 226 members of the House of Representatives — the majority — on the Local Radio Freedom Act — the anti-performance tax resolution.

Compare that to the number of cosponsors on the other side — 19. And we have provided members of Congress and their staff data demonstrating how local radio airplay generates sales for artists and labels.

We have released a study that suggests the radio industry provides anywhere from $1.5 to $2.4 billion in free promotional value to the artists and their labels each year. And it doesn't even include the billions generated in our promotion of concerts, live events and other venues.

Momentum is on our side.

But we must keep the pressure on and continue to mobilize around this issue. This will be a multi-year effort by the record labels. And it will be hard fought.

Second, let's talk about the FCC's misguided attempt at imposing so-called localism regulations on us. Despite having jettisoned these old localism rules in the '80s, the FCC is now proposing to bring them back.

Just recently, we've seen how broadcasters have prepared for and covered the recent tropical storms and hurricanes that have hit the gulf and east coasts.

We applaud the Texas broadcasters for their commitment to covering Hurricane Ike. You are a lifeline to your communities, providing them with lifesaving emergency and relief information. We thank you for what you do every day to serve your listeners and viewers and for the lives you save.

Witnessing all that broadcasters do shows how localism requirements are unnecessary, oppressive and built on an outdated regulatory mindset.

Requirements, like the 24/7 manning of broadcast facilities and mandating a main studio in the city of license, ignore the realities of the broadcasting business and technology. In fact, these requirements would have the opposite effect on broadcasters' efforts to serve their local communities, especially small-market radio.

Collectively, broadcasters are the number one provider of public service. And we don't need the government to step in to tell us how. NAB is driving that message home in Washington each and every day.

Let me give a few examples.

- We filed extensive comments with the FCC.
- Broadcasters and their public service partners are telling the FCC the many ways they're serving their communities.
- To date, 161 members of Congress have written to FCC Chairman Kevin Martin, ranging from expressing significant concern to outright opposition.
- We even got the U.S. Chamber of Commerce involved on our side.

And there will be more to come.

At an event on Capitol Hill in July, we unveiled the "2008 National Report on Broadcasters' Community Service," featuring a new Web site — *BroadcastPublicService.org*.

The site highlights state and national statistics and stories recounting broadcasters' unrivalled public service. We won't let down our guard in this fight. And with your help, we will be successful.

We're engaged in more issues than ever before, and we're on the offensive.

Persistence

Ladies and gentlemen, now is the time for us to embrace technology and seize all the amazing opportunities it presents. And we can't let this moment pass.

If we join together as leaders and put aside our personal agendas, we will build a successful and vibrant future for radio.

Teddy Roosevelt once said, "It is not the critic who counts, not the man who points out how the strong man stumbled, or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena; whose face is marred by the dust and sweat and blood; who strives valiantly ..."

Each of us must be that man or woman in the arena. We must ignore our detractors and we must be persistent in our cause. We must unite behind consistent messages and relentlessly work to spread the positive news about radio. And though we will occasionally face setbacks, we must keep our eye on tomorrow.

Let us fight back the temptation to look to the past and doubt what's new. Let us instead look forward with optimism. Let us stand together in the arena. With courage, conviction and belief we will create an unstoppable tomorrow.

Thank you. God bless you, our great business, and this great nation.

Comment on this or any article. Write to radioworld@nbmedia.com.

World Radio History

E² Ethernet Audio Done Right

2008 PICK HIT Radio

MEET THE SQUARE

The Wheatstone E² (E SQUARE) gives you the convenience of Ethernet audio without all the IP hassle. It just *knows*. The built-in Setup Wizard lets you configure an entire system with just your browser and a laptop. Unplug it when you're done and there's no PC between you and system reliability.

SQUAREs are totally scalable: use one as a standalone 8x8 studio or transmitter site router, with browser access from anywhere. Plug two together and have a standalone digital snake. Add a fanfree mix engine and build yourself a studio using analog and digital I/O SQUAREs.

All the power is *in* the SQUARE. Distributed intelligence replicates all configuration data to every unit. Profanity delay and silence detection are done *in* the SQUARE. Even virtual mixing (w/automation protocol) —it's *in* there; all with real front panel meters, 32 character status indicators and SNMP capability.

88E DIGITAL ENGINE: Just plug an E-SERIES control surface or GLASS E computer interface into this engine and get all the mixes, mic and signal processing you need. Fanfree, so it can stay in the studio where it belongs.

Because the E² system doesn't rely on a third party GUI, tech support is straightforward (and 24/7). Likewise, system operation doesn't require external PCs for continued full functionality. Best of all, 1 Gigabit protocol eliminates the latency and channel capacity restrictions associated with older technology.

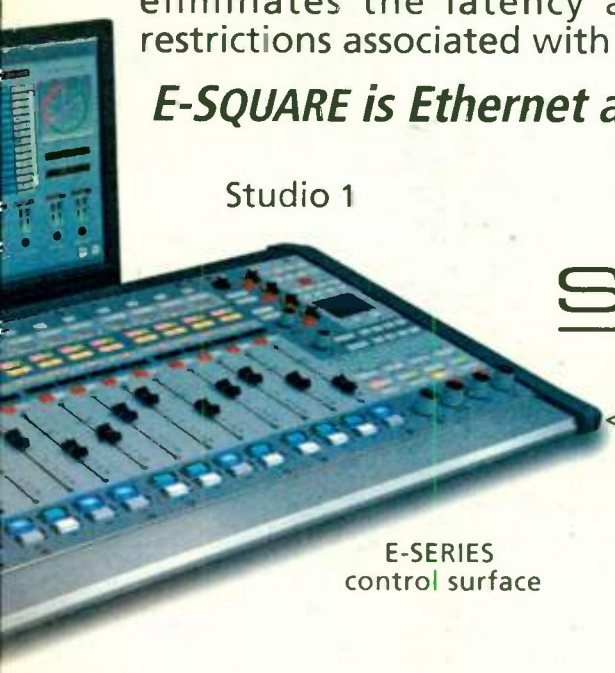
E-SQUARE is Ethernet audio done RIGHT!

88D I/O: 8 digital inputs and outputs. You can headphone monitor and meter any of the SQUARE's inputs or outputs in real time. The 32 character display gives you all the information you need about your audio and system configuration. And because you can operate in either 8-channel stereo or 16-channel mono mode, 16 channels of metering are provided.

88A I/O: 8 analog inputs and outputs. You can bring a new SQUARE up in seconds and of course use the front panel encoder for your X-Y control. Front panel status LEDs give you continuous link, status, and bit rate information as well as confirmation of any GPIO activation.

88AD I/O: 4 analog plus 4 digital inputs and outputs—perfect for small studios or standalone routing.

88 I/O CONNECTIONS: E² has both DB-25s for punchblock interface and RJ-45s for point-to-point interface. All SQUAREs have 12 individually configurable opto-isolated logic ports that can be either inputs or outputs.



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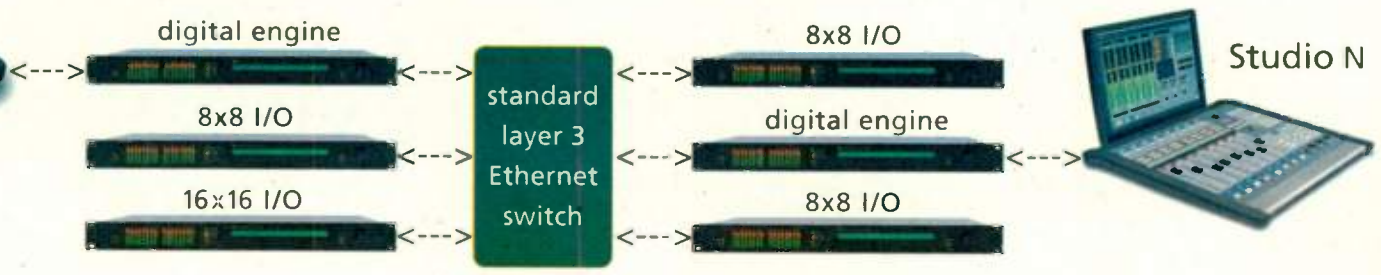

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