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Cooking for Engineers

Michael Chu whips up food tips just for techies.

Page 18

Lower Your 'Overhead'

Get a scaffold under your feet.

Page 20



Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

November 3, 2004

INSIDE

NEWS & HD RADIO

▼ Terrorism spawns a new format for one online station.

Page 8

▼ Alan Kraemer of SRS Labs advocates broadcast digital surround.

Page 16

ENGINEERING

▼ Translator pioneer Howard Enstrom reflects on a long career and service to God.

Page 22

▼ Here's a nifty tech tip involving wireless mics, a county fair and four balloons.

Page 23

▼ Who is behind the Digital Juke Box and its STLWare product?

Page 30



STUDIO SESSIONS

▼ Carl Lindemann on Digigram's miXart 8 card; Conrad Trautmann on covering the Olympics; and Tom Vernon on high-tech alternatives for playing back old records.



In This Issue

OPINION

▼ Programming veteran Ed Ripley says radio needs another period of 'serious self-examination.'

Page 45



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New York City EAS Plan Unveiled

by Randy J. Stine

NEW YORK City officials and broadcasters here think an agreement using the Emergency Alert System to allow Mayor Michael Bloomberg to warn of public safety emergencies is exactly what the emergency notification system should be used for.

The city's local EAS plan, called the New York City Emergency Alert System and launched in October, is an "enhancement and expansion of the national EAS," according to proponents, one that will be only used to disseminate critical information during times of crisis. It could serve as a model for other major cities to follow, supporters believe.

Four New York City AM stations have been designated Local Primary (LP1) stations — WABC, WCBS, WFAN and WINS — and will serve as entry points for emergency messages activated by the mayor. Other stations in the city will then receive the EAS message through the relay process.

Some broadcasters say that if a similar system had been in place during the terrorist attack on Sept. 11, 2001, Mayor

See EAS, page 12 ▶

Stern Repercussions Felt After Radio Show

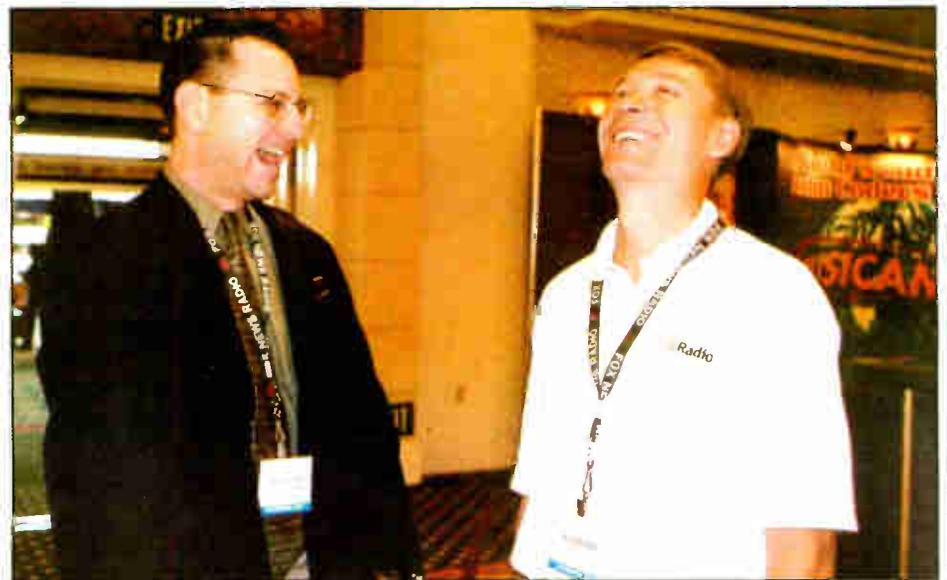
by Leslie Stimson

SAN DIEGO The high-paid talent migration to satellite radio has begun in earnest with the news that Infinity Broadcasting's Howard Stern plans to jump to Sirius Satellite Radio in 2006. In the days following the NAB Radio Show, Stern himself offered tidbits that seemed to suggest he would still have a relationship with parent

company Viacom in the future. Meanwhile, Infinity began looking for a successor.

Among the questions surrounding the Stern news: What will Infinity and stations carrying Stern do? Is the move a fatal blow for terrestrial radio? What impact will this have on subscriptions for satellite? Might Viacom seek to buy Sirius?

In the past few years, something dramatic—
See SHOW, page 6 ▶



Marty Sacks of ERI and Bob Struble of Ibiqity share a laugh on the show floor. Show photos, pages 3 and 5.

Photo by Leslie Stimson

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◆ NEWSWATCH ◆

dMarc Buys Scott Studios; Pushes Data

NEWPORT BEACH, Calif. Dave Scott has sold his three companies — Scott Studios Corp., Computer Concepts Corp. and Scott Concepts Corp. — to dMarc Broadcasting.

Scott stays on as president but plans to retire in three years. His company calls itself the largest digital air studio systems vendor. Terms were not disclosed.

dMarc is run by Chad and Ryan Steelberg. Dave Scott says the Steelbergs

have \$29 million in investment money available “to buy other radio companies to dovetail with Scott.” They said no operational changes would take place in employees, locations or product lines supported.

Scott is known primarily as an automation system provider, dMarc for its data products.

dMarc Broadcasting then announced a “sweeping Progressive Radio Data Services Initiative to advance the deployment and utilization of analog (RDS) and digital (HD Radio) data services within the terrestrial radio broadcast industry.”

The company said it would provide free software and service upgrade to its

automation clients to enable data services support.

“These software and service modules will enable each of its station clients to seamlessly support and manage the dynamic and automated scheduling, delivery, and reporting of data services, through both analog RDS and digital HD Radio (PAD) protocols, including dynamic text broadcasting (dynamic PS), song and artist identification, traffic, weather alerts and more,” it stated.

The company also won an endorsement from Ibiqity Digital President/CEO Robert Struble, who called the initiative “a significant commitment” to HD Radio data services.

Customers of Scott, Computer Concepts Maestro and DCS automation will get a software license and service account for the supplier’s dRDS service.

Harris Buys Encoda For \$340 Million

MELBOURNE, Fla. In a \$340 million deal, Harris is acquiring Encoda Systems Holdings, which makes products for radio, TV and other media.

The deal gives Harris a new line of traffic, billing and program scheduling products, as well as automation systems. Harris expected the purchase, which is subject to regulatory approval, to close in early November.

Encoda has 700 employees, and is made up of what used to be Enterprise Software, Columbine JDS Systems and Drake Automation. It is now a private company owned by several investment groups. Encoda reported revenue for the 12 months ending in June of \$124 million.

The agreement “will position Harris as a preeminent supplier of open, integrated, enterprise-wide workflow systems for any operation that creates, manages and distributes rich media,” stated Jeremy Wensinger, president of Harris’ Broadcast Communications Division.

‘Red Light’ Rule Kickoff Delayed

WASHINGTON Maybe we should call it the “Yellow” Light Rule.

Radio World recently reported the FCC plans to check from now on to determine if any individual or company

See NEWSWATCH, page 12 ▶

ANY SOURCE TO ANY FADER!



THE AUDIOARTS ENGINEERING D-16 IT LOOKS EXPENSIVE — BUT IT'S NOT!

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WITH 24-BIT A>D and D>A inputs and outputs and sample rate converters on every AES digital input, the D-16 will work with virtually any digital source gear you have. It can run your source machines too (up to eight of them) — all opto-isolated. Its DSP DIGITAL METERING simultaneously displays VU columns and peak hold fullscale digital so you can be assured of pristine performance. Its powerful caller tools generate mix-minuses automatically, and you can program any of its four MXM outputs to be pre or post fader.

And with Wheatstone’s extensive digital background and reputation you can be assured that the D-16 is a great console!



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Index

NEWS

New York City EAS Plan Unveiled	1
Stern Repercussions Felt After Radio Show	1
NewsWatch	2
NAB Radio Show Photo Gallery	3, 5
From the Editor	4
Terrorism Spawns New Format	6
Ray: AM IBOC Does Sound Good	10

HD RADIO NEWS

HD Radio at the NAB Radio Show	14
Radio World's HD Radio Scoreboard	15
SRS Delivers Surround Experience	16

FEATURES

Now You're Cooking, Engineer-Style	18
Workbench: Let a Scaffold Boost Your Productivity	20
Enstrom, Found in Translation	22
The 'Aeromic': It Is Balloon!	23
Around the World in 80 DABs	27
People News	28
Basic Wire & Cable Terminology	30
Supply Side	30
Who's Buying What	32

STUDIO SESSIONS

Turntables Resurrect Lost Recordings	34
Preparing for an Olympic Broadcast	36
miXart 8 Enables Custom Setups	39

OPINION

Reader's Forum	44-46
Radio — The Reinvented Invention	45
The Time for 5 kHz AM Has Come	46



Judy Ellis, COO of Citadel Broadcasting, said she would bill Howard Stern for the time he spent talking about his Sirius Radio deal on her stations.



From left: NAB's Valerie Schulte, NRSC's Charlie Morgan, FCC's Jim Bradshaw and Ibiqity's Al Shuldiner discuss the IBOC regulatory situation at the HD Radio workshop.

Photo by Leslie Stinson



NPR's Jan Andrews, left, and John Kean look at a new Harris HD Radio transmitter.

Photo by Leslie Stinson

THE NAB RADIO SHOW



Bob Surette, left, chats with customers in the Shively booth.

Photo by Leslie Stinson



Nautel's Scott Campbell opens the company user group meeting.

Photo by Leslie Stinson



Clear Channel engineering executive Jeff Littlejohn, right, digs into Broadcast Electronics' new 50 kW AM transmitter, the 4MX 50. Days before the show, Littlejohn made it a policy for the company's AM stations to reduce bandwidth to 5 kHz for talk and 6 kHz for music formats, and called for other groups to do the same.

Photo by Paul McLane



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OK Fans, Here's Your Scoreboard

So how is the HD Radio rollout coming along?

Radio World has a new tool to help you keep track. It's our HD Radio Scoreboard, appearing in alternating issues in the *HD Radio News* section; in this issue it is on page 15. This is a new, better version of our old format, with more-detailed and comprehensive information.

Look to the scoreboard for a running total of the number of stations on air, how many are licensed by Ibiqity Digital and break-outs by various parameters. This time, we list Susquehanna's HD Radio stations and we learn who's on in San Francisco.

The page is sponsored by Broadcast Electronics and prepared by Radio World staff using data from Ibiqity.

★ ★ ★

My friend Bill Blatz, a radio engineer, used to come into the WDEL newsroom looking upset and ask, "You know what really burns my butt?"

I'd stop work on whatever story I had going and ask, "No, Bill, what?" He'd hold his hand about three feet off the floor and say with a grin, "A flame about this high."

What burns *my* butt is when someone questions my publication's impartiality.

I went to Hartford, Conn., last month to moderate a panel discussion about digital radio. It was a delightful visit, including some wonderful fall foliage. Many thanks to Mike Rice and his colleagues at the

Connecticut Broadcasters Association for the invitation, and congratulations on their annual event.

As I was waiting for the session to start, however, I said hello to one of the attendees, a man active in the industry who has pretty strong (and controversial) opinions of his own.

After recognizing me, he said, "Hey, I know a lot of people think Ibiqity has you in their pocket; but you did a good job with those anti-IBOC letters in the latest issue." Actually the phrase he used was quite a bit more vulgar than "in their pocket," but I won't dignify the expression by repeating it.

Well. Thanks for the back-handed compliment. But as for being in anyone's pocket, I say: horse hockey.

For the record: Radio World is committed to a balanced, open discussion of all industry issues, with comment from all responsible parties. That sometimes means printing comments which someone *else* in our family of readers and advertisers won't like.

Also, Radio World believes that the HD Radio approach to digital radio, while far from flawless, is the only currently viable technological approach to improving our medium substantially.

Notice that I mention journalistic integrity first. It is more important to me than any editorial position on one topic.

As it happens, a great number of industry leaders agree with our stance on HD Radio, from the FCC to NAB to the standards folks at NRSC, and most if not all big radio

groups as well as plenty of public and small commercial broadcasters.

Regardless of the popularity of our view, however (and we were preaching it early), Radio World also publishes skeptical questions and hard-hitting opinions from all over the spectrum on this. Remember our columns by Skip Pizzi, Guy Wire and others questioning every facet of the HD Radio concept? You've seen our frequent letters from opponents of IBOC and the back-and-forth debate on various aspects of it?

Plenty of questions remain; and we cover them.

People with small horizons think that a trade publication like ours, supported primarily by its advertisers, has no choice but to parrot whatever industry "line" is considered as good for those advertisers.

Those people are wrong. No publication has a more balanced approach to covering the technical news of our industry than Radio World. My goals from Day One as editor have been to create a marketplace of ideas and to establish a forum in which we report in the news pages, opine on the opinion pages and hear from others who disagree with us throughout.

That's what good journalists do. As the only U.S. radio broadcast technical trade publication managed by journalists and engineers, that's what Radio World does.

So in response to anyone suggesting we are in the pocket of this or that special interest, I shall paraphrase Monty Python: I laugh in your general direction. And if you come back, I shall taunt you a second time.

★ ★ ★

So Stern is abandoning us for satellite. Or at least we think he is, barring a buyout of Sirius by Infinity or some other twist. And now radio's long-time friends in baseball are dancing with another sweetheart, satellite radio.

The departure of Stern and the big XM baseball contract are, at first glance, depressing for those who cherish the way things are done now.

But this reminds me very much of a situation that actually occurs in baseball. Some big superstar decides he's had enough and becomes a free agent. The local fans gnash

From the Editor



Paul J. McLane

their teeth; the media go bonkers. What will happen to our Mudville Nine now that Casey has left to join the Yankees?

In fact, what happens is that the home team discovers it can do quite well without the big egotistical superstar. Often it improves, finding new ways to win. The megastar's departure motivates his former teammates to new levels and opens doors for younger players.

The Stern thing is a challenge. How will our medium demonstrate to skeptics that we are not a "one jock pony," that stations can go beyond predictable morning jocks who just copy Stern's aging frat-boy act? Meanwhile, how will stations airing baseball respond now that listeners can hear games — distant games, local games, a 24-hour baseball channel — on XM?

Will radio rise to this moment? Meanwhile, as if we needed a reminder that satellite is in the house, Michigan has become the first state to post highway signs directing drivers to tune to satellite for traffic info. State officials saw that drivers could get around-the-clock traffic on Sirius 155 and XM 261, so they've begun posting signs with those frequencies in the Detroit area. The signs also promote local radio stations.

Expect more of this kind of thing. Memo to the FCC: You need to protect the local broadcast infrastructure as well as develop new services. Pay attention to what satcasters are doing on these so-called "local" weather and traffic stations. Ask yourselves if the satellite guys are playing by your rules, honoring the intention of their licenses as national services.

Memo to local managers: This stuff is scary. But to keep the turf you've got, be the best at what you do. Let satellite spur us to be better.

Did You Get Your Copy?

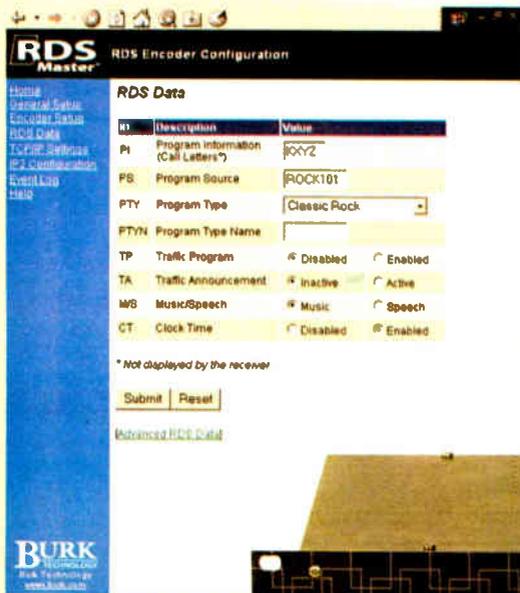
The first issue of Radio World Engineering Extra is out. Kudos to Michael LeClair and Terry Hanley for their work bringing to fruition the inaugural issue, which included tips about grounding from Bill Whitlock of Jensen Transformers; a white paper by Bill Harland of ERI on FM IBOC planning; answers to questions about FM antennas by Dick Fry; ruminations about HD Radio from masked engineer Guy Wire; and a thoughtful essay about engineering management from digital innovator Barry Blessner.

Thanks also to our charter advertisers who made the first issue such a success.

The Engineering Extra is free to radio engineers and qualified technical personnel. You must sign up separately to receive it at www.rwonline.com/eng-extra.



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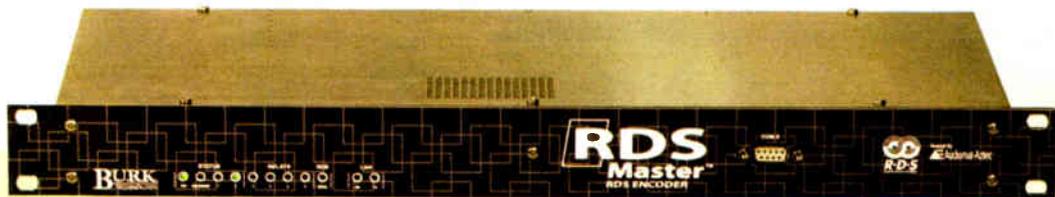
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Keynoter Dr. Jackie Freiberg offered management tips, using Southwest Airlines as a model. 'You don't have to have just one leader who is charismatic, wild and crazy ... to succeed in an industry that might be struggling ... (You need) gutsy leaders at all levels.'



Photo by Paul McLane

Designer P.J. Lawrence shows off one of the NAB Store's T-shirts.

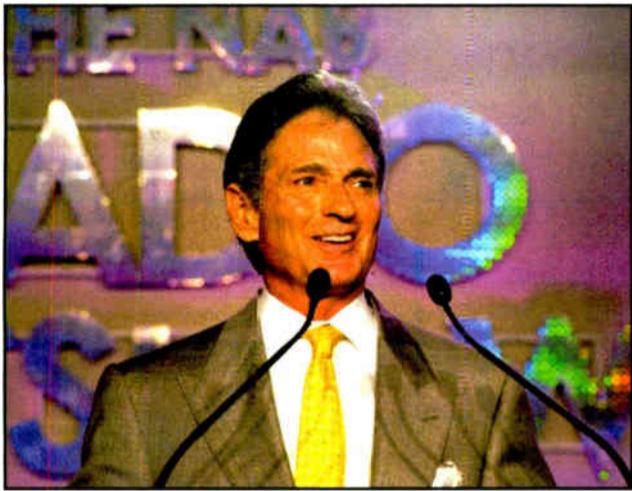


Photo by Leslie Simson

Clarke Brown, Jefferson Pilot Communication's President-Radio Division, received the NAB National Radio Award. He began his career with WQXI(AM/FM) in Atlanta as an account executive in 1967.

THE NAB RADIO SHOW

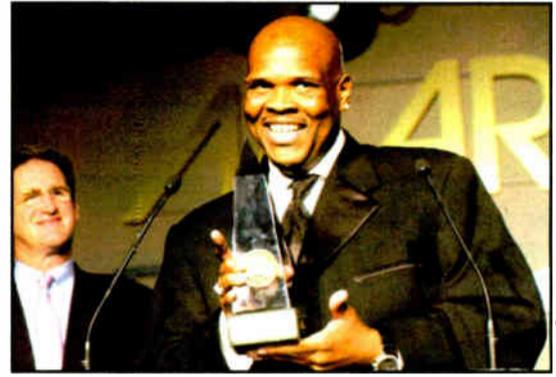


Photo © NAB

Big Boy, Kurt Alexander of KPWR(FM) in Los Angeles, took home the Marconi Radio Award as major-market personality. WOR(AM) was named legendary station of the year; Tom Joyner was syndicated/network personality honoree.



Photo by Paul McLane

Dave Scott, center, gets coordinated with Ryan and Chad Steelberg of dMarc Broadcasting. The latter acquired Scott's companies including Scott Studios and Computer Concepts.



Photo by Leslie Simson

Journal Broadcast's Andy Laird, center, visits the Broadcast Electronics booth.

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Show

► Continued from page 1

ic always seems to happen to dominate the buzz of the NAB Radio Show and certainly this year was no exception as the Stern announcement broke at the top of the show. Remember the LPFM protestors who chained themselves together with bicycle locks at San Francisco's Moscone Center four years ago? And who can forget the sight of Philadelphia's finest guarding Rush Limbaugh and radio show attendees last year during his keynote address after his comments on ESPN about a Philadelphia NFL quarterback? Shortly after that show, he admitted to having an addiction to painkillers.

Attendance seemed to hold steady at last year's roughly 3,900, according to an unofficial count from NAB, which was working to verify a number in mid-October.

Many vendors who spoke with Radio World were happy with the foot traffic through their exhibit booths, the intimacy of the hotel venue and the scheduling of events to allow attendees to visit the floor.

Vendors made business news, too. In a \$340 million deal, Harris said it is acquiring Encoda Systems Holdings, which makes products for radio, TV and other media.

The deal gives Harris a new line of traffic, billing and program scheduling products, as well as automation systems.

Separately, Dave Scott announced he

has sold his three companies — Scott Studios Corp., Computer Concepts Corp. and Scott Concepts Corp. — to dMarc Broadcasting.

Scott stays on as president but plans to retire in three years. dMarc followed up with an announcement of an initiative to advance deployment and use of RDS and HD Radio data services.

Stern's new gig

Stern's current employer issued a statement: "We at Infinity have enjoyed our years with Howard. We wish him well in his new foray into the world of pay subscription radio, beginning in 2006."



Greater Media's Peter Smyth makes a point at the Group Executives Super Session.

After the convention, Stern reported on his show he was working on his two new channels for Sirius and hinted he or Sirius may have a relationship with Infinity owner Viacom in the future.

Sirius estimates that Stern would need to generate approximately 1 million sub-

scribers in order to cover costs of the deal. Total production and operating costs for the Stern show, including compensation of the cast and staff, overhead, construction costs for a dedicated studio, and a budget for the development of additional programming and marketing concepts, is estimated to be approximately \$100 million per year.

Sirius is hoping the five-year deal greatly accelerates its subscribership growth and matches Stern's 18-49 male audience demographics target demo.

"When you look at his enormous existing fan base, all we need is for Howard to bring in a small fraction of his weekly audience for this agreement to pay for itself," accord-

only about 3 million satellite radios have been sold and the public doesn't hear about the "hundreds" of people who drop the service, he said.

Field said reporters for media "like Forbes who print hype verbatim" haven't helped radio, referring to a recent article that likened analog radio to an antiquated technology.

:10s and :20s

Clear Channel's "Less Is More" initiative — to reduce ad inventory and spot lengths in a bid for higher rates — continues to receive attention, and more groups expect to follow suit.

Ellis called it a "positive" for radio, and Field said Entercom also "would be in the :30s business in the future" noting that :60s may work to advertise some products but that length is "absurd" for others. "We're doing :10s and :20s, effective immediately."

Clear Channel Worldwide President, Chief Operating Officer and Acting Chief Executive Officer Mark Mays said, "We believe shrinking ad inventory is better for radio. Advertisers don't want to be the seventh or eighth (spot) in a pod.

"We know advertisers will pay for different lengths," Mays said.

Ellis agreed, saying, "Our problem is a revenue problem. We won't fix it until we reduce inventory loads."

NAB President/CEO Eddie Fritts sought to focus attendees on the future of radio, especially its digital upgrade.

"As we look at new challenges, our answer is to compete technically and with compelling content. Radio is combining the new digital technology on HD Radio with its bedrock of localism — to do what satellite services, iPods and MP3s cannot do," said Fritts. "I think the time is now for HD Radio. Witness the recent announcements by major groups, who are converting the majority of stations over the next few years."

'Go on the air in digital'

"The way to drive receiver sales is for broadcasters to go on the air in digital," Fritts said.

Another threat to stations, Fritts said, was those who criticize "big media," to the extent that they are trying to block some stations from getting license renewals approved. "The FCC and Congress have been bombarded with complaints from groups as diverse as Code Pink on the left to the National Rifle Association on the right.

"Bottom line: these groups are out for your licenses, or, at the very least, to affect the program content of your stations. And they aren't going away anytime soon."

He urged broadcasters to file comments in the localism proceeding at the FCC by the Nov. 1 deadline using the NAB's Web site.

Indecency was a topic of discussion among FCC commissioners in attendance, in part because Stern, announcing his departure, cited the restrictions on broadcasters that do not exist for satellite radio.

"We're seeing an increasing tension between regulations on subscription services vs. broadcast," said FCC Commissioner Kevin Martin. "We're seeing this in TV, too, whether changes should be made (to the indecency guidelines) to create a more level playing field."

NAB and most broadcasters would like to see the commission apply consistent indecency and obscenity guidelines to satellite TV, radio and cable.

Commissioner Jonathan Adelstein said making decisions about indecency cases "one of the worst parts of his job."

"By and large, most broadcasters follow the law." But he doesn't believe the agency

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ing to Sirius President/CEO Joe Clayton.

Shortly after the convention, the satcaster raised about \$321 million in a public offering of stock and convertible notes.

Initially, the Stern announcement overshadowed discussion of digital radio, ad inventory, indecency or broadcast localism.

Some radio programmers were asking whether the Stern announcement signals the arrival of satellite radio as a serious competitor to terrestrial radio listening, while some of their counterparts who lead the major radio groups downplayed the effect.

Entercom President/CEO David Field called the announcement a "kick in the chin." But he believes the impact of the move on Infinity/Viacom was being exaggerated.

"What did it mean to late-night TV when Johnny Carson left? The reality is, that was not the demise of late-night TV."

Who's next?

"The question for the Viacom team is who is going to fill that slot," said Field. "Howard's had a nice run. It's time for someone else to take that slot."

In general, Greater Media President and Chief Executive Officer Peter Smyth said, terrestrial radio shouldn't feel threatened by satellite radio.

"Satellite radio will be there. I don't believe radio is an analog medium behind the dog track."

Also of interest is the immediate question of how Stern will function as a "lame duck" on a medium he has said he plans to abandon.

Citadel Broadcasting Chief Operating Officer Judy Ellis said Stern devoted much of his Oct. 6 show to discussing Sirius; so she planned to calculate how much time outside of the normal spot load for that show was devoted to his discussion of satellite radio and bill Stern's show for the airtime on her affiliates, she said.

In response to an attendee question asking when terrestrial radio is going to stop promoting satellite radio, Ellis said stations could have such specifics written into their contracts with program syndicators.

Entercom does not run ads for satellite radio. "We strip those out," said Field. For all the "hype" surrounding satellite radio,

Show

► Continued from page 6

"should go after performers," to hunt down indecency violators. He said content is decision between companies and their talent.

He reminded the audience that the commission's Enforcement Bureau doesn't pursue stations for indecency or obscenity first, but rather acts on complaints submitted to the commission before investigating a case.

Broadcasters have argued it's unclear what language the commission considers unacceptable. Adelstein predicted the agency would soon issue guidelines about indecency cases that would make it more clear "where the lines are drawn."

Shortly after the show, the FCC proposed a total of nearly \$1.2 million in broadcast indecency fines against 169 Fox Television Network affiliates, the first time the agency has penalized affiliates. It's the largest fine for TV indecency and the first of several indecency rulings observers expect soon.

Clear Channel Radio paid \$1.7 million in June to settle several outstanding radio indecency cases.

Indecency yo-yo

Before lawmakers adjourned in mid-October for election-season campaigning in their home districts, efforts to raise penalties for broadcast indecency were dashed, then revived.

House-Senate conferees killed language tacked onto a defense spending measure to substantially raise fines for broadcast indecency because of objections related to language related to the FCC's new ownership rules. But a stand-alone bill with similar language to raise indecency penalties was introduced. The measure by Sen. Sam Brownback, R-Kansas, would raise the penalty for indecency to a \$500,000 maximum, with a \$3 million per day cap. The current maximum fine is \$27,500.

Sens. John Ensign, R-Nev., and Conrad Burns, R-Mont., co-sponsored the bill, which would give the FCC the leeway to consider market size and ability to pay when rendering a decision.

Backers such as groups like Morality in Media urged members to have it brought to the floor for a vote in a lame-duck session slated to begin Nov. 16.

The FCC's new radio market definition for the purposes of counting how many stations are in a market was also on the minds of attendees. The FCC is using Arbitron Radio Metros for most markets and trying to create a definition for smaller markets not rated by Arbitron.

Commissioner Martin said he was hesitant to make the change at first. "We had a definition. It had flaws, but was useful," he said referring to the contour-overlap method of determining how many signals are in a market.

Adelstein said the implications for changing the definition "are enormous. We have a pending item and we need to figure it out."

As for the issue of program taping and retention, a broadcaster told the commissioners that mandating these actions will make radio more bland. He suggested an exemption be made for news broadcasts.

Martin was sympathetic and said there may be other ways to address the issue.

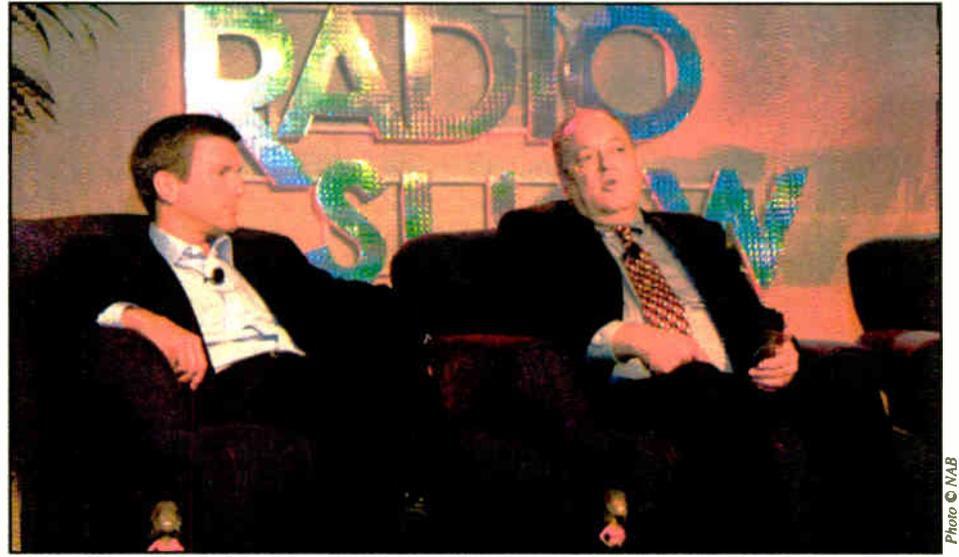
The FCC has said the program recording and retention mandate would help the agency to investigate indecency complaints.

And just before the show wrapped up, radio got a present: The temporary freeze

on filing applications to build or sell radio stations was lifted. The Office of Management and Budget approved the new FCC application forms for construction permits, assignments and transfers of control (Forms 301, 314 and 315 respectively).

The freeze began when a federal appeals court recently allowed the commission to implement its new radio market definition — based on Arbitron Radio Metros. The new definition, delayed more than a year since commissioners passed it last June, replaces the contour overlap method of determining how many signals are in a market. The agency is working on that for those markets not rated by Arbitron.

New product introductions at the show will be covered in the next issue of Radio World. 🌐



Commissioners Kevin Martin and Jonathan Adelstein



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Terrorism Spawns New Format

Homeland Defense Internet Radio Station Serves Security Community Niche

by Kathy Merritt

WASHINGTON The media may be full of stories about homeland security; but for those who can't get their fill of information about the threat level or how Congress is spending money to fight terrorism, there's HomelandDefenseRadio.com.

The 24-hour Internet radio stream, based in Arlington, Va., bills itself as providing "time-sensitive information to the homeland defense community."

HomelandDefenseRadio.com began broadcasts on March 15. The idea came from Don Dickson, publisher of Homeland Defense Journal, a print and online magazine. Dickson co-owns HomelandDefenseRadio.com with Bill Day, who serves as executive vice president of the radio Web site.

According to Day, HomelandDefenseRadio.com is a separately owned company that partners with Homeland Defense Journal for cross-promotion, content and advertising.

"We have the ability to offer integrated advertising campaigns that include radio, print, conference sponsorships and market research. I don't think there is any other media outlet that can offer that to homeland security advertisers," he said.

Niche radio

Dickson asked Internet broadcasting veteran Marlis Majerus to start the radio site. Majerus was a founding employee of FederalNewsRadio.com, which calls itself the first all-news online radio station and is owned by Bonneville station WTOP(AM) in Washington.

Majerus, who is vice president of news and programming for HomelandDefenseRadio.com, said the new venture is "very specialized, niche radio." She said it speaks to first responders such as police

and firefighters and also to "buyers, sellers and decision-makers" in the homeland defense community.

The regular features include reports geared for state chief information offi-



cers, advice on applying for grants to receive some of the millions of dollars allocated for homeland security and the latest on technology for the homeland defense community. Majerus said anyone with a computer and Internet access is welcome to go the site and listen, but she said the general public would find much of the content hard to relate to.

There are a few features for general consumption, such as Homeland Security Watch, with the latest information on homeland security issues, and Firehouse Gourmet, a weekly item that presents "rib-sticking recipes" from firefighters.

HomelandDefenseRadio.com produces one hour of new programming each day, which repeats. The new broadcasts begin at midnight.

The broadcasts are exclusive to the site, but Day said the company is "exploring opportunities and interest levels" of radio stations that may want to broadcast some of the material.

Majerus said content comes from the work of the news staff, as well as from press

releases and information from other Internet sites. HomelandDefenseRadio.com subscribes to the Associated Press and occasionally airs live feeds from the AP Hotline. Some story ideas come from the station's partner, Homeland Defense Journal, Majerus said.

According to Day, Wireless Communications Association International also is a content partner. He said the site was to begin a weekly "Business of Homeland Security Report" in September with HomelandDefenseStocks.com

HomelandDefenseRadio.com broadcasts from a studio in the office building that houses the company. Day said design and construction were done in consultation with the site's freelance broadcast engineer, Lew Walker.

using the equipment HDR says it has, initial equipment costs were likely \$15,000 and annual streaming costs could be pegged around \$25,000-\$30,000.

The Internet radio station has three major sponsors: Geico, Motorola and Citrix, a company that provides infrastructure to access business information on demand. The sponsors have signed on for the first year of the radio stream, according to Majerus.

The Internet station has a small staff. Majerus asked veteran Capitol Hill broadcaster Dan Scanlan to come out of retirement to become assistant news director. Scanlan, who left CBS in 2000, has also worked for AP, Mutual Broadcasting and NBC.

The site has added two more journalists: Pye Chamberlayne, a 35-year veteran with United Press International, and Dick Rosse, formerly with Mutual and NBC. Majerus said a number of stringers



Marlis Majerus

"He designed and built a studio that allows us to conduct in-studio and phone interviews as well as taking call-in questions from listeners," Day said.

Costs, sponsors

The stream is automated using Simian, digital audio automation software from Broadcast Software International. Day said three Dell workstation computers are used for the site. One is dedicated to the automation software and another runs Windows Media encoder, which sends the content to the streaming provider. The third computer is for production using Adobe Audition software.

report for the news service.

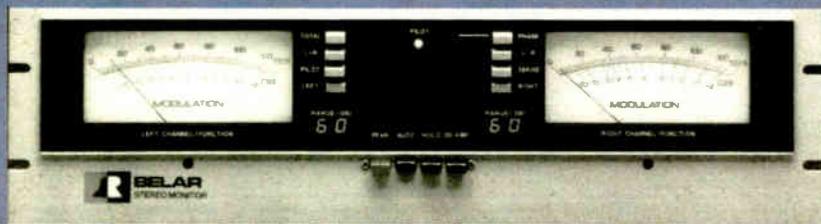
There is one full-time sales person and one part-time sales rep for HomelandDefenseRadio.com. Sales people for the Homeland Defense Journal also sell for the radio site.

According to Day, the audience for HomelandDefenseRadio.com is growing. He said the site has about 31,000 listeners a month, with an average time spent listening of 56 minutes.

The company tracks IP addresses of listeners; most are from government, he said. The audience includes listeners from Australia, Canada and the United Kingdom. Listeners are invited to sign up for a weekly

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We get the word out that something's being done to keep us safe.

— Marlis Majerus

The studio has an Allen and Heath Mixwizard WZ 12:2DX and AKG C1000S microphones. The studio also has a Telos One + One hybrid unit for handling telephone interviews. Freelance reporters collect sound in the field using MiniDisc recorders, produce them using Cool Edit software and file their stories via e-mail.

Day wouldn't comment on how much it cost to start the company or what the annual budget is. The founder of another automated Web stream estimated that,

program guide on the Web site.

Majerus says she was hesitant about making the switch from FederalNewsRadio.com to the new homeland defense station, but saw the need for a site where people in the homeland defense community could receive and share the latest information.

"It's a scary world. I am heartened by what I learn, what our country's doing to keep us safe. And we get the word out that something's being done to keep us safe." 🌐

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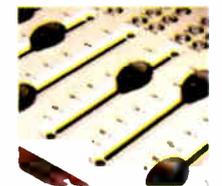
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GUEST COMMENTARY

Ray: AM IBOC Does Sound Good

by Thomas R. Ray, III, CPBE

So it appears Leonard Kahn has decided to take issue (Sept. 24) with my comments in the July 14 Radio World aimed at his earlier guest commentary.

Since I am in the middle of three major projects right now and do not have the time for this foolishness, I will briefly point out the falsities and backward thinking in Mr. Kahn's recent guest commentary.

Mr. Kahn states that WOR and WLW "jammed each other 30 miles from their transmitters." Did anyone see Leonard Kahn involved in any of this overnight testing?

I certainly didn't, and I was involved in this testing in a big way. We drove the WOR signal out beyond our Interference-Free Nighttime Coverage area, 78 miles out to Allentown, Pa. At the very fringe of this drive there was a minor hiss in the background of the WOR signal that was far more listenable than the Donald Duck talk that was present with the WLW IBOC carriers turned off.

WLW was listenable but very noisy at this point and, interestingly enough, was just as noisy with the WOR IBOC carriers turned off. At 95 miles out from the WOR transmitter, depending on the skywave levels, the stations were either listenable or not. Once again, interestingly, both signals were just as noisy with the IBOC carriers off.

The right skywave conditions

Bottom line is that we were able to carry WOR beyond our useful nighttime coverage area, and could listen to WLW when the skywave conditions were right. So, Mr. Kahn, where is the jamming and the destruction of the AM band you are talking about?

Now, Mr. Kahn, I would like to ask — when have you listened to an actual, over the air, AM IBOC broadcast? The WOR IBOC signal sounds just as good, if not better, than any analog FM in New York City.

Just my opinion? I think not. Ask the several reporters and reviewers I have driven around the greater NYC area over the past month — persons whose jaws hang open when they hear the AM IBOC signal, and who openly state that it sounds better than FM.

Ask staff members of this radio station (WOR) who cannot believe we could sound so good. Ask my neighbors, who actually ask when WOR got themselves an FM station. Yes, Mr. Kahn, the AM IBOC signal *does* sound as good as analog FM.

It's nice that Mr. Kahn thinks no one can hear greater than 30 dB separation. I have taken songs that, on a digital editor, measured in excess of 60 dB separation, and purposely narrowed them down to 30 dB.

Guess what? Everyone I've played them for noticed an immediate difference. I still do not understand why Mr. Kahn would want to push a system down our throats that modifies the content of the broadcast material to the detriment of the material itself.

The FCC regulations used to spell out what was and what was not an acceptable level of distortion introduced into a signal, and distortion is what is happening when you degrade the stereo separation. The idea here is to improve our product, not take it back to the 1920's. We don't use carbon microphones at WOR any longer.

We have entirely lost one generation of persons who no longer listen to or acknowledge AM radio's existence.

And speaking of lightning hits, I was recently out in the car during a lightning storm. Richard Buckley, our president, was with me.

We were listening to WOR's IBOC signal. There wasn't one dropout on the WOR IBOC signal during lightning strikes. No crackles, either. The point is, IBOC will help get rid of lightning "jamming."

Mr. Kahn then goes on to slander me by saying I have a bias against older engineers. That is as far from the truth as he can get.

I have learned from many fine older engineers over my career, and I'm not as young as Mr. Kahn may think I am. I have a great respect for older engineers, especially those who recognize that it is time to move aside because they are impeding progress.

Someday, I will need to do this and hope that I will be wise enough to do so. That being said, my issue is with a proposed system that, for all intents and purposes, further degrades what we have been transmitting the past 80 years and does nothing to improve the audio quality of the signal, which is why the public is looking at other methods of getting their entertainment.

Why did Richard Buckley not respond

to Mr. Kahn in Radio World? Because, Mr. Kahn, I am the director of engineering for this corporation, and Mr. Buckley has me handle all engineering aspects for the corporation.

That is my job, and it is obvious you have no respect for that. I suspect that you, Mr. Kahn, have a bias against younger engineers who are trying to better our profession.

Stop beating the war drum! Last time I checked, AM radio was not the only medium for getting early warning information out to the public.

AM radio will do a lot of good getting an alarm out during Monday Night Football or any other time the public is not listening to their AM radio ... like when they're listening to FM or satellite or Internet radio.

Additionally, I have great respect for the roots of WOR, which was founded by

that cannot be proven in a lab setting, such as skywave. If the FCC felt it was being deceived, it would have put a stop to IBOC a long time ago.

Ibiquity is open

All of the documentation I have seen that has been submitted to the commission by Ibiquity has been both forthright and straightforward. While Ibiquity has protections in place for patents on its technology, it has willingly provided information regarding its IBOC system to the general public rather than hiding behind the word "proprietary." Where were you five years ago when this technology was coming to fruition?

Ibiquity has done much of its work, particularly in the last two years, in public and has had nothing to hide. It has taken its lumps, particularly on the audio coding issue.

Ibiquity made changes and came back with a much better product. "We The People" have been demanding changes to our present terrestrial methods of broadcast for a while, and listeners have been making their demands with their wallets, with CD players, MP3 players, Internet radio and satellite radio.

Take a good, long look at the ratings books and the continual declines of persons listening in each and every market. Many stations are struggling to stay afloat because the listeners are leaving.

Besides the programming issues, the other issue is audio quality. We have entirely lost one generation of persons who no longer listen to or acknowledge AM radio's existence. Tell me, Mr. Kahn, how much good these stations will do "getting alerts out" if they are off the air?

We are long overdue for a change in the way we transmit our signals in this country. Staying with analog AM is not the way to go. A smart person, regardless of age or experience, knows when it's time to move on. I recognize this fact. It's too bad that Mr. Kahn does not.

The author is corporate director of engineering, Buckley Broadcasting/WOR Radio in New York and chairman of the New York Chapter 15 of the SBE.

RW welcomes other points of view.

NEWS WATCH

FBI Looks Into Texas Break-Ins

HOUSTON Investigators in October were looking into a series of break-ins at broadcast transmitter sites, cell sites and pager sites. Readers said the FBI and its counterterrorism intelligence group representatives, county sheriff's officials, air marshals and the Homeland Security officials attended a regional SBE meeting to discuss the break-ins and offer assistance to engineers.

The break-ins, reportedly including 13 radio and two TV stations, occurred at off-hours. Engineers were encouraged not to visit transmitter sites alone, especially at night, even to respond to alarms.

Anyone with information was encouraged to contact the Houston FBI at www.ctig-houston.org.

NAB Supports Bringing Back Tax Certificate Program

WASHINGTON NAB supports bringing back a broadcast tax incentive program and urges the commission to repeal or at least narrow its equity/debt plus attribution rule, which the association says discourages investment by established broadcasters in new entrants.

Until it was killed in 1995 for alleged mismanagement, the incentive program gave tax breaks to station or group owners that sold facilities to minorities and women. NAB supports a bill introduced by Commerce Committee Chairman John McCain, R-Ariz., to reinstate a program similar to the defunct minority tax certificate program.

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EAS

► Continued from page 1

Rudy Giuliani would have used the local EAS system to address the fears of residents, said Dick Novick, senior vice president of the New York State Broadcasters Association, who helped coordinate the effort to develop a local EAS plan.

Mayoral activation

"We are confident this is not something that will be misused by city government. Certain criteria will have to be met to warrant a local activation by the mayor," Novick said.

City authorities and local broadcasters signed a memorandum of understanding; it broadly states that the plan "shall not be deemed as a relinquishment of program control and does not prohibit stations from exercising independent discretion and responsibility in any given situation."

Novick said the mayor's staff held a meeting in 2003 with station managers and news directors to begin planning for a local EAS system.

"When we came up with the idea, we wanted to use the existing infrastructure of EAS and the city's secured trunking radio system," said Kevin Plumb, director of engineering for ABC Radio in New York. "I think this is what EAS was created for. This is perfect in the event of a



Mayor Michael Bloomberg at the announcement in New York.

duck-and-cover emergency."

Plumb said the mayor would use a secure cell phone, satellite phone or land line to originate an emergency call to one of two EAS encoder/decoder boxes located in several of the city's command centers. The mayor will be prompted to supply a series of passwords and codes and then speak to supply the audio message.

"The city's two-way radio system will be monitored by receivers at all four LPI stations. The message will be authenticat-

ed by the EAS header to make sure everything is legit. We will record and store-forward any comments from the mayor," Plumb said.

Mark Olkowski, director of engineering for Infinity Broadcasting in New York, said the lack of a New York City EAS plan was evident during 9/11.

A better plan

"Looking back, we could have been better prepared. That event really spurred the whole notion of committing ourselves to being better," Olkowski said.

Olkowski, who oversees technical operations for three of the four LPI stations in the city (WCBS, WFAN and WINS), said closed, off-line circuit tests and loop tests between the mayor's office

and the four LPIs began in late summer. Periodic testing will be done to ensure the local system is operating correctly.

"It really is a very simple system right now. It may become more sophisticated down the road, but right now we are piggybacking on what we had already in place for EAS," Olkowski said.

According to Mayor Bloomberg, the New York City EAS is expected to cost the city around \$100,000 yearly to maintain. Plumb said broadcasters would not pay any of the cost for operating the local EAS system. The city is hiring a full-time broadcast engineer to manage and oversee its EAS equipment and operations.

A second component of the mayor's local emergency plans include construction of six facilities in three boroughs for city leaders to conduct news conferences during emergencies. Fiber optic lines will be installed to transmit audio and video to broadcasters across the city, Plumb said. The mayor's office has not released a date for the scheduled completion of the second project.

The city's EAS plan was approved by the State Emergency Communications Committee and has been filed with the FCC. The commission has encouraged local disaster officials to coordinate emergency communication plans with broadcasters and to file those plans, Novick said.

The FCC adopted a Notice of Proposed Rulemaking in August to evaluate the need for changes in the national EAS. One component of the NPRM addresses the need to require broadcasters to carry all local and state emergency alerts. Currently, only a presidential emergency message is required to be rebroadcast.

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NEWS WATCH

► continued from page 2

owes the agency money before it processes any license applications or follows through on benefits sought by individuals or companies.

Once the so-called "Red Light" rule takes effect, those who owe the commission money would be given 30 days to pay the debt in full or make other satisfactory arrangements.

Failure to do so will result in dismissal of the application or other request for a benefit.

The FCC has decided it's in the public interest to delay enforcement of the recently adopted Red Light Rule from Oct. 1 to Nov. 1.

To see if you or your company is in debt to the agency, go to: www.fcc.gov/redlight.

Kenyon Joins Denny & Associates

OXON HILL, Md. Former Clear Channel engineering executive Al Kenyon has taken a position with Denny & Associates as the new head of the Broadcast Technical Services Division.

The consulting firm specializes in broadcast, wireless and RF engineering.

At Clear Channel, Kenyon oversaw office and studio consolidations. He was vice president of engineering for

Jacor when Clear Channel bought that company in 1999. He started out as chief engineer for Jacor's WLW(AM) in Cincinnati and worked a combined 16 years for both companies.

Reach him via e-mail to akenyon@denny.com.

Nautel Ups Lonergan

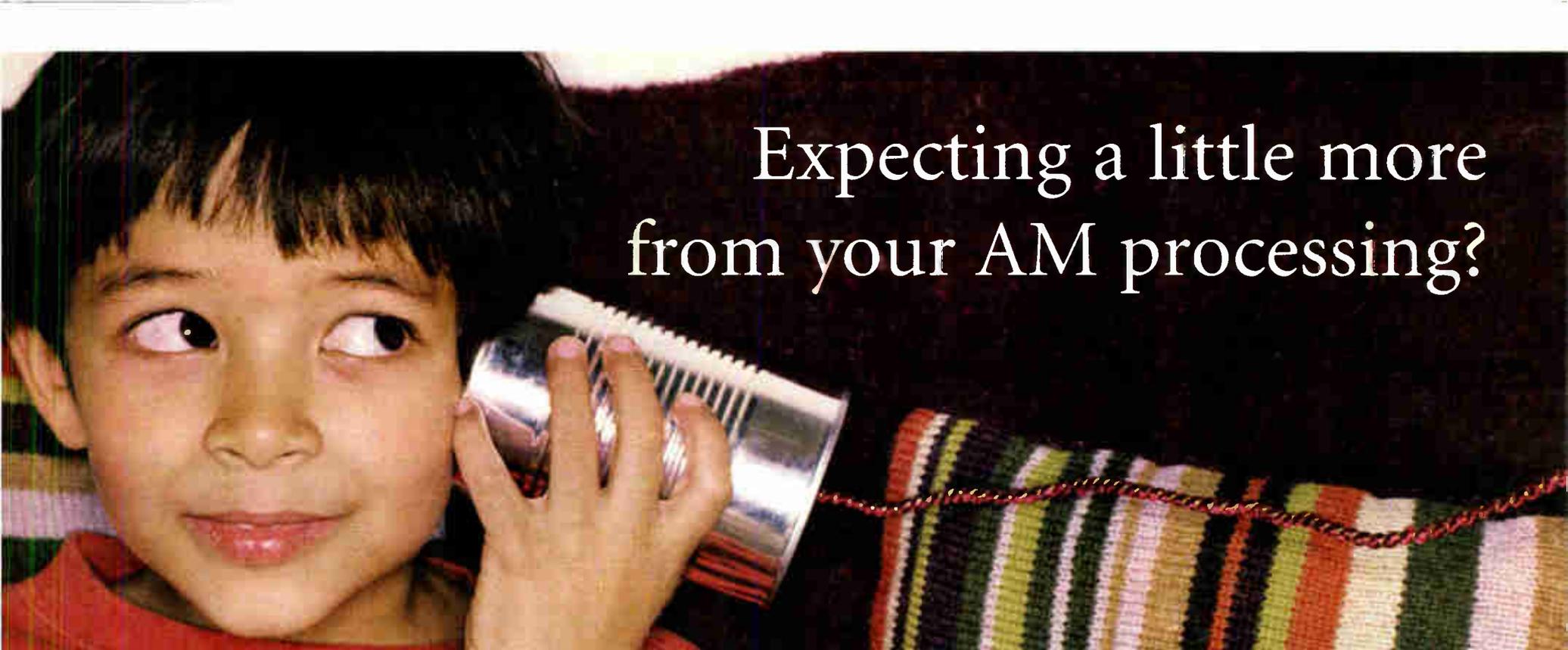
HACKETT'S COVE, Nova Scotia Nautel engineer Wendell Lonergan has been promoted to technical sales manager. His duties include technical support for new sales opportunities on a product range; his specialties are IBOC and DRM technologies. Lonergan has been with Nautel for 25 years, and was most recently project leader for AM development.

In the 1980s, he was involved with AM stereo.

"When I was not in the lab, I traveled around North America helping people with their stereo transmission systems. In more recent years, my efforts have been largely devoted to HD Radio and DRM technologies."

He has commissioned a 100 kW DRM transmitter system in Muehlacker, Germany and a 200 kW DRM transmitter system in Orfordness, England.

Reach Lonergan via e-mail to: wlonergan@nautel.com.



Expecting a little more from your AM processing?

Omnia-5EX for AM delivers.

Many people are saying that HD Radio will benefit AM stations most, because the fidelity improvement will be so dramatic. Probably so. But you'll need a processor that gives you maximum quality on a low-bitrate coded channel. You need a processor designed by people who understand both processing and audio coding - and nobody knows these audio arts better than Telos / Omnia.

The new Omnia-5EX HD+AM is the only processor that accommodates **both your analog and digital channels** in a single unit that easily integrates with your HD encoder and transmitter.

Processing for the HD Radio side is smooth and clean, capably handling AM's programming variety - and really showing off the digital channel to listeners first sampling the new medium.

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Ibiquity: '05 All About the Radios

*Receiver Rollout, Surround Sound, Border Issues
And Early Real-World Lessons Are Discussed*

by Leslie Stimson

SAN DIEGO Digital radio is pushing forward on several fronts, and they were apparent at the NAB Radio Show here. The first tabletop HD Radio is due out next spring; several suppliers conducted demos of surround sound for digital radio; and Ibiquity and its manufacturing partners have upgraded the transmission software to better accommodate complex data applications and supplemental channels in the future.

Now that several major radios groups have committed to converting the bulk of their stations to HD Radio, Ibiquity sees 2005 as the year to get those radios into the hands of the public.

"We started selling radios this year," said Ibiquity Digital President/CEO Robert Struble, referring to the January debut of the Kenwood IBOC radio. Panasonic and JVC also have digital radios on the market.

"I think '05 is really going to be about getting many more radios out there and working with industry to drive consumer adoption of radios."

Driving up the number

"We have now commitments in-hand to convert up to 2,500 stations over the next several years," said Struble. "This will be the vast majority of listenership in the country and certainly gives us well beyond what we've been looking for — the critical mass to kick the rollout into high gear."

Clear Channel, Cox, Entercom and Greater Media have committed to convert the majority of their stations.

Susquehanna Radio Director of Technical Operations Norm Philips said his company would have roughly all 30 of its

stations converted by January of 2006. Eleven stations will be on with a digital signal by the end of November, and most of the remaining stations will convert next year. The total cost is roughly \$4 million, he told Radio World.



The Boston Acoustics Receptor Radio HD will retail starting at \$299.

There are about 140 stations on the air with HD Radio now, and three manufacturers of digital radios: Kenwood, JVC and Panasonic.

Receivers are due out soon from Jensen, Alpine, Sanyo, Visteon and Delphi, said Ibiquity Executive Director of Broadcast Business Development Scott Stull.

Boston Acoustics announced it would debut a tabletop HD Radio in the spring beginning at \$299, which is significantly lower than the \$500 to \$1,000 models currently on the market. This unit will be able

to accommodate supplemental audio channels, said several sources. To date, all the HD Radios on the market have been aftermarket units.

As it was with the satellite radio companies, getting the new radio into the dash is key to growing sales of digital radios. Ibiquity expects HD Radios to be original equipment in the dash on some car models at this time next year, beginning with luxu-

ry vehicles.

Stull said stations on the air with a digital signal are receiving calls from listeners curious about the technology. The company still hears occasionally from the man who purchased the first HD Radio this January.

"He still likes it," said Stull.

To coincide with the promise of improved audio in the car, Orban, Omnia/Fraunhofer and Neural Audio showed surround demos for HD Radio. At least two FM stations broadcasting a digital signal and on which Radio World has

reported have begun experimenting with 5.1 surround sound.

Broadcast engineering sources predicted one or two leaders would emerge in this product offering.

Frank Foti, president of Omnia Audio, went further. "We do need to adopt one system. If not, we're wasting time."

Neural Audio Co-Founder, CTO and Chief Scientist Robert Reams said whatever system broadcasters choose must be affordable.

On the station implementation front, Ibiquity has roughly 400 stations licensed and hopes to grow that to 1,300 by year-end, said Stull, who emphasized that the license fee to Ibiquity is a one-time expense, not an annual expense. He said there had been some confusion about this point.

Next FCC action

Observers and manufacturers have been anticipating further action from the FCC to formalize IBOC authorization. In order to complete its job, the commission is looking to the National Radio Systems Committee, which is working on a transmission standard for AM and FM IBOC. Various members queried by Radio World said they hoped the group would complete its work by the spring show.

Jim Bradshaw, an associate division chief of the Audio Division of the FCC's Media Bureau, anticipates the commission releasing an order in early 2005. While that order likely won't be the final IBOC authorization, he anticipates it could address AM nighttime authorization and supplemental audio channels.

He said he couldn't say whether the AM nighttime language would be a blanket approval for all AMs to go IBOC at night. "We do have some concerns," he said. NAB has submitted some interference resolution suggestions, he said; and whatever the commission decides, "It will give clear guidance on what stations experiencing interference can do."

See IBOC, page 16 ▶



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Radio World HD Radio™ Scoreboard

The HD Radio Scoreboard is compiled monthly by Radio World using information supplied by iBiquity Digital Corp. The data shown reflect best information as of Oct. 13, 2004. This page is sponsored by Broadcast Electronics. HD Radio is a trademark of iBiquity Digital Corp.

HD Radio at: Susquehanna

Station	Freq.	Format	Market	On-Air?
KFFG(FM)	97.7	AOR	San Francisco	Yes
KFOG(FM)	104.5	AAA	San Francisco	Yes
KSAN(FM)	107.7	Clsc Rock	San Francisco	Yes
WFMS(FM)	95.5	Country	Indianapolis	Yes
WGLD(FM)	104.5	Oldies	Indianapolis	Yes
WGRL(FM)	93.9	80s Hits	Indianapolis	Yes
WRRM(FM)	98.5	AC	Cincinnati	Yes
WWWQ(FM)	100.5	CHR	Atlanta	Yes
WYGY(FM)	96.5	Country	Cincinnati	Yes
WARM(FM)	103.3	AC	York, Pa	No

HD Radio in: San Francisco

Station	Freq.	Format	Owner	On-Air?
KDFC(FM)	102.1	Classical	Bonneville Intl.	Yes
KOIT(FM)	96.5	Soft AC	Bonneville Intl.	Yes
KZBR(FM)	95.7	Country	Bonneville Intl.	Yes
KKSF(FM)	103.7	Smooth Jazz	Clear Channel Radio	Yes
KYLD(FM)	94.9	CHR/Dance	Clear Channel Radio	No
KCBS-AM	740	News	Infinity Broadcasting	Yes
KQED(FM)	88.5	Nws/Tlk/Inf	KQED, Inc.	No
KMZZ(AM)	1510	Classical	Mount Wilson FM Broadcasters, Inc.	No
KALW(FM)	91.7	Nws/Tlk/Inf	San Francisco Unified School District	No
KCSM(FM)	91.1	Jazz	San Mateo County Community College	Yes
KFFG(FM)	97.7	AOR	Susquehanna Radio Corp.	Yes
KFOG(FM)	104.5	AAA	Susquehanna Radio Corp.	Yes
KSAN(FM)	107.7	Clsc Rock	Susquehanna Radio Corp.	Yes

The Bottom Line

Licensed

401

On the Air

142

Last Month

Licensed

393

On the Air

136

Market Penetration



■ Licensed by Ibiquly and on the air

■ Licensed by Ibiquly and not on the air

GUEST COMMENTARY

SRS Delivers Surround Experience

SRS Labs Surround Sound Will Work With HD Radio

by Alan Kraemer

This is one in a series of Guest Commentaries from companies adapting surround sound for digital radio. SRS Labs is the third of the series; others have included Neural Audio and Telos/Fraunhofer.

The author is executive vice president of SRS Labs Inc.

In the beginning, there was AM, and a single speaker in the top of the dash and people thought it was good, or at least okay. You could listen to the news, the ball game

and early rock and roll all in your car — fantastic! Or, at least okay.

In those days, car radios were built with tubes, so they took some time to warm up; now they take time to boot up. Some things never change.

Then someone put a speaker in the back window ledge so the passengers in the rear seat could also hear the news, the ball game or early rock and roll and that worked out well... for a while.

Then someone invented the 4-track, then the 8-track (because eight must be better than four) then the cassette, and cars got

relaxed and this issue could potentially be included in the next IBOC notice, he said.

Bradshaw said it was too early to say what the commission would decide about supplemental audio — the concept of stations splitting the digital signal into more than one channel — although, he said, “It sounds like a great way to deal with competitors like satellite radio. It has promise.”

To advance the Tomorrow Radio project, NPR conducted tests this summer to determine if listeners could hear a difference in audio quality at bit rates of 12 to 25 kbps using different codecs. Previous tests for the split-channel concept kept the main digital channel data rate at 64 kbps and the supplemental channel at 32 kbps.

Participants also wanted to determine whether radio reading services sounded better at lower bit rates, said Mike Starling, vice president of engineering for NPR. The group planned to submit test results to the FCC sometime after the convention.

They learned that “flexibility is key” in determining the optimum bit rates for supplemental audio channels, said Starling.

IBOC beyond the borders

Ibiquity believes once it achieves momentum domestically, much of the Western Hemisphere will begin using its system.

“For a lot of different reasons, it makes sense,” said Struble. “The U.S. is the biggest market. The technology is thoroughly vetted by the FCC and there’s a lot of cross-border listening and advertising. It’s logical, and we think it’s happening.”

The Mexican government is looking to choose a system in 2005. Struble predicts both it and Brazil will “make news” with IBOC in '05.

And what of our neighbor to the north, Canada? Its broadcast association is concerned about potential interference from U.S. IBOC stations to Canadian stations using analog signals. Although Canada is using the Eureka-147 technology for digital radio on FM in six markets, it still relies heavily on analog in much of the country.

Ibiquity General Counsel Al Shuldiner said some Canadian broadcasters are concerned about IBOC’s impact on AM skywave signals. “We haven’t spent much time educating Mexican and Canadian regulators. We have time to let them know we don’t see a large impact on skywave. We see Canada and Mexico as logical extensions of service.”

Ibiquity plans to have those conversations with Canadian and Mexican regulators, he said.

Nautel, Broadcast Electronics and Harris showed new HD Radio-compatible equipment, which will be covered in an ensuing article here. 

stereo and it was great! Or, at least OK. But some people said, “This still doesn’t sound very good,” so the aftermarket appeared and people began to customize their car audio systems, at first to listen to music and then

that didn’t solve the problem for FM radio, which after all, was limited to only two channels, a problem also facing the surround sound capability of regular CDs. Some engineers attempted to solve this problem by using a matrix surround system; but it didn’t solve the second problem — a car is not a home theater.

Short of redesigning cars to resemble living rooms, this was a pretty tough problem.



The FujitsuTen Headunit with CS II supports surround sound.

later to generate better bass.

Eventually, car manufacturers caught on and said, “Hey, we want a piece of this!” so they started installing lots of speakers and sub-woofers and amplifiers in cars for testing. Some of these systems sounded really great, but they were still just stereo — dual stereo, actually; stereo in the front and the same stereo in the back.

Unfortunately some of those systems didn’t sound very good because the speakers were in odd positions and the people were

The traditional ‘sweet spot’ can be expanded so that listeners in any car seat perceive a surround image.

often seated with their knees next to the speakers or their ears right up against one speaker in the rear deck, even though the driver’s experience was not bad.

As the drive-in craze swept the nation, people drove their cars everywhere, including the movies. And the movies had developed something called surround sound. People liked it so much that they started installing surround systems in their houses.

It didn’t take long before they started to ask, “Why can’t we have surround sound in our cars?” And they wondered that for a long time.

The middle

Dolby, DTS and a few other companies decided that it should be easy to put surround sound in the car because speakers were now commonly built into the front and the back of the car, and the wiring was already installed.

So they tried it and succeeded, but there were two major hurdles. First, it was tough to get all those channels into the car. Second, somehow it didn’t sound very much like a home theater system.

The first problem was partially solved by creating multichannel compact discs or DVDs that could be played in the car. But

This issue of cars not being home theaters and people in funny positions at first glance looks like a hard thing to solve until you realize that nowadays we have digital signal processors and a far better understanding of how the human hearing system works. Armed with this know-how, SRS Labs has created some pretty sophisticated audio technologies to make the car environment sound more like a home theater without adding walls and a chimney.

First, the front and rear audio images can be elevated away from speakers mounted low in doors next to people’s knees. This is extremely important because most home theaters don’t have speakers mounted next to your knees. Secondly, the traditional “sweet spot” can be expanded so that listeners seated in any position in the car perceive a surround audio image.

Also, because things are tight in the dash these days, the need for a center speaker can be eliminated using the latest psychoacoustic techniques. Just for good measure, bass performance also can be radically improved for added impact and mixing techniques can be used to balance the surround image so that people in the rear seats can still hear the vocals and dialog, and people in the front seats can still hear the surround.

Add all of this to a high-performance 5.1/6.1 channel surround system like SRS Circle Surround, and the results can range anywhere from fantastic to amazing.

Now we have taken care of both problems in the car. We have delivered multichannel audio over two-channel media like FM, compact discs and traditional standard definition broadcasting, and we have used signal processing to make the car sound more like a home theater. This makes 8-tracks sound downright primitive, and to make it even better, we can use a technology like HD Radio to get those two channels into the car much more reliably, with fewer interruptions, and with better quality.

This is a great combination, and it’s why Ibiquity Digital and SRS Labs have teamed up to provide an incredible-sounding and highly robust broadcast digital surround system for the car that also works at home. So while some surround systems simply provide the channels, SRS Circle Surround delivers an experience.

Reach the author at alank@srslabs.com. RW welcomes other points of view. 

IBOC

► Continued from page 14

“Unlike FM, I think AM would have more specific interference mitigation criteria,” specified, he said.

NRSC Chairman Charlie Morgan said, “AM propagation doesn’t lend itself to repeatable tests. I think AMs that are on now (with IBOC) should be allowed on at night.”

Some FM broadcasters would like to use a simpler notification process if they plan to implement IBOC with dual antennas. Now, they need to apply for an STA from the FCC. Bradshaw acknowledged some broadcasters would like the STA requirement

AM Antenna Performance Tips

Engineers for AM stations need to pay attention to their antenna systems as they prepare to implement IBOC at their plants. That’s the word from Ron Rackley of du Treil, Lundin and Rackley and Ben Dawson of Hatfield and Dawson, who discussed AM antenna performance concerns at the fall NAB Radio Show.

They said antenna performance is important to a robust digital signal. Many of the AM directional arrays installed in the 1940s are still in use; those that have not been optimized in the past 10 to 15 years may not perform properly to transmit a digital signal, the two said.

Rackley said many AM stations that have put IBOC on the air so far didn’t look at their antenna systems before making the switch.

Calls his firm has taken include those from engineers at some stations who say, “We hear bacon frying and the PD told us to take it off the air. What do we do?”

Rackley said that sound, or hiss from digital to analog crosstalk, can be eliminated or reduced through various methods.

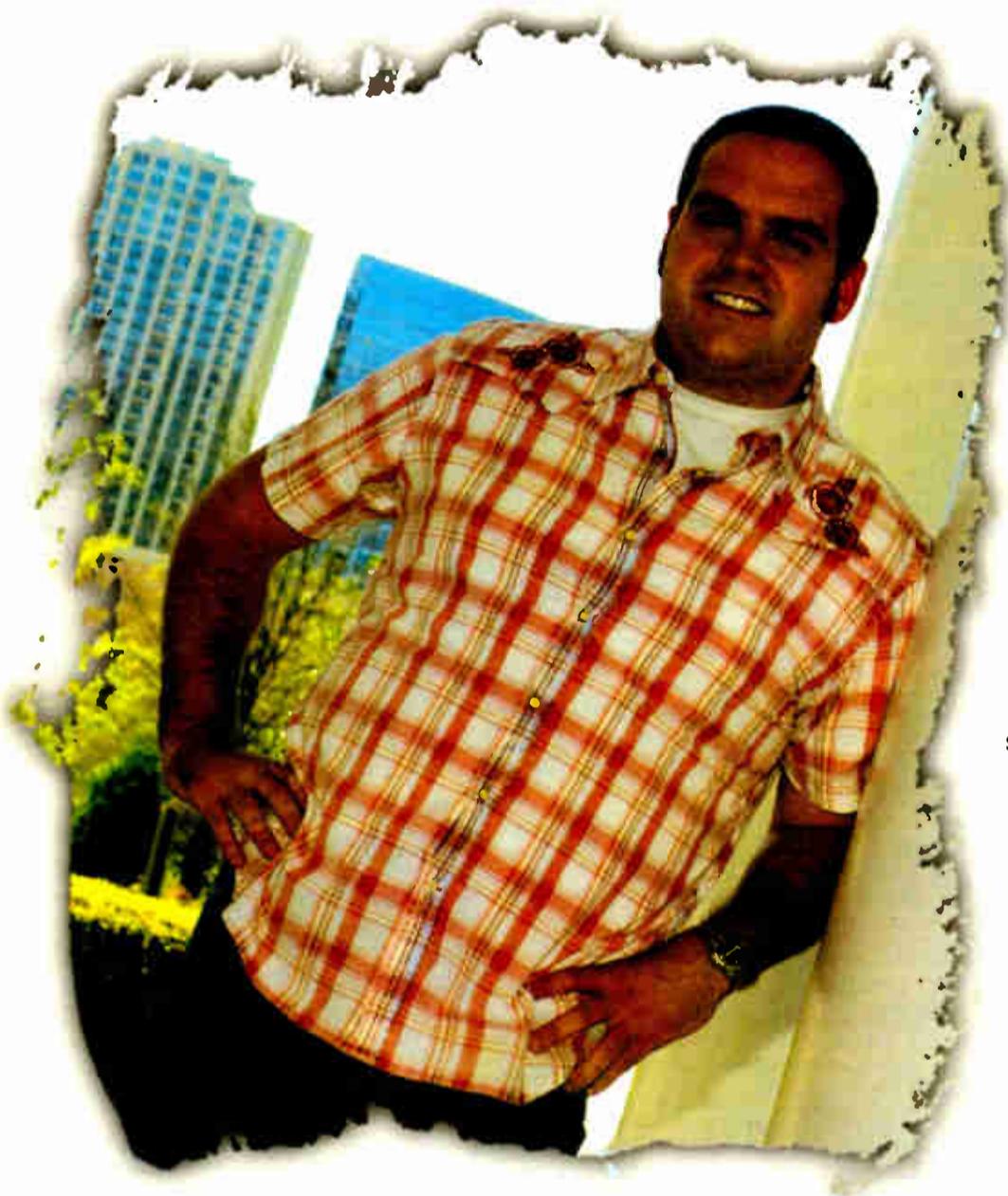
In the future, Rackley would like to see a more integrated approach between transmission and antenna specs for IBOC. The transmission specs are detailed but the antenna system specs are not, he believes.

He would like to see transmitter manufacturers specify antenna load requirements.

— Leslie Stimson

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"This is a fantastic atmosphere to learn, and it's a great position to get involved in other areas. I've been asked to sit in on music meetings, get involved with guerilla marketing, and see how sales, programming, production, and promotion all interact." Without question, John is learning the radio industry from the ground up, and there is little doubt he has a very bright future ahead!



John Brown

Receptionist
Susquehanna — Atlanta

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Now You're Cooking, Engineer-Style

by Ken R.

Take your average guy who is forced to cook. He grabs the box of noodles with the sauce in the packet, manages to find a measuring cup and some butter, turns on the stove and eight minutes later, voila ... dining magic!

However, engineers are not average citizens. They are more orderly sorts. Nay, some say compulsive! They like to know how things work. They follow directions when necessary, but prefer to hypothesize, experiment, observe, verify and only then dump the noodles out of the box and cook them.

If this description fits you, please

check out www.cookingforengineers.com.

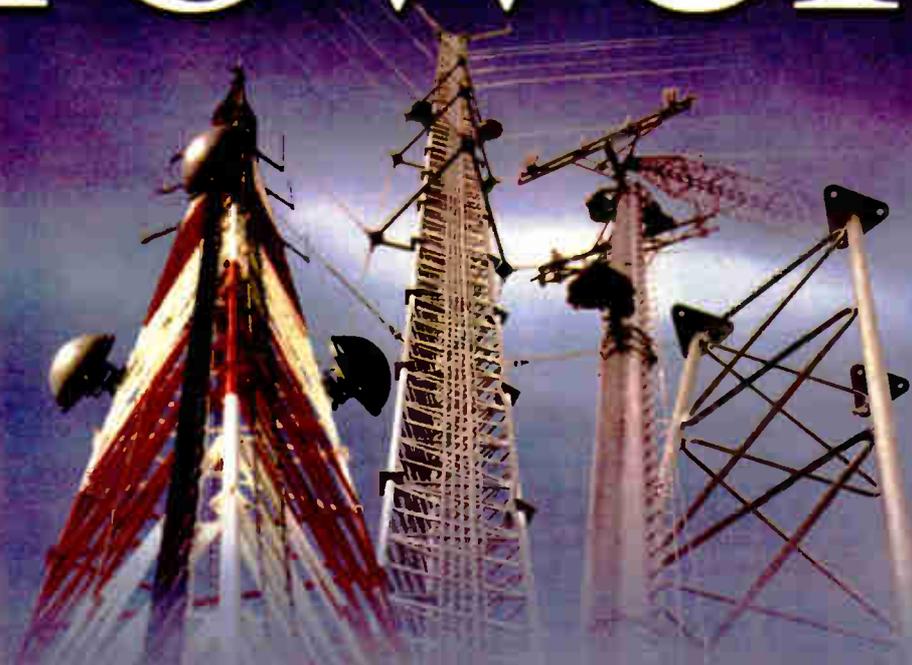
working as a hardware engineer in Silicon Valley. But his passion is cook-

Engineers, Chu says, are 'trying to find out more about what we're doing, as we derive enjoyment from it.'

Webmaster, chief cook, technical writer and primary food taster is Michael Chu, 26, whose "day gig" is

ing and he brings his highly technical approach to everything he creates in See COOKING, page 19 ▶

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Recipe File: Homemade Mayonnaise

The following is excerpted from www.cookingforengineers.com.

2 lg egg yolks
3 Tbs lemon juice
1/4 tsp salt
Pinch of white pepper
1 cup oil

Last night I was making potato salad and tuna salad when I ran out of mayonnaise ... Too lazy to leave my home in the middle of food preparation (and too nice of a guy to send Tina on a mayonnaise buying errand). I grabbed a clean bowl and my whisk to make some of my homemade mayo.

All you need are two large egg yolks, 3 tablespoons of lemon juice, 1/4 teaspoon salt, a pinch of white pepper and 1 cup oil. I ran out of lemon juice last night (I just keep running out of ingredients), so I used about 1 tablespoon lemon juice and 2 tablespoons of lime juice. I also froze the two large egg whites in ice cube trays for later use. For the oil, I used extra light olive oil because of its very faint (almost nonexistent) flavor and nutritional and health properties.

I put the yolks, lemon juice, salt, and pepper into my mixing bowl and whisked until smooth and light. I then whisked the oil, a few drops at a time, into the mixture. I made sure the mixture was smooth and well integrated before pouring the next few drops of oil. The whisking will suspend the oil into the yolk mixture and adding the oil a little at a time will keep the mixture in a state of emulsion, which is what we want.

After about 1/3 cup of oil has been whisked in, you can speed up the pouring a bit. Make sure the mixture is back in emulsion before pouring any more oil. Once all the oil has been whisked in, you have mayonnaise. This is a good time to add any extras, a spoonful of dijon mustard and extra salt and black pepper is usually what I add.

Because handmade mayonnaise is mostly egg yolk, the mayonnaise will have a healthy yellow color. Store bought or machine made mayonnaise usually also contains egg whites which will lighten the color up as well as lighten up the flavor. Anything you don't use immediately, put it in a jar and refrigerate. It should hold for half a week to a week.

You might note that I called both mayonnaise and vinaigrette dressing emulsions. But, a vinaigrette eventually separates while mayonnaise maintains its state of emulsion. This is because of the egg yolks which contains a substance called lecithin (an emulsifier). You may have seen lecithin as part of the ingredient list of store bought ice cream and salad dressings. This substance when mixed with water (the lemon juice) and oil (the olive oil) helps hold the two together in suspension. Of course, if we kept mixing more and more oil into the mixture, we would eventually overwhelm the emulsifier and the whole emulsion would separate (at least that's what I'm told, maybe one day I'll do it to see what happens when you mix in too much oil).

© Michael Chu 2004

Cooking

► Continued from page 18 the kitchen.

"I had been cooking for a while and used to store my recipes and other information on my Palm Pilot and that device was synchronized with Outlook at work," said Chu. "But the day the server deleted everything I had, I decided to put it all on the Net."

And thus was born the only site where one can find articles on the more esoteric points of grading maple syrup, the science of freezing meat and various automated calculators for converting cups to milliliters and even foot-pounds of energy to kilocalories.

And also on the site one can delight in reading dozens of highly detailed and seriously tested recipes.

"I like to research and discover the principles behind cooking," Chu said from his home/test kitchen. "I dig down into the chemistry of why people put oil in the water when they cook pasta, for example. We're trying to find out more about what we're doing as we derive enjoyment from it."



Michael Chu

And thousands of people seem to be just as interested in his scientific approach to cooking because he receives up to 35,000 hits a day.

"A note about us was posted on www.slashdot.org, which is a nerd/engineer news site," he said. "That was when I received my peak, 20,000 visits in an hour. Of course it was also the day I was changing servers!"

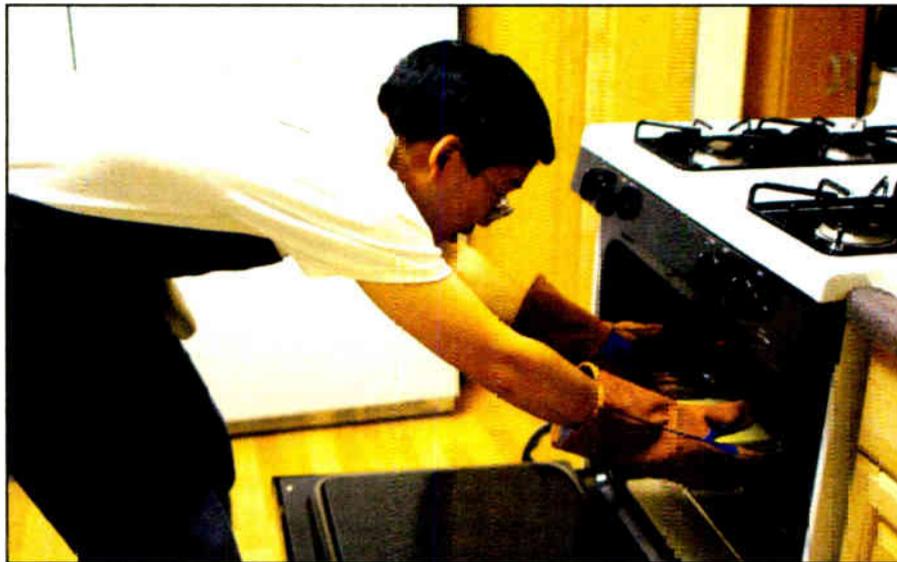
Team Chu

No radio engineers have contacted him yet, to his knowledge.

"I don't know if I have a specific message for radio engineers; but technical people as well as non-technical should find the site enjoyable. I just happen to be technical, so I wrote the site the way I wanted it to be."

Is there a team of scientists working with Chu? A large staff of testers, scientists and cooks? Not hardly.

Most of the time it is just him and his wife, whose hands can occasionally be glimpsed in pictures on the site as



Chu places cornbread in the oven.

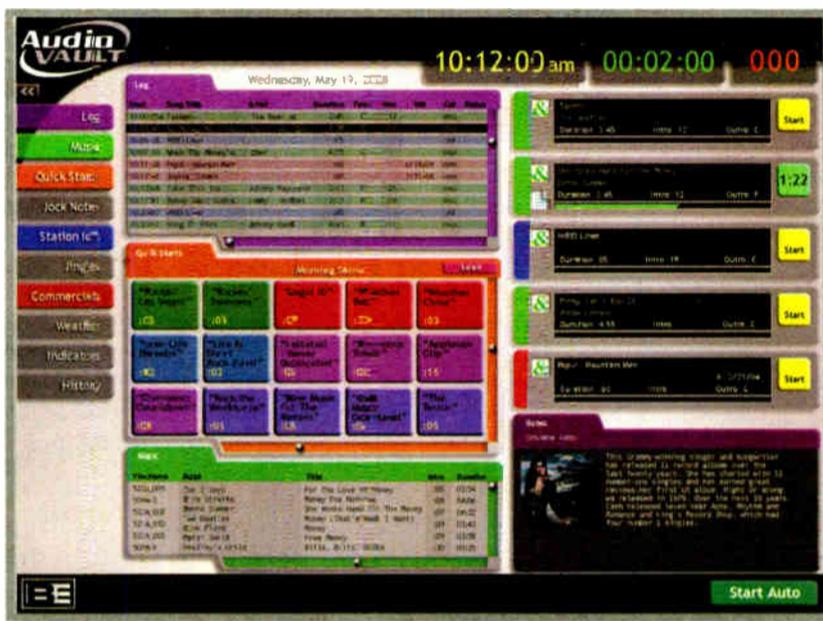
she holds various dishes.

Visitors to his site are invited to contribute recipes that Chu tests himself. The results are posted online. His most popular feature is the recipe summary section, which is similar to a Cliff Notes cookbook. He is also happy to receive financial donations to help the cause.

"I want to perfect my site and make it more user-friendly," he said. "I want to keep growing it until someday I can publish a book and maybe get others to help me write it."

No doubt he is referring to fellow gourmands who are as passionate about the science of cooking as the taste of the food.

Ken R. is a former broadcaster who is relegated to cooking burgers on the grill as long as his engineer/wife is alive.



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Workbench

Radio World, November 3, 2004

Past columns are archived at www.rwonline.com/reference-room

Let a Scaffold Boost Your Productivity

by John Bisset

Construction supply companies can really come in handy when you're building a transmitter site. Entercom Scranton's Lamar Smith and his staff invested in a portable mini-scaffold that set his engineers at just the right height for running the interior plumbing for the transmitters, switches, dummy loads and combiners. The height is adjustable; the wheels will lock in place, so no one takes an unexpected ride.

studio location as well. With more home do-it-yourselfers buying things like this, the prices of such construction equipment are dropping. If you don't have the budget for a tool like this, stop by your local rent-all center and see what's available.

One of the benefits of this particular portable scaffold is that the upper step serves as a safety bar, running about knee-high. If you're cutting rigid line, the scaffold does a good job of holding the line while you saw it. Just be sure to

plumbing run and cable tray that the scaffold expedited.

Lamar Smith can be reached at lasmith@entercom.com.

It's really the little things that can make a construction project proceed smoothly. Lamar's "find" of the portable scaffold is one example; Ed Bukont's unique use of a PanaVise is another.

Ed was one of my chief engineers during my contract engineering days, always ready with a better, more efficient way of doing things. His company, Commstruction

found in the major projects his company handles, and in Fig. 3, where he's adapted a PanaVise to a transmitter.

Mounting the PanaVise or other brand of precision vise to a transmitter or rack will assist with wiring connectors in place, when they could not be preassembled before installation to the equipment. In the case of remote control wiring — control, status and metering — it's easier to run the multipair cable into the transmitter, and wire the connector "inside" the rig.

The alternative would be to pre-wire the WAGO connector but risk breaking the connector, pins or wires as it is pulled through the chassis to the transmitter. The vise lets you clamp the connector in place, and frees your hands to operate the insertion tool and handle the wire at the same time.



Fig. 1: A portable scaffold expedites transmitter site construction.

RF plumbing runs can be executed more quickly than with a stepladder; and the portable scaffold can be helpful when you doing work in the suspended ceiling at the

wrap the piece in a rubber sheet, mat or cloth so the aluminum scaffolding doesn't mar or scratch the copper.

Fig. 2 shows a part of the finished

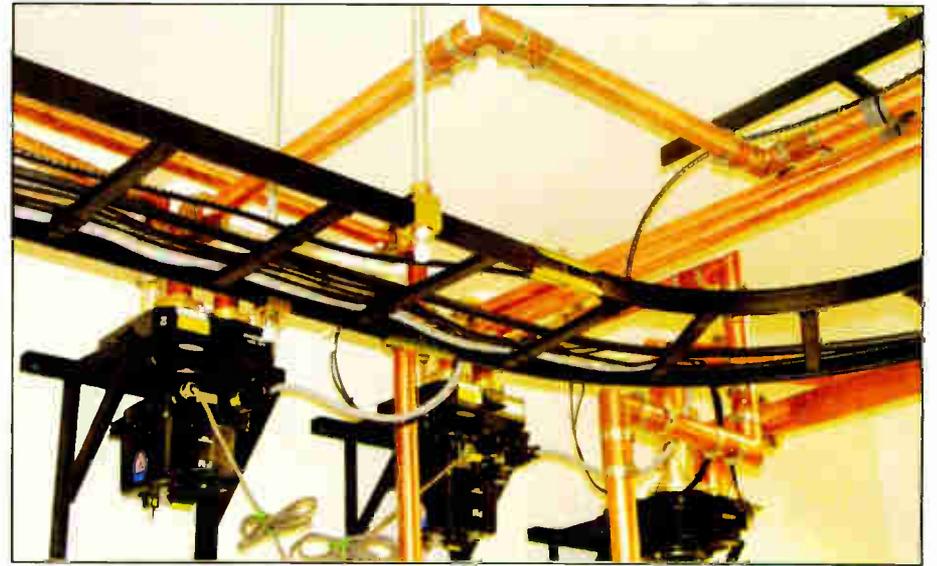


Fig. 2: Installing RF plumbing is a breeze using the portable scaffold.

Services, handles a variety of planning, construction and installation projects. He puts to good use his recent degree in project management; Ed's attention to detail can be

Some transmitters now have 10/32 rack hardware to hold their covers in place, so you can put a 10/32 (or 12/24 if applica-

See WORKBENCH, page 21 ▶

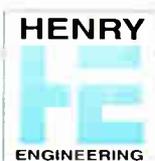
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Workbench

► Continued from page 20

ble) rack screw through the PanaVise mounting holes, and into the rack or transmitter frame to hold the vise in place.

The photo in Fig. 3 was taken at WFAZ(AM) in Falls Church, Va. There, Ed and his company assisted with the installation of a Harris DAX-6. The interface to the outside world on this transmitter uses WAGO connectors, seen connected to the transmitter after the wires were inserted using this method.

This upgrade at WFAZ has particular meaning for me; it's where I started in broadcasting back in 1969 as a summer relief announcer. My contract engineering business partner, Henry Stewart, is still the chief; the program director who hired me, Roy Martin, still works there.

Like many AMs, the station is upgrading with a transmitter capable of transmitting HD Radio. The previous transmitter, a 5 kW Collins, was sold to the station by Clarence Beverage, now a telecommunications consultant. Clarence and Laura Mizrahi now run Communications Technology.

Ed Bukont can be reached at ebukont@msn.com.

★ ★ ★

Sandy Haynes' broadcast career began a little over a decade earlier than mine, also in front of a microphone, back in 1957. Sandy started at an AM station in Presque Isle, Maine. Sandy wrote to comment on Jess Meyer's tutorial on RCA connectors in our July 14 column, which he says was well done. Thanks again, Jess!

After a broadcasting career that spanned over 40 years, Sandy wanted to add his two cents' worth. Sandy feels that one of the major problems newcomers are having with the RCA type or any other connector that requires soldering.

Fortunately, Sandy was able to learn soldering at a young age, mostly by building Heathkits in high school. Heath was renowned for its excellent instruction manuals and gave soldering advice as necessary.

Sandy suggests that beginners invest in a good soldering iron, Ersin brand or other multicore solder, and a dampened sponge to keep the tip clean. For connectors, Sandy usually used a thermostatically controlled iron with an 800-degree tip. After the iron is up to temperature, clean the tip on the sponge and immediately apply a small amount of solder to the tip. This will permit much better heat transfer to your work than a bare tip.

Strip the minimal amount of insulation necessary and tin the wire by applying the iron and a little more solder, which will melt and flow into the wire strands.

At this point you may be able to cut a little of the wire off, as the insulation may shrink after being heated. Some types of insulation are more susceptible to shrinkage than others, and some just downright melt no matter how careful you are.

If you are working with XLR or other connectors with a solder-cup type of connection, be sure to flow solder into the cup and just about fill it up before soldering the wire to the cup. Heat the cup and insert your pre-tinned wire; you will have a good connection.

When attaching RCA or other connectors with a hollow contact, apply heat to the end of the contact, with the tinned wire already inserted. The loose end can be

bent over to hold the wire in place as you solder. While you are heating the tip of the hollow contact, feed solder into the hole at the end of the contact. The solder will flow into the pin and make a good secure connection. Then just take a pair of sharp dikes and trim up the end of the pin to remove the excess wire and solder.

Enter the PanaVise again! A small bench-type vise is invaluable when working on most any type of connector and to hold wire for tinning. Here's a neat idea when working on XLRs. Sandy usually clamps a connector of the opposite sex into the vise and plugs in the connector he's working on. This method keeps the connector secure.

Always work with a clean iron. Before applying the soldering iron to anything, clean the tip on the sponge, apply a little solder to the tip and then apply the iron to

your work. Those three steps should be accomplished in short order. If they can't be, it's back to step one. You can't keep a tip too clean.

Then practice, practice, practice.

Sandy Haynes can be reached at jhaynes1@verizon.net. Send us your idea!

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is the northeast regional sales manager for Dielectric Communications. Reach him at (571) 217-9386, or john.bisset@dielectric.spx.com.

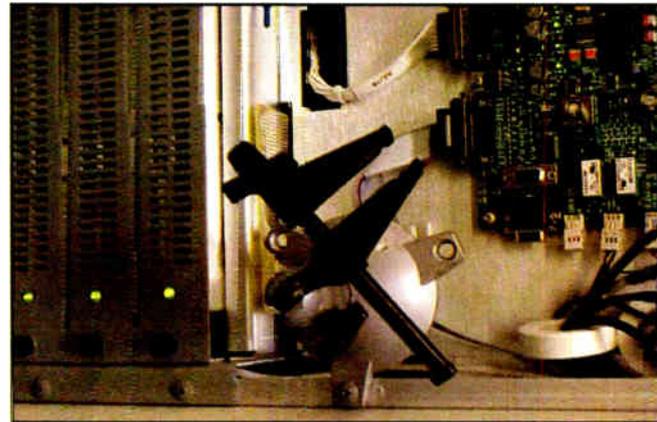


Fig. 3: Use the rack screw holes to hold a PanaVise for easier wiring.

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



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Enstrom, Found in Translation

Translator Pioneer Howard Enstrom Reflects On a Long Career and Service to God

by Scott Fybush

Who's the "father of FM radio"? That's easy; Major Edwin Howard Armstrong's invention of FM capped a career that also gave the world super-heterodyne and regenerative receivers.

But what about FM translators, those little relay transmitters that brought distant programming into small towns that couldn't support stations of their own?

The Media Preservation Foundation has stated that many consider Howard L. Enstrom "the father of translator service." But long before translators, Enstrom, now 82, was an accomplished broadcaster in several arenas.

He was born in Chicago. During the Depression, as a teen, he built receivers and transmitters using discarded radios; he earned an amateur license at age 15.

Early in World War II he worked for the U.S. Army Signal Corps as a field inspector, examining new technology — including FM two-way radios — built for the war effort. Enstrom then joined the Navy in 1943, where he attended Electronic Instrument School, maintained minesweepers and saw combat in the Battle of Okinawa.

He talks of watching Japanese kamikaze planes attacking his ship, of being shipwrecked in a typhoon and of committing his life to Christ as a result.

"God answered my fervent prayer to survive and allow me to serve Him."

After the war, Enstrom went to Chicago's Moody Bible Institute as assistant technical director for WMBI. He did engineering work for AMs WGSB and WGN. He built WGSB, a five-tower facility with day and night directional patterns; at WGN, as assistant chief, he managed a staff of 27 studio engineers.

A stomach ulcer, developed during the war, made it hard for him to continue in the high-stress world of Chicago radio, so after several years Enstrom went to work for engineering consultant Robert A. Jones.

Jonesing

"He was quite well known as a fellow who could slip a new AM allocation with a directional antenna into the crowded network of stations," Enstrom recalled of Jones, speaking by phone from his home in Inverness, Fla.

It wasn't long before Enstrom was doing much of the work required to get stations on the air. "I was out in the field building 18 new AM or FM stations" during this time, he said.

In the process, he noticed that his county had no station to call its own. "Du Page County was the fastest-growing county in Illinois, right next to Cook County — Chicago — and it had no radio station." So in 1962 he applied to put a station on at 1530 kHz, the last open spot on the Chicago-area AM dial.

He lost a bitterly contested 11-year license battle with another applicant for what is now WJGG(AM) in Elmhurst. "Seventy-five thousand dollars in legal expenses later, I figured the hell with it," he said. "AM was going to be replaced by FM anyway, so I lost interest."

After a stint as director of civil defense for the city of Glen Ellyn, Enstrom left

the area and moved west to Billings, Mont., to purchase and operate KBMY(AM) in 1970.

"I dropped out of engineering for five years to resurrect that station," he said.

In 1975, he sold KBMY at a healthy profit and moved again. "I decided to move to the South Dakota Black Hills, and built a lovely country estate right on the Custer wagon trail. You could see the wagon tracks in the front yard," he said.

It was there the new medium of FM translators found its biggest proponent.

While a handful of translators had

translators."

After five years running KBMY, Enstrom recalls he was "too worn out" to take on the project. He referred Jones to a small microwave manufacturing company in Rapid City, S.D. This was Tepco, run by Elmer Nelson.

"He had a \$385,000 Small Business Administration loan that was in arrears and they were getting ready to close the doors," Enstrom said. "So we had a meeting with the SBA and I gave them a pitch on the future of translators. They agreed to keep the doors open if I'd oversee the promotion of translators."

Enstrom began sending mailers to every FM station in the country. "The



Enstrom's 'ham radio shack,' W9QIU, in the basement of his home in Glen Ellyn, Ill., in 1969. 'Not seen in the photo,' he wrote, 'is the huge 1,000-watt transmitter I built and next to it a test equipment workbench. A 34-foot-wide rotary beam antenna was 80 feet high on a tower.'

come on the air in the early 1970s, mainly in the mountain West, Enstrom says the technology was primitive, with tube transmitters that drifted in frequency and required frequent maintenance.

"There were more than a few unlicensed FM translators on the air ... Some were crude, such as placing a transmitter's microphone near the speaker of an FM receiver. A homemade yagi antenna would beam a signal down toward a valley community.

"During that era, Keith Anderson marketed his T-99 television translator for signal-shadowed communities. Some innovators tried to modify the T-99 for FM, but the problem was its wide IF bandwidth, poor selectivity and sensitivity. If a primary signal faded, the T-99 would translate a different FM station.

"Bob Jones came out to talk to me," Enstrom said. "He had the idea to build (solid-state) FM translators that would downconvert the incoming signal to the IF, then upconvert them again."

Jones had been intrigued by the work of a Christian missionary in Haiti who launched Radio Lumiere as an outreach.

"It was down there that Bob got the idea for a more sophisticated concept, up-conversion/down-conversion," Enstrom said. "A translator's primary input signal frequency was controlled by one oscillator stage crystal and the output signal frequency by a second oscillator stage crystal. Now, of course, we have frequency agile oscillators."

Jones had Versacount Corp. signed on as the manufacturer, Enstrom said, "but they were not businesspeople, and Jones was getting frustrated. He cut off the deal with them, came out to see me and propositioned me to manufacture his

pitch was: If you locate a translator in the center of a small community, you can be heard just as well as a 100-kilowatt station 50 miles away.

"Orders poured in," Enstrom recalls, and the Tepco J-316 and J-317 translators, providing 1 and 10 watts, respectively, became such a success that the company's board offered him the presidency. (The designation of the translators refers to verses 16 and 17 of Chapter 3 in the Bible's Book of John.)

Enstrom wanted to remain a consultant, though. He moved to Florida and opened the doors of FM Technology Associates Inc. For eight years, he published a newsletter called Signal Source; for three years, he wrote the *Low-Power Lowdown* column for Radio World.

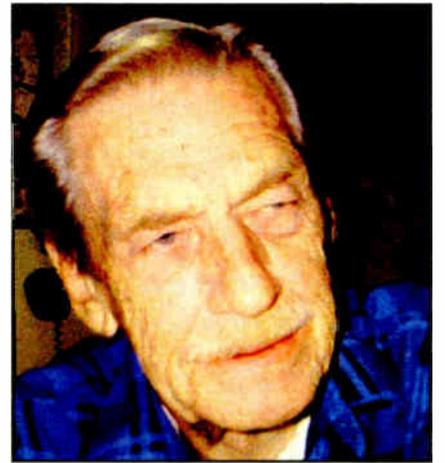
"I was getting so many inquiries (about translators), after a while I didn't have time to write," Enstrom said.

Boom time

From 1976 until retirement in the 1990s, Enstrom watched translators grow from a handful in the west to a nationwide service of thousands, many of which he'd had a hand in building.

"I don't know how you estimate three drawers' worth of file folders," Enstrom said when asked how many translators he'd worked on. "I would guess that I probably designed antennas and did frequency searches for at least 300 translators. And I never had an application turned back by the commission.

"As a broadcast service, initially low-power FM translators were 'pooh-pooed' by full-power station owners and the NAB. Many missed a fact: a low-power FM translator may deliver to a community and surrounding area stronger signal field than a distant Class



Howard Enstrom

C 100 kW FM station. When this was realized, full-power FMs were alarmed and concerned. Thus the commission had to adopt special service contour protection rules. I was part of such proceedings in filing petitions for rule making."

Enstrom's last big project brought him full circle to his early days with Christian radio, as he helped religious broadcaster Gospel Opportunities Inc. build a network of 11 translators and full-powered stations in Michigan's upper peninsula.

"The last application I filed was a big one for converting a translator at Victoria, Mich., to a full-power station. It was a key translator because other stations got their feed from that, and they were having propagation difficulties."

Enstrom, an SBE Senior Broadcast Engineer and lifetime SBE member, retired before thousands of satellite-fed translators and hundreds of newly legalized LPFM facilities came on the air.

He no longer pays much attention to the medium. "As far as I'm concerned, there must be more to life than what radio offers."

For Enstrom, that means the religious commitment he made in World War II.

While some have criticized large religious broadcasters for flooding the airwaves with thousands of new translators — the FCC reported more than 3,800 FM translators and boosters as of the end of 2003, and is processing thousands of applications filed in a new window — Enstrom praises the "multitudes" of translators that he says are "offering listeners spiritual redemption and the hope of everlasting life."

(He has strong words though for "broadcasting's worst bottom feeders ... a long list of so-called 'Christian evangelists'" who use contributions to support lavish lifestyles.)

But Enstrom's support of the FCC's translator policy doesn't mean he's a big fan of today's commission. He says engineering expertise has never been valued at the highest levels of the FCC. He's particularly unimpressed by the current occupant of the chairman's office.

"I think (Michael) Powell's position is simply a political handout," he said. "I don't know what qualifies him other than being the son of Colin Powell, and it stinks of politics."

Enstrom also believes that small towns are better served by a multitude of small stations and translators than by a handful of bigger ones.

"I favor it if we cut out super-power stations, if we cut out 100 kW stations entirely," he said. "The idea of having super-power Class C stations with maximum height above average terrain serving huge areas is nothing but greed.

"We should have many stations peppered across the country." 🌐

TECH TIPS

The 'Aeromic': It Is Balloon!

Dear Radio World,

I thought you might be interested in a little technical trick we recently pulled off with great success here at the Fisher Radio Group in Seattle.

Every year several local stations broadcast from one of the county fairs held in the late summer, and ours is no exception. Our FM station Star 101.5 (KPLZ) features a live yearly broadcast of the "Roller Coaster Wedding," where a winning couple gets married while on the operating roller coaster at the Puyallup Fair near Seattle.

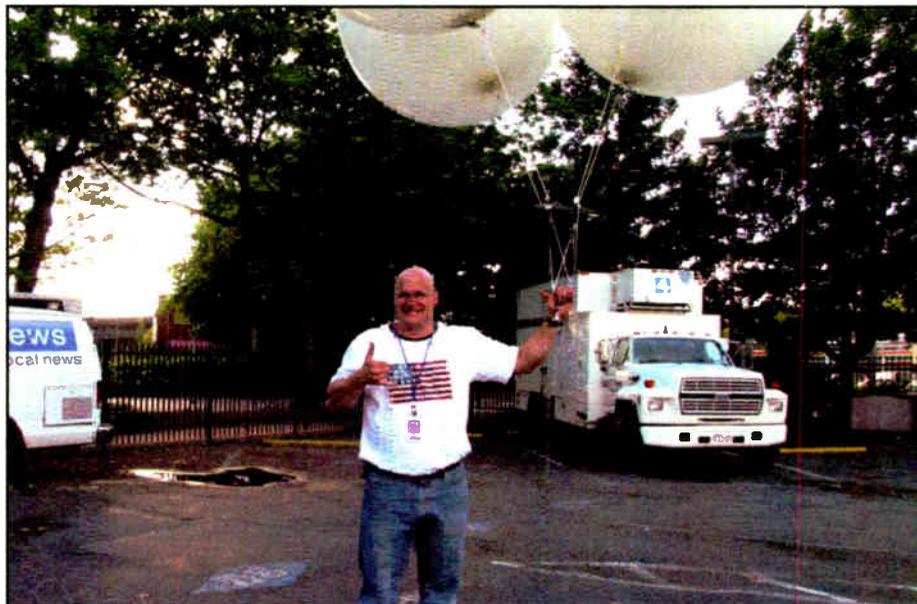
One of the technical challenges is how to get a clean wireless microphone signal back to our broadcast location toward the center of the fairgrounds from pretty much anywhere in the fairgrounds, including from the large wooden roller coaster.

The solution? We affixed a lightweight platform with a wireless microphone receiver below four six-foot balloons, tethered with 200 feet of shielded two-pair audio cable, one pair carrying DV power to the receiver, the other pair audio to the fair broadcast headquarters.

We received perfect coverage throughout the roller coaster wedding, to the reception at the other end of the fairgrounds. Attached is a photo of the "Aeromic" in action. The gentleman holding the mic system is John Barrett, one of the technicians here at Fisher Radio and KOMO(TV); John was involved in the fabrication and testing. I took the photo. The wedding/broadcast was featured on "Good Morning America" and in USA Today.

— Kelly Alford

The author is chief engineer of Fisher Radio Seattle. Reach him at kalford@fisherradio.com.



MARKET PLACE

Staco Adds Power Factor, Harmonic Correction Products

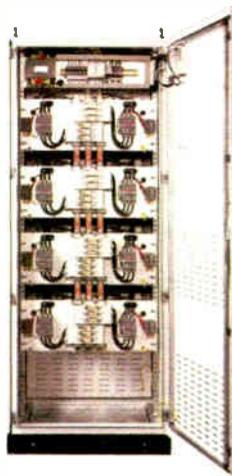
Staco Energy Products Co. is promoting a line of power factor correction and harmonic mitigation products. The company says these new products help operations run more smoothly and lower electric bills.

"Power factor and harmonics are something that every commercial and industrial facility should be concerned with," the company's Director of Power Correction Technologies Chuck Gougler stated. "Correcting power factor can bring great benefits to a facility, such as lowering utility bills, while properly managing harmonic environments can increase effective plant operations."

The company will make low voltage (240-600VAC) stand-alone products that can meet standard power factor correction needs, or they can build custom systems. Also, it is offering power electronic based products, including switched capacitors and dedicated active filters.

"Bundled systems that include voltage regulation, UPS, surge protection and power conditioning also are being offered to the customer as options," it stated. "Products can be integrated with switchgear and motor control centers to further optimize power delivery."

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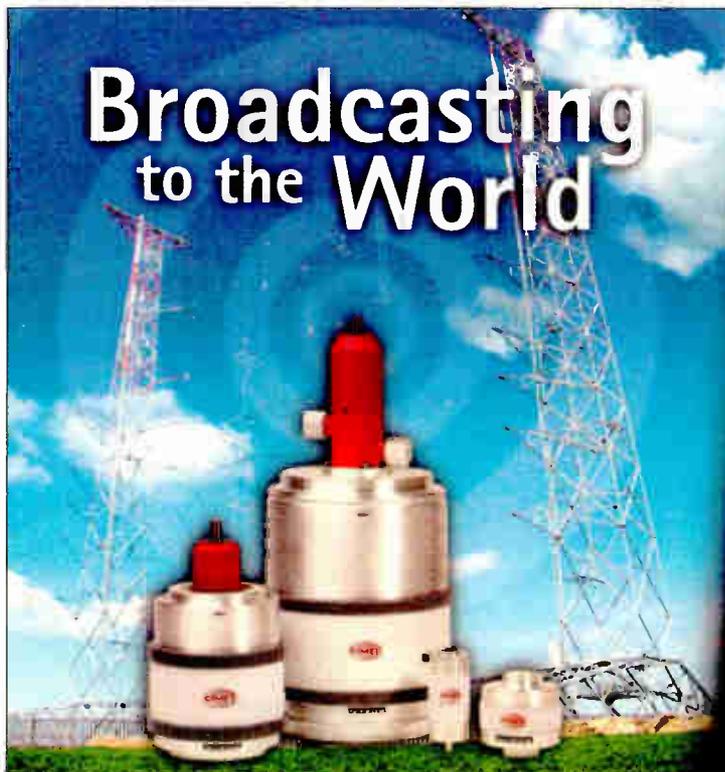


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Radio World

Around the World in 80 DABs

The 80+ Members of the WorldDAB Forum Met Recently to Consider Digital Radio's Status Around the Globe

by Skip Pizzi

The WorldDAB Forum is the standards body that manages and promotes the Eureka-147 DAB format. It holds an annual General Assembly meeting to assess the current state of DAB worldwide.

This year — the Forum's tenth — the venue for this meeting was Barcelona, Spain, one of the world's loveliest places. Yet the international DAB picture presented there wasn't pretty, at least not throughout.

DAB's significant and growing success in the United Kingdom remains an exception to the international rule for the format. Most other countries are struggling to keep their DAB services afloat, and a few are actually shutting down DAB operations. Some even admit to watching the fate of IBOC in the United States as a possible future alternative.

DAB's significant and growing success in the U.K. remains an exception to the international rule for the format.

The Catalonian state government's hosts of the conference used medical analogies to describe DAB's condition in Spain and elsewhere as being "ill," "hurting all over" and "suffering from anemia." Lack of listener demand, low availability of receivers and poor building penetration were among the reasons cited, yet the government pledged continuing support for the format with hopes that these obstacles can be overcome.

Indeed the four DAB services currently provided in the Barcelona area are quite impressive, providing a rich and high-quality array of music, news and cultural affairs (although much of the content is duplicated on analog radio there). These channels provided ample content — albeit largely incomprehensible to non-Catalan speakers — to feed the numerous DAB receivers being demonstrated at the event. Meanwhile, Catalonian officials acknowledged the need for more advanced receivers integrated with cell phones, PDAs and the like, establishment of more DAB-only content services and expanded marketing efforts.

Reports from country after country repeated this mantra, with the exception of the U.K., whose delegates provided advice, recommendations and even specific formulas for success.

The latter could be summarized in a three-step program: 1) Broadcasters offer new DAB-only services; 2) Manufacturers offer cheap receivers; 3) Marketing and cross-promotion efforts are established to educate consumers about the new system. Of course, this counsel applies to *any* new broadcast format, whether it is DAB, IBOC, DTV or whatever.

A variation of this approach advised that "four forces (commercial broadcast-

ers, public broadcasters, manufacturers and government) must work to convince the fifth (consumers) to adopt DAB," adding that while the four form their coalition and do their work, they should not expect DAB to appear successful, although ultimately it will become so. This prudent guidance on managing expectations is also worth noting by all emerging media technologies.

Counting our blessings

Some interesting market contrasts were presented at the meeting, some of which are clearly at work in the current European DAB debacle.

See DAB, page 28 ►

The Big Picture

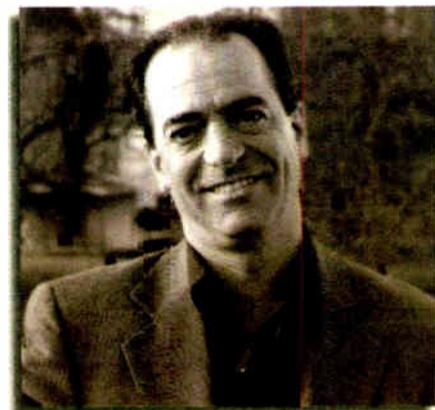
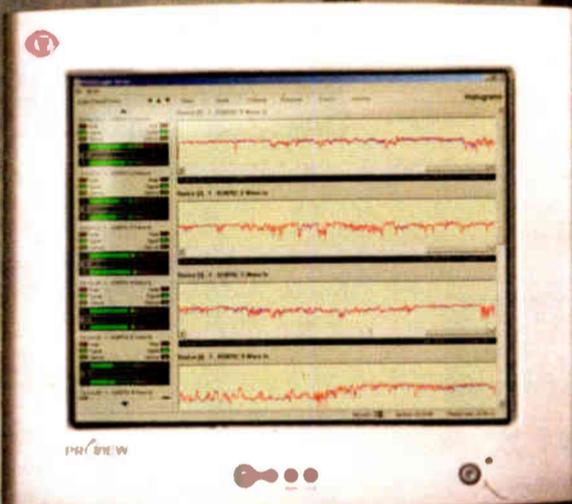


Photo: Gary Hayes, BBC

by Skip Pizzi

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- On one record input, create four recordings (24/7 log, Mic Skim, Best of show and an internet stream). For example: The 8 Channel iMediaLogger = 8X4 for a total of 32 recordings!
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DAB

► Continued from page 27

For example, while many European countries have established DAB, driven largely by respective government policies, the situation differs from country to country. Despite the European Union's attempt to aggregate a market that is globally competitive, there is as yet no uniform digital radio policy across the EU. (This is nearly akin to U.S. broadcast regulation and deployment being driven by individual states rather than federal policy — a scary thought.)

Because Asian consumer electronics manufacturers are interested in global or regional product trends rather than those limited to individual countries, these companies generally have held back from deploying DAB receivers, even into the hot U.K. DAB market. In fact, a large part of the U.K.'s success with DAB can be traced to a homegrown receiver initiative, with almost all current receivers moving off the shop shelves coming from U.K.-based manufacturers. Meanwhile, upcoming changes in the EU's leadership provided some hope for improvement here.

Another fascinating situation is that of Australia, also a lackluster DAB environment to date. That country's delegate pointed out that while the U.K. has 359 radio stations serving 59 million people, and the United States has some 12,000+ stations for its 259 million inhabitants, Australia currently has about 2,600 stations in a country with a population of only 21 million, and rather widely dispersed at that. This provides an economic condition in which the viability of con-

version to DAB is severely constrained, particularly when additional DAB-only services are contemplated.

Then consider Italy, where the DTV vs. DAB battle looms large. A law there requires that television broadcasters establish their DTV services and switch off analog TV by the end of 2006, and

Netherlands, where state transmission services provider NOS has recently begun DAB service, and from Canada, where tests of new MPEG-1 Audio Layer 2 encoders have shown that substantial improvements in audio quality (and/or reduction in bit rates) are possible with full backward compatibility.

The DAB format also is being revitalized by its adoption as the foundation for Korea's Digital Multimedia Broadcasting.

only VHF spectrum has been allocated for the digital channels. This is some of the same spectrum that had earlier been allocated for DAB, so the Italian public broadcast agency RAI has recently been forced to shut down its DAB services (on TV channel 12, as used by several other European countries for DAB service, including the U.K.), in order to provide adequate spectrum for its mandated new DTV services. (Note that the Italian government is led by Silvio Berlusconi, who built his fortune as the country's leading TV broadcasting mogul.)

Darkest before dawn

The mood of the conference nevertheless was upbeat, most likely because veteran delegates have spent most of the last decade getting used to gloom and doom, and in fact, the U.K.'s recent experience shows for the first time that there is a real possibility for successful outcome.

Other positive reports came from the

The DAB format also is being revitalized by its adoption as the foundation for Korea's Digital Multimedia Broadcasting (DMB). A consortium of Korean organizations is currently working with the WorldDAB Forum to produce a compatible worldwide standard for such expanded DAB services.

Additional light was cast by a presentation exhorting broadcasters to think about gradually weaning themselves from the exclusive delivery of their own content, and working with other service-only providers (such as wireless telecom operators) to provide multiple venues of access to their programming.

The merger of two large U.K. commercial radio groups, GWR and Capital Radio, both quite active in the DAB space, had just been announced prior to the General Assembly, and this created quite a buzz among the attendees, including rumors of an impending acquisition attempt by Clear Channel.

Finally, the WorldDAB Forum itself is experiencing strong growth, targeting 100+ members by its next General Assembly. The experience reflected at this year's meeting clearly shows that the success of digital radio — in any environment — requires collaboration, investment (both personal and financial) and above all, perseverance.

Skip Pizzi is contributing editor of Radio World.



eral manager of ABC Radio, was named chairman of the Southern California Broadcasters Association board of directors.

Marsh Gooch was appointed to national marketing manager for Tascam. He had been marketing director of the ESP Guitar Co.

Codec manufacturer APT promoted **Kevin Campbell** to hardware sales engineer, with particular responsibility for the post-production and broadcast sectors in southern and eastern Europe, and also the broadcast sector in the U.S. He had been customer support engineer.

Neil Glassman was named VP for strategic marketing for Broadcast Electronics. He had been managing director for Cowan Communications.

Ron Walters was promoted to VP of national program development and ministry relations for Salem Communications. He had been VP of church relations.

Radio marketing company CRN International hired **Patricia Meserole** as director of client services. She had been consumer promotions consultant for Kraft Foods North America, and was a managing director for Ryan Partnership.

Infinity Broadcasting's WXRK (FM), home of "The Howard Stern Show," named **Alan Leinwand** VP of sales. He joins the station from WJFK(FM) in Washington.

Audio-Technica promoted **Steve Savanyu** to market manager of installed sound, broadcast and theatre. He had been marketing manager of training and seminars.

Eric Logan, former president of programming for Citadel Broadcasting, joined XM as executive VP of programming.

WIP(AM) 610 SportsRadio Production Director **Harry Bickhardt** celebrated his 50 anniversary at the station on the air, featuring surprise guests from his years at WIP.



Neil Glassman



Barbara Bradley Hagerty

We're particularly interested in news about radio engineers and managers. Send news and photos via e-mail to radioworld@imaspub.com or mail to Radio World People News, P.O. Box 1214, Falls Church, VA 22041

NPR religion correspondent **Barbara Bradley Hagerty** won this year's Religion Newswriter's Association's Radio Excellence in Religion Reporting award, receiving the honor for her work on three stories: "The Dark Night of Mother Teresa's Soul"; "African Anglicans," which predicted the fight in the Episcopal church over the elevation of openly gay bishop Gene Robinson; and a 16-minute investigative piece on the Christian Science Church.

Scott Musgrave assumed the role of senior VP, marketing, U.S. Media Services for Arbitron. He had been senior VP and general manager, Arbitron Radio. ... Carol Hanley was named senior VP, sales, U.S. Media Services. She had been senior VP of advertiser, agency and cable services for Arbitron.

NextMedia group hired **Scott Herd** as general manager and VP of its Sherman/Denison, Texas and Ardmore, Okla. station cluster. He had been director of sales for the Texas Rangers Radio Network for the 2004 baseball season.

John H. Davison, president and gen-

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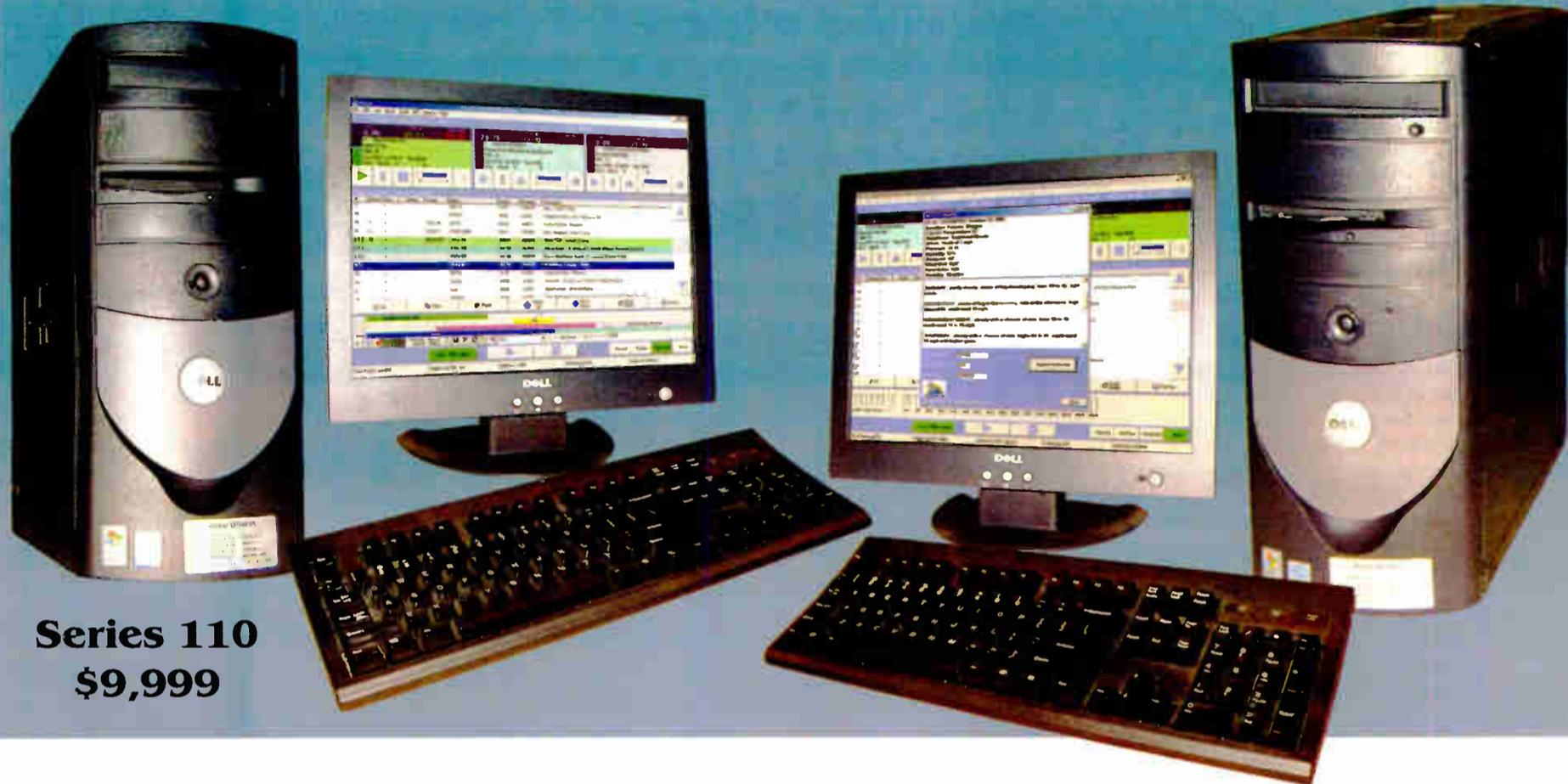
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WIRED FOR SOUND

Basic Wire & Cable Terminology

by Steve Lampen

In reviewing my collection of Radio World columns, it occurs to me that although I've written about a thousand things, I've not written a column of basics.

What's the difference between wire and cable? What? You don't know? They must be different or we wouldn't say "wire and cable."

Wire is a single conductor. Cable is a group of two or more insulated conductors. (If they weren't insulated from one another, they'd still form a single *stranded* wire.)

That's why we call it coax cable, and not coax wire; there are two conductors in that cable, the center and the shield. Twisted pairs are cables for the same reason. They contain two conductors. And there have to be two wires to make a circuit.

What do I mean by that?

A helpful conductor

Look at Fig. 1. It shows a battery and a light bulb. To connect the battery to the bulb we need two separate conducting elements. I purposely didn't say two wires, because that's not always true.

Look at your car, for instance. One terminal goes to the metal of the car, the other is carried on wires. Very efficient. A flashlight often is wired the same way. The metal shell is one conductor and a single wire is the other. But there are always two conductive paths to complete the circuit.

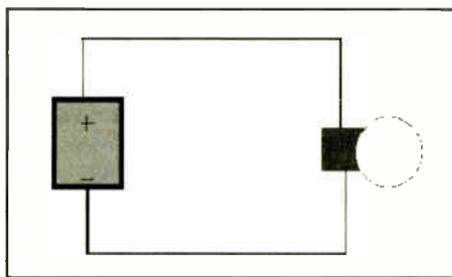


Fig. 1

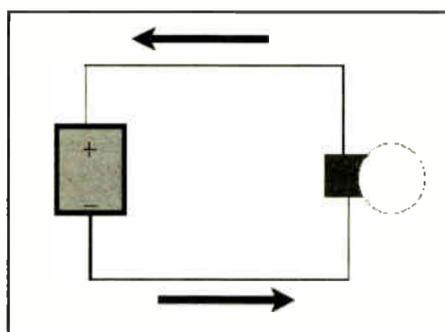


Fig. 2

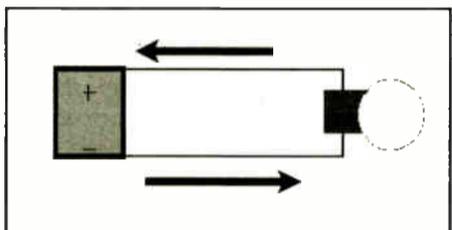


Fig. 3

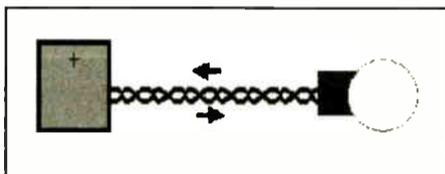


Fig. 4

In Fig. 1, I have shown the two conductive paths above as two wires. Bare wires would be just fine because the air around them is an excellent insula-

tor, second only to a vacuum, so there is no connection between the two wires except for the one we physically create by attaching them.

Note that the arrows are pointing in different directions. This is a 'circle' of electricity, which we call a circuit, derived from the Latin word circuitus.

If we now graph the electrical flow, it would look like Fig. 2. (You PhDs who want to tell me about voltage and current moving in opposite directions — well, you just sit on your hands for a while.)

The electrons come out of the negative terminal and travel through the light bulb and back the other way to the positive terminal. And the light bulb lights up.

Around the circle

Of course, the electrons don't actually move at all. They trade a charge from one atom to the next.

Only atoms with lots of "free" electrons, called valence electrons, can do this. Atoms with tightly held electrons resist moving charges. Materials with lots of valence electrons are called conductors. Those with tightly held electrons are called insulators. And then there are materials that can change from an insulator to a conductor by having an electrical change applied. These are called semiconductors, and you probably wouldn't have a job these days without them.

But you will note that the arrows are pointing in different directions. This is a "circle" of electricity, which we call a circuit, based on the Latin circuitus, meaning "a going around," and circulus, a circle.

This is no different than a racetrack. If you are driving on one side and look over to the other side, you will see drivers going in the opposite direction. But don't turn around. Big accident.

If we now move the wire so they are easier for us to place, such as Fig. 3. Nothing has changed. And if we twist the wires together, as in Fig. 4, still nothing has changed. Of course, it's a lot easier to connect twisted wires because you can move them two at a time.

Maybe the only change in Fig. 4 is the fact that the wires must now be insulated, covered with a non-conducting layer. If they weren't insulated, the electricity would take the path of least resistance (i.e. where they touch) instead of the light bulb, which has a much higher resistance. If that happened, the circuit wouldn't be as long as we want it to be. It would be a *short circuit*.

We'll look at more wire and cable terminology in a future column.

Steve Lampen's latest book, "The Audio-Video Cable Installer's Pocket Guide," is published by McGraw-Hill. He can be reached at shlampen@aol.com.

SUPPLY SIDE

"Supply Side" is a series about radio broadcast suppliers you don't know, and facts you don't know about companies you do. This Q&A is with Digital Juke Box President James Barcus.

What does your company do?

The Digital Juke Box specializes in broadcast automation software for small- and medium-market radio stations as well as LPFMs. We also have a suite of audio products for stations geared to radio and made to be easy to use.

Our products include Digital Juke Box Automation, Digital Cart Stack Automation, Digital Cart Rack instant audio player, CD Ripper, Audio CD Writer, Data CD Burner, Audio Converter, Telephone Producer, Digital Razor Blade,

Digital Juke Box

Digital Logger, Multi-Station Digital Logger, Aircheck machine, STLWare and several more on the way.

How many employees do you have?

There are four of us, three in Steubenville and one in Pittsburgh.

Who owns it?

The Digital Juke Box is owned and privately held by Barcus LLC in



Steubenville, Ohio; I am the president and CEO. I worked in radio first in the Navy, then in commercial radio until 1988, when I invented the Auto-Jock Music Scheduler. After selling that company in 1995, I started this one.

How does your PC-Based Studio-

Transmitter Link differ from a conventional STL?

When your STL has a problem, you are off the air; when any audio chain equipment at the station goes dead, you are off the air; when power goes off at the station, you are off the air.

If you have STLWare and if you have any broadband disconnections, STLWare will start playing your audio cuts from the transmitter; if you have dead air coming from the station, STLWare will start playing your audio cuts from the transmitter. It will play the music with overlapping audio; it will play X number of songs and then a liner; it will play the legal ID at the top of the hour.

It will make a station appear to be on the air even when something is keeping the studio from broadcasting.

STLWare is also a giant consideration for stations that have budget issues with a conventional STL system that can cost upwards of \$10,000 for just one hop.

Cost and requirements?

Right now, the price of STLWare is \$399. This is an introductory price that will go up to \$599 on Jan. 1. The product requires two Windows XP computers with 256 MB of RAM, a Windows audio card and a cable or DSL Internet connection.

Info

Company: The Digital Juke Box

Contact: Jim Barcus, President

E-mail: sales@digitaljukebox.com

Phone: (740) 282-SOFT

Web: www.digitaljukebox.com

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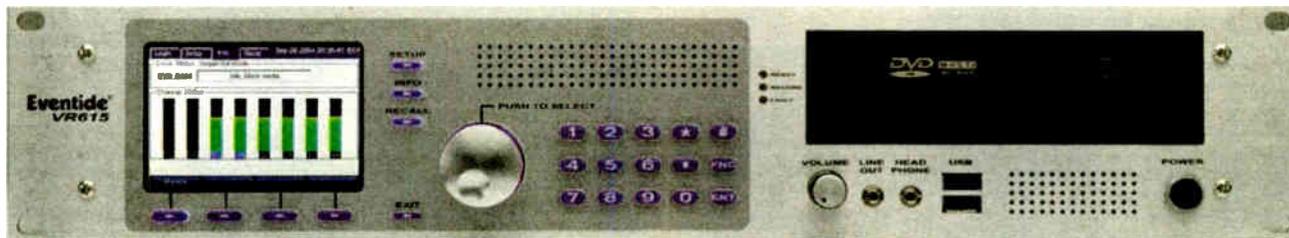
Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry.

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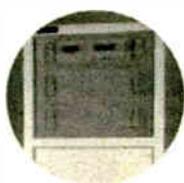


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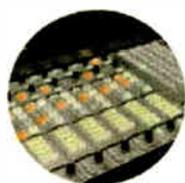
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Information below is provided by suppliers and users.

Capital Media in Albany, N.Y., purchased two FM-2000B 2 kW FM amplifiers from **Armstrong Transmitters**.

Telos Systems/Omnia reported sales of Zephyr Xstream ISDN codecs, including two units to **Minnesota Public Radio**; three to **XM Satellite Radio**; one to **Billy Graham Ministries** and four to **SABE** in South Africa; as well as a half-dozen ONE-x-Six Talkshow Systems to **KWIC(FM)** in Topeka, Kan. ...

ENCO Systems shipped a large DADpro32 audio management system to Iraq as part of the **Iraq Media Network**; the order was funded by the U.S. government and administered and installed by **Harris Corp.**, part of a \$100 million contract to Harris from the federal gov-

Logitek said it recently sold a package of equipment to **Sirius Satellite Network** in New York, including four Audio Engines with a combination of analog and digital I/O cards and three Remora consoles.

surfaces as it phases out analog consoles. ...

Middle Atlantic Products said **Clear Channel Radio** has purchased "hundreds" of its MRK-4431 and MRK-4436 model racks as it installs new Prophet Systems Nexgen digital audio systems in its radio stations. "At the rate of 4 to 6 system installations a month, the large radio station network owner is using anywhere from 1 to 10 racks per installation," it stated. ...

Media Monitors, which offers the AirCheck service and is owned by RCS, said **Greater Media** signed up to use its offerings. Separately, **ABC Radio** has signed an agreement to provide its online broadcast monitoring services to 27 stations in 10 major markets.

And **Media Monitors** plans to launch a newspaper monitoring service in New

The stations will share nine studios using a Harris PR&E VistaMax networked audio management system. Also in the order are six Harris PR&E RMXdigital audio consoles, Smoothline furniture, pre-wiring, facility design and installation.

The order was announced by Harris Radio Broadcast Systems VP/GM Debra Huttenburg ...

Morris Communications ordered two **Broadcast Electronics** transmitters for stations in Kansas. The group acquired a FM 20T transmitter with FXi 250 exciter for **KYEZ(FM)** in Salina and an AM 500A transmitter for **KABI(AM)** in Abilene, bringing the number of BE transmitter acquisitions to six this year, with a seventh expected in 2005. Jay White is director of engineering for Morris Communications.

The group is replacing Collins transmitters, which had been in service since the 1970s and will serve as backups.

Separately, Ohio's **WFCJ(FM)**, owned by Miami Valley Christian Broadcasting Association, upgraded from its BE AudioVault AV100 to a current version of the AudioVault VaultXpress digital audio storage and studio system software. The company says the upgrade allows the station to use more MP3s, and have more hard drive space in a faster system. ...

Wicks Broadcast Solutions said **Max Media** will use its DeltaFlex 4 Broadcast Management System at its stations in Missouri, Illinois, Arkansas, Pennsylvania and North Carolina. Max Media has 32 stations in six markets.

Separately, **Wicks** said **Commonwealth Broadcasting Corp.** in Kentucky will install WBS systems as its standard. Commonwealth has 24 stations. And Baltimore-based **Backyard Broadcasting** will integrate software into its 22 stations. ...

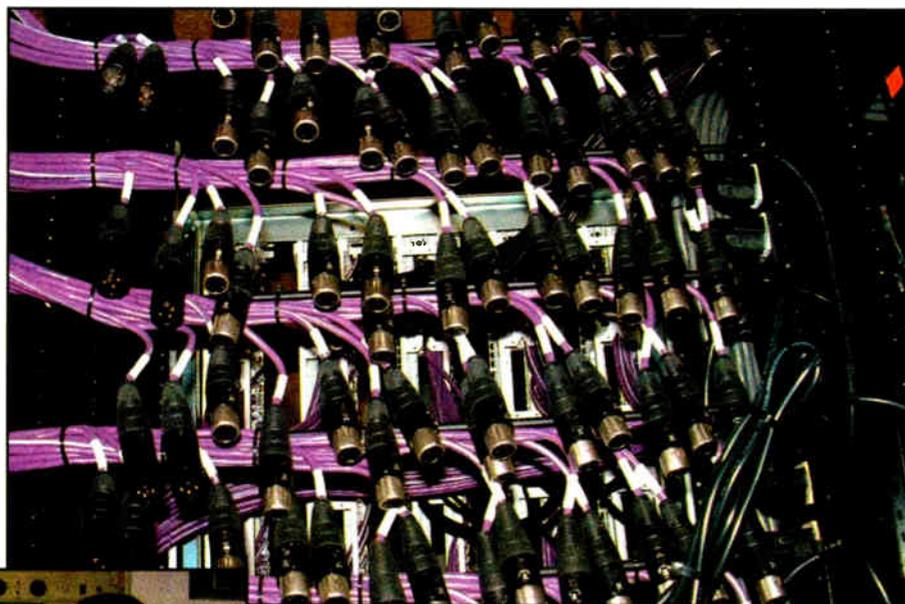
Dielectric Communications said it provided a turnkey tower and antenna system to the Portland Radio Group, part of **Saga Communications**, to replace **WGAN(AM)**'s existing tower and provide more capacity for **WYNZ(FM)**, one of two stations briefly knocked out with the collapse of their tower last December.

At **WMGX(FM)**, the second station on the old tower, Dielectric supplied an antenna and Flexline cable to bring broadcasts at a low-power site up to the station's 50 kW.

The new structure is a 362-foot-tall guyed tower on an insulated base. It is 33 inches wide tapering to a 24-inch section at the top, where the antenna is mounted on a pivot that allows it to be rotated. The tower is in the middle of an AM directional array and works as an AM radiator as well. Andrew Armstrong is chief engineer for the Portland Radio Group.

Separately, Dielectric said **Cumulus Media** bought a turnkey tower and transmission system for **KVST(FM)** in Houston. Cumulus has the OK to upgrade the 15 kW station to 100 kW. Dielectric is supplying redundant systems, each with a 10-bay DCR-M FM antenna. The tower height will be 2,000 feet from the base to the top of the lightning arrester; 4-1/16-inch coax will carry power from the transmitter.

The facility includes motorized coaxial switches, dehydrator systems, Flash Technologies high-intensity strobe lighting, monitoring component and monitoring services. 🌐



Creative Studio Solutions used Neutrik connectors for design and engineering work at Entravision's new facility in Los Angeles.

"What makes the purchase interesting is their use of the 'SharAttack' multi-DSP card — they purchased five of these cards — for delay purposes," said the supplier's Elaine Jones. "They are using the Logitek-created delay system for

York, then roll it out in other markets during 2005. Users will be able to compare a newspaper and radio campaign of an advertiser or competitor using the service. ...

APT has signed a licensing agreement with **Genesys Technologies**, enabling the company to incorporate the apt-X algorithm into Genesys system software. Genesys provides digital audio playout and information management systems for radio. ...

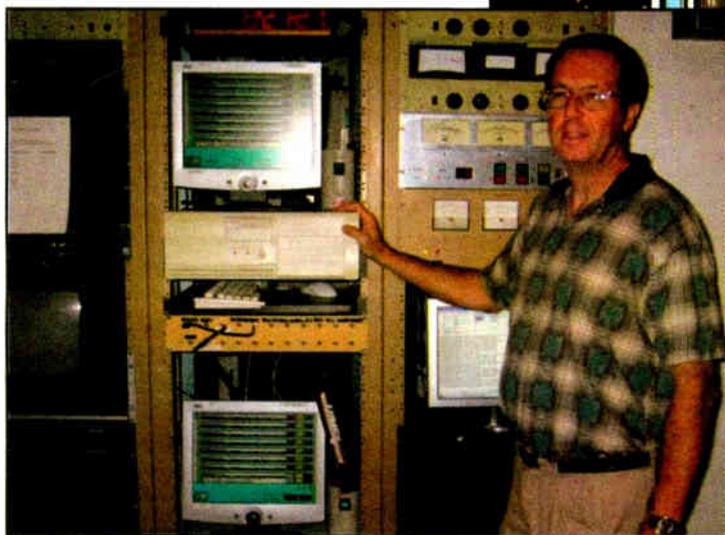
Creative Studio Solutions Inc. used **Neutrik USA** connectors for its design and engineering work for **Entravision's** 27 networked studios in Los Angeles.

The installation included nine on-air, nine production and nine imaging studios. CSS CEO and Chief Engineer Andrew Rosenberg said, "It is a router-based system with audio in every studio going through the router instead of through the mixing board. Entravision wanted the ability to swap audio around everywhere."

CSS built wiring harnesses using 2,500 pieces each of Neutrik's IDC type XLR cable connectors, NC3FEZY-B and NC3MEZY-B, and over 100 each of the "P" series type XLR solder cup receptacles, NC3MP and NC3FP-1. ...

Infinity placed an order with the **Harris Broadcast Communications Division** for a turnkey, networked audio management system for the Boston radio group.

WBCN(FM) and **WZLX(FM)** will relocate to the **WODS(FM)** facility over the next several months, Harris stated.



John Graham, chief engineer of WFCJ(FM), upgraded the station's AudioVault.

ernment. ENCO declined to state the value of its part of the contract.

The ENCO portion consists of 12 news bureaus, three regional hubs and a headquarters system in Baghdad, involving 46 workstations and 19 file servers.

"Due to the tight timeline involved in the project, ENCO was required to build, ship and configure nearly 60 workstations and file servers in less than 30 days," said ENCO VP of Sales & Marketing Don Backus. "The systems are being installed by Harris-employed contractors in Iraq."

The system is largely intended to provide automated playout of satellite delivered programming from Baghdad with the ability for each of the news bureaus to also provide local newscasts and material as well as upload material to the head-end or to any of the three Regional Hubs. The system is capable of supporting localized language fonts and characters. ...

their fall football madness, NCAA and pro football weekend games."

Logitek supplied SharAttacks with extended delay so that Sirius can provide six stereo 10-second delayed streams from each card.

"This allows for multiple feeds for their various sports channels," Jones said. Company President Tag Borland created a software interface for controlling the delays. ...

Midwest Family Broadcasting Group will use **Wheatstone** audio networking for a five-station facility in Madison, Wis. System components include eight Generation-5 control surfaces, five Bridge digital audio routers and custom wiring. ...

Separately, the first **Wheatstone** Generation/Bridge system in Canada went to **Metro Radio**, the Halifax division of **CHUM Limited** and **Newcap Broadcasting Ltd.** The facility plans to add additional control

Leading POTS Codecs Compared.

	Comrex Matrix	Tieline Commander	Zephyr Xport
Audio Bandwidth @ 24 kbps @ 19 kbps	14 kHz 11.2 kHz	15 kHz 9 kHz	15 kHz 15 kHz
<u>Direct</u> Internet Software Updates	No	No	Yes, via Ethernet port
Digital PC Audio Input	No	No	Yes, via Ethernet port and supplied driver
Audio Metering (XMIT/RCV)	Transmit only	One-at-a-time	Simultaneous
Audio Processing	None	Simple AGC	Digital multi-band AGC with look-ahead limiter by Omnia
Remote Control	No	RS-232 and dedicated computer	Ethernet via Web browser
Auto Dial Storage	19 Numbers	50 Numbers	100 Numbers
Frequently-Used Settings Storage	none	none	30
Standards-based POTS Codec	No - Proprietary	No - Proprietary	Yes - aacPlus (MPEG HEAAC)
Transmit-Receive Quality Display	No	Yes	Yes
Contact Closures	2	2	3
Display Resolution	120x32 LCD	120x32 LCD	128x64 LCD
Analog Cell Phone Interface	Optional	Standard	Standard
Mixer Inputs	1 mic, 1 mic / line	2 mic / line	1 mic, 1 line
Phantom Power	No	No	Yes - 12 volt
Automatic Voice-Grade Backup	No	No	Yes
Power Supply	External	External	Internal auto-switching
Local Mix Audio Outputs Headphone Line Level	Yes Yes	Yes No	Yes Yes
Direct Receive Audio Output	No	Yes	Yes
Uses ISDN at the Studio Side for More Reliable Connections	No	No	Yes - your Zephyr Xstream becomes universal POTS and ISDN codec.
Available ISDN Option	\$850.00 (adds MPEG L3 & G.722)	\$850.00 (adds G.722)	\$495.00 (adds G.722 & state-of- the-art AAC-LD for high fidelity and low delay)
List Price:*	\$3,700.00	\$3,650.00	\$2,495.00



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Studio Sessions

Broadcasting
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Inside

Radio World

Resource for Radio On-Air, Production and Recording

November 3, 2004

Turntables Resurrect Lost Recordings

Companies Seek to Save 'Audio Heritage' Through Use of Lasers, Fiber Optics

by Tom Vernon

We are well into the age of audio recording with digital media, where MP3, MPEG and AU files are the norm. Still, the need to play back 20th-century wax cylinders, 78 RPM discs and vinyl records remains. It is estimated that approximately 30 billion phonograph records were produced and sold in the past 100 years.



ELP's machines connect to stereo system phono inputs.

Some of this material is too esoteric to make commercial transfer to CD worthwhile. Other cylinders and discs are physically broken, or so badly damaged that playback with conventional equipment is nearly impossible. Some of these are one-of-a-kind recordings with historical significance. A substantial portion of our audio heritage is at risk of being lost forever.

In response to this need, scientists and engineers are developing high-tech alternatives to disc playback with a conventional stylus. Using laser beams, fiber optics and digital imaging techniques, once-lost recordings are being brought back from the grave. The results from these devices must be heard to be believed.

Sonic advantages

The ELP Corp. of Japan has been developing laser turntables since 1989, when it acquired the rights from the Final Co. in America.

Some of the earliest machines suffered from mediocre audio, but today's turntables have been redesigned for ultimate audiophile quality. ELP's machines feature analog outputs that can connect to the phono input of a conventional stereo system.

The current models use a pickup head with four lasers for contact-free tracking and audio reproduction. Two tracking laser beams are directed to the left and right shoulders of the record groove.

Only the part of the beam that reaches the groove is reflected to two PSD — Position Sensitive Detector — optical semiconductors. The signals are sent to a microprocessor via analog-to-digital converters, and then to servos to maintain the pickup head's position directly above the groove.

Two additional laser beams are directed to the left and right groove walls just below the individual tracking beams.

Modulation of the individual grooves is reflected to scanner mirrors and onto left and right photo-optical sensors. Variations of the modulated light cause the audio sensors to develop and electrical representation of the mechanical modulation in the grooves. The entire signal path is analog.

A separate laser is used in the ELP turntables to maintain the distance between the record and the pickup heads, and is similar in function to the focus laser used on CD players. It enables the turntable not only to accommodate records of different thicknesses, but also recordings that are badly warped.

The sonic advantages of an optical pickup and analog signal path are apparent when playing any recording, and there is a noticeable reduction in noise when playing scratched records. Where the turntable excels, however, is in playing discs that have been physically broken. ELP's demo CD includes a track that claims to be a recording of an LP that has been shattered, with the broken pieces reassembled in the tray of the turntable. While there are obvious clicks and pops, such a disc could not be played at all using traditional stylus-based equipment.

Despite its sophistication, there are some types of recordings that the laser turntable cannot play. Clear or colored records that are translucent, popular in the 1980s, cannot reflect the laser beam. Vertical cut records such as the early Edison "Diamond Cut" series cannot be played because the modulation is up and down rather than lateral. Records with a rounded groove shoulder will not work. A badly-worn disc with grooves that are rounded in the bottom can produce distortion. And don't bother digging out your copy of The Who's *Quadrophenia*; the ELP turntable will not play four-channel recordings.

Laser turntables don't come cheap. ELP manufactures three models ranging in price from \$10,500 to \$14,300. According to President Sanju Chiba, ELP has supplied turntables to broadcasters NHK Japan and a station in Mexico as well as several universities, museums and libraries.

Fiber optic approach

Another "optical turntable" is under development by the Laboratory of Metrology at the Federal Institute of Technology in Lausanne, Switzerland.



The Federal Institute of Technology's optical turntable.

Noting that other optical systems suffer limitations due to the condition of the grooves, the reflection coefficient of the used part of the disc, and variation of the distance between grooves, the Swiss have taken a different approach to extracting the information.

An optical fiber is used to track the grooves on the disc, in a manner similar to a conventional stylus. Light is injected into the fiber by a semiconductor laser. Light reflected from the undulating fiber is focused by a lens onto a position-sensitive X-Y detector. Signal processing of the detector output creates one signal for the X axis, and another for the Y axis. The X signal corresponds to the audio, while the Y signal is used to control the vertical position of the optical head. For cylinders which use vertical modulation, the Y signal can be used for audio output.

While the fiber system is in physical

contact with the record, its tracking force is limited to 60 mg, about 40 times less than that of a traditional stylus. The low force is possible because the optical head is guided by servomotors controlled by the optical signals. The system also allows the pickup head to pass over cracks and the small areas without grooves common on older resin discs. This optical turntable can retrieve material from both cylinders and discs of all formats.

Because the fiber contacts the record grooves in areas where a stylus typically does not, the system is usually working with virgin material.

Drawing on digital imaging technology originally developed to study subatomic particles, physicists Carl Haber and Vitaliy Fadeyev of the Lawrence Berkeley National Laboratory have developed a radically new way to digitally restore and preserve audio recordings. Much of their research centered on particle physics, and required the ability to image the tracks made by elementary particles as they hit detectors, and then find these tracks in a cacophony of noise.

Haber said, "We thought these methods, which demand pattern recognition and noise suppression, could also analyze the grooved shapes in mechanical recordings."

Haber and Fadeyev took a precision optical metrology system that had been designed to inspect silicon detectors and programmed it to map the modulating grooves cut in shellac phonograph discs. The images were digitally processed to remove surface noise, and run through a program designed to simulate how a stylus would respond to the grooves.

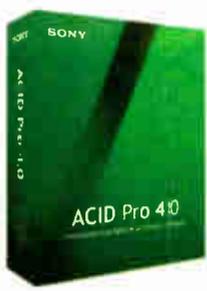
Finally, the virtual stylus motion was converted to a digital sound format. Before and after samples reveal astonishing results.

Haber and Fadeyev's research led to an interagency agreement between Berkeley Labs and the Library of Congress, and will eventually provide the library's staff with a technology to restore some of the 500,000 items that it provides preservation treatments to each year, from a collection totalling almost 128 million items in all formats.

An additional benefit to the digitization program is that it will give the public greater access to these materials than has been possible in the past. Many of these recordings have been off limits to library patrons due to their fragile condition.

As to the future of the technology, Haber said, "There are no current commercial plans. We are seeking government support to continue the efforts and to develop a prototype 'production' level machine, which could be a first step in developing something for wider use."

Tom Vernon is an e-learning specialist working in Philadelphia. E-mail him at TLVernon@blazenet.net.



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Preparing for an Olympic Broadcast

Westwood One Engineer Documents the Technical Planning in Covering the 2004 Games

by Conrad Trautmann

Planning. It's the key to any successful event. The summer Olympics in Athens took place Aug 13-29, 2004. At Westwood One Radio Network, official radio rights holders for the United States, the technical planning began May 12, 2003, 15 months in advance of our air-date. We commenced our planning by determining our technical team and finding out which events our sports department planned to cover.

Westwood One has been doing full radio production of the Olympics since Barcelona in 1992 and had a good system in place by the time I joined the company in 2000. However, even with the prior experience, much planning is needed. Venues and host cities change, technology changes, equipment ages and people change.

Setup in another town

As with any project, a thorough analysis of needs is necessary. Interviews with the talent, the production staff and people who had already survived an Olympics were invaluable to the planning. From there, an assessment of resources can be done and a budget can be created for whatever equipment might be needed.

For Athens, the majority of our budget was for computers and a new SAS audio router/intercom. The router that had been used in Sydney was retired from service, and the SAS 32000 we used in Salt Lake City was reallocated for use at the Democratic and Republican national conventions.

We spent the latter half of 2003 working with our vendors, getting quotations for the equipment we needed. Harris/Intralex, Dell, Broadcasters General Store, SAS, ENCO and Logitek are just a few of the companies with which we worked. At the same time, we were finalizing the wiring documentation. By December 2003, we had an approved capital budget and placed our equipment orders. We also had a clear plan on how to wire it all.

Even with the prior experience, much planning is needed. Venues and host cities change, technology changes, equipment ages and people change.

Equipment started arriving in New York in January 2004. We set it all up in our remote staging area. We knew we had to have everything that was going to Athens prepared to ship by the end of May in order to arrive in Athens on time — leaving us with just under five months to wire everything up, test, pack and ship three studios and seven edit bays of equipment.

We took a modular approach to our design. Our equipment is rackmounted in road cases, with the more sensitive equipment in shockmounted road cases. Because we knew the floor plan and

space measurements in advance, we were able to pre-terminate our home-run cables between our rack room and the studios.

Being able to just plug in instead of having to do terminations on site saved a lot of time. Our equipment stays in the racks in which it was shipped, so the equipment can be pre-wired prior to shipping. Breakdown was simplified, essentially just unplugging the cables from the racks and putting the road case covers on.

Once we had everything staged, we flew in to New York the key staff who would be working together in Athens and had a pre-production meeting. The departments included sports, operations and engineering. We reviewed our procedures, got a chance to see the equipment in operation and answered any concerns. It was better to make any necessary major changes while everything was still in the United States, rather than have to do so on site in Greece.



The IBC transmission room featured SAS dual router panels.

Fortunately, everyone was pleased. The next step was to pack up and ship to Greece.

Once on site at the International Broadcast Center, we began the cabling. We needed just a few cables per room. We typically have four studios: a long-form control room and studio, a short-

form studio and a play-by-play studio. In the common area outside the studios, there are three edit workstations and four read-in stations/Internet computers. The cabling took a few days. Next, we unpacked the equipment and started connecting everything.

By the end of the first week it was all connected and we were ready to start testing.

Testing, 1234

The second week was spent level-setting, labeling and testing. Our talent arrived on the third week, and by then all

of the equipment was working. We made some last-minute changes for them, but were basically ready to go on the air.

We were lucky the systems we were using are easily configurable on the fly. The Logitek consoles use a PC interface to change most parameters on the board. The SAS 32KD also is flexible and easy to change on the fly. And the ENCO



The author works on site at the International Broadcast Center in Athens.

DADpro32 system we used for commercial and theme playback is relatively easy to use and update.

All of the venues are wired back to the IBC by the host broadcaster, Athens Olympics Broadcasting (AOB). The commentator boards are AEQ Digital

Commentary Units, part of their DCS-10 system. It was my first time exposed to something like this.

Each commentary unit is a four-channel sports mixer with three headphone/mic inputs, and a switchable mic/line input. They have an on/off button for each channel and two volume controls for each channel, one for program and the other for IFB/mix-minus return. A single Cat-5 wire carries the signal back to the Commentary Control Room. The same wire also powers the console.

The rest is controlled by the host, who is reachable by pressing the "Tech" button on the commentary unit. An operator in the commentary control room handles levels and putting the program to air. Here, they have rack frames filled with cards, one card for each commentary unit, and up to 10 per frame.

Each frame is fed into an AEQ Ranger Multiplexer and the audio is sent to the IBC as a digital signal over a T-1. At the IBC, the main commentary control center handles the distribution of these signals throughout the IBC. It's definitely an efficient way to distribute multiple signals to all of the visiting media, rather than having everyone ordering their own circuits and using their own equipment.

The host also has the ability to record a channel identifier for each commentary position, making it easy to make sure the position and line that's been delivered is actually yours.

This year was the first year we had used all of the "nat sound" sound effects feeds delivered to us at the IBC. We were able to use these feeds during the live broadcast of our play-by-play and long-form programs.

Once everything was built, we still needed to get the signals to and from the N.Y. Broadcast Center. Intralex T-1 equipment was used to do this. Linear PT and PR 350 cards were used for program transmission and VF-25 cards were used for our intercom. For the return paths, we

used low-delay apt-X PT-150/PR-150 cards.

Commercial and theme playback and automation was updated to ENCO for Athens. We took full advantage of the automation features of ENCO and built templates for our daily shows. ENCO worked closely with us and wrote an import filter for the traffic logs. All commercials are played from Athens for seamless integration to our programming. As a precaution, our programming is shadowed at the Westwood One New York broadcast center in the event of a failure to play from Athens. With power outages and possible T-1 failures, we like to be sure we can cover any potential problem.

The ENCO system was programmed to run our three short-form programs per hour. It fires a warning tone, starts the theme, turns on the mic fader on the Logitek and waits for the announcer to fire the next commercial with a press of the fader "on" button on the board. At the end, the mic and the ENCO turn off automatically.

We also use automation for our long form and play-by-play programs, but these are more live-assist-type shows where breaks float. The array panel in ENCO allowed us to keep regularly used pieces of audio handy for play when we needed them.

Production in a flash

For our audio production, we used what you may already know as MetroSource. The MetroSource computers come loaded with Cool Edit, now known as Adobe Audition, and Cart-O-Matic. Cool Edit is used for rolling on races and events and for quick editing of the sound. Cart-O-Matic is a simple computer cut player, which is used in the studio for playing back the cuts.

We did our recording and editing using WAV files in Athens to try and provide

See ATHENS, page 37 ▶

Athens

► Continued from page 36
the best sound possible. Additionally, we used Marantz PMD-670 compact Flash recorders for gathering our live sound and interviews.

Our editors were loving the fact they could easily transfer two hours worth of sound to the MetroSource machine in a matter of minutes. In the past, we had to roll the sound into the computers in real

We had just under five months to wire everything up, test, pack and ship three studios and seven edit bays of equipment.

time using the analog line input. The PMD-670s allowed for lightning-fast turn-around of our recorded interviews for editing and on-air playback. MetroSource also doubled as our wire service, using the Internet to retrieve all of the data from our main news gathering center in the United States.

Our audio routing system was also updated for Athens to an SAS 32KD

PRODUCT GUIDE

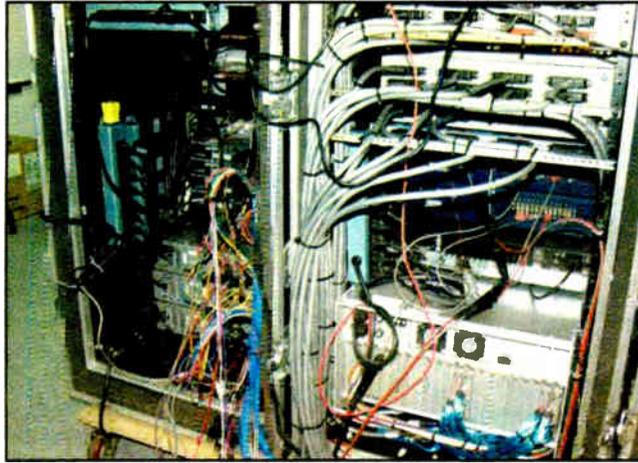
SADiE BB2-J Editing System Offers Jog Wheel

SADiE says its BB2 and BB2-J portable USB 2.0-connected editing systems are suitable for the radio broadcast market and smaller scale editing and recording tasks, and can be added to a laptop or desktop host PC running Windows XP. Features include a DSP sub-system and connections for analog I/O, S/PDIF digital I/O, headphone output and stereo microphone input.

The BB2-J is based on the BB2 but features a Jog Wheel controller and core function buttons. The company says it is designed to reduce the risk of repetitive strain injury, which is exacerbated by the constant use of a mouse in editing operations.

The BB2 and BB2-J are available with a user interface that enables the recording and editing of eight tracks with level and pan controls, transport, clip selection and master output level controls. Cut/copy/paste routines and playlist and region editing functions are incorporated. The units interchange with SADiE's Series 5 systems.

For more information, contact SADiE in Nashville at (615) 327-1140 or visit www.sadie.com.



Wiring harnesses were pre-wired in New York for plug-and-play on-site.

router. With the help of SAS, we integrated our intercom with the program

router, which was 32 x 32, and we were amazed

eliminating the need for a separate intercom system and a lot of additional wiring. We also saved on physical router heads by using the SAS soft panels on the MetroSource computers. Each workstation and each computer input had a dedicated router output that was completely controlled by the SAS software. The SAS had 64 inputs by 64 outputs and we surprisingly used all of them by the end of the trip. We had doubled the

size of the router from Salt Lake City, which was 32 x 32, and we were amazed

that we managed to fill it up. At the end of the event, four engineers were able to break down and completely pack the entire kit in under eight hours. It's still amazing to us all how a production that took over a year to plan, months of pre-wiring and weeks of set-up can break down in less than one day.

Because the 2006 Winter Olympics in Torino, Italy, is in less than two years (February of 2006), we've decided to keep everything together as a system and store it all for one year. We'll begin our staging again in September 2005 and ship to Italy in December. Changes for Torino will include purchasing more Marantz machines and adding a few additional intercom heads at our edit stations.

Conrad Trautmann is senior vice president of engineering for Westwood One Radio Networks and Metro Traffic. 



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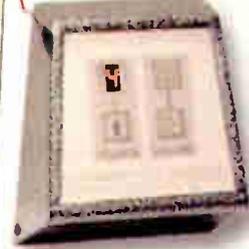
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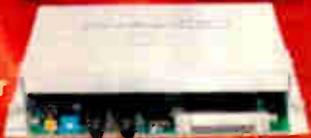
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PRODUCT EVALUATION

miXart 8 Enables Custom Setups

Digigram's Series of Multichannel Processing, Mixing Sound Cards Facilitates Recording, Distribution

by Carl Lindemann

With the hodge-podge of different audio standards, formats and bitrates to be mixed and matched today, getting everything to cooperate takes some work. The aim of Digigram's miXart 8 series of multichannel audio processing and mixing sound cards is to bring together these differences in audio streams on-the-fly and with onboard processing. These cards also are part of a comprehensive development platform that makes it possible to build custom virtual consoles, as well as run standard audio production software.

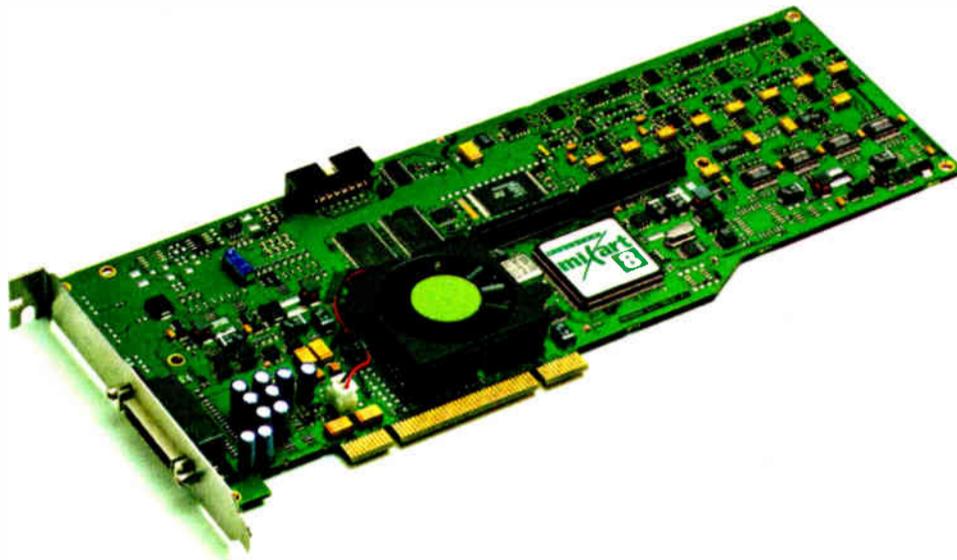
With different card configurations to provide various I/O options matching specific needs, the miXart 8 series is a flexible package that allows broadcasters to enjoy no-compromise solutions. It pulls together all the loose ends into a tidy PC-based package for recording, distributing, routing and logging audio.

From analog to Ethernet

The miXart 8 series begins with the analog I/O-only miXart 8, featuring eight balanced mono inputs matched with eight mono outputs, as the name suggests. The miXart 8 AES/EBU adds four AES/EBU stereo inputs and matching outputs plus word clock and AES/EBU synch inputs, black burst and LTC inputs and a word clock output.

The miXart 8 CN opens up the new frontier of Ethernet audio by adding eight CobraNet inputs and outputs on top of the analog I/O. The CN also has a CobraNet synchronized AES/EBU stereo output, an AES/EBU synchronization input, word clock synch input and a CobraNet word clock synch output. All of the full-length cards are clock-programmable from 8 to 48 kHz

(CobraNet use is locked into 48 kHz) and include an interboard connector if you want to synch up a multi-card configuration.



The card's processor features a cooling fan to dissipate any heat that might build up from onboard processing.

Onboard audio processing is carried out by the Motorola MPC8240 Power PC processor running at 250 MHz alongside 16 MB of SDRAM memory. This allows for MPEG II layers I & II mono and stereo encoding/decoding, MP3 decoding and sample rate conversion to drive simultaneous recording/playback of sound files at different frequencies. PCM recording can be set for 8-, 16- or 24-bit resolution. While many pro audio cards have a breakout box for an interface, the miXart 8 uses a cable snake that is carefully labeled and painstakingly constructed.

I tested the basic analog-only card in a generic PC with a Pentium IV 1.8 GHz processor and 512 megs of

RDRAM memory. While this system is on the low end of the spectrum of today's powerhouse desktops with top-of-the-line CPUs running at nearly twice the clock speed, any P4 is more than adequate for the miXart 8. Part of the beauty of the onboard processing is the low minimum system requirements — a PII and 128 megs of RAM. Almost

any legacy system running a full 32-bit Windows operating systems (NT, Win2K and XP) will do because the onboard processor offloads the tough stuff.

Cool setup

Installing the card in a PCI slot was not a problem in a full-size case, although the length might be a challenge for some of the micro cases. The processor on the card comes equipped with a cooling fan to dissipate heat that might build up if the onboard processing is run hard, like cranking encoding/decoding and sample rate conversions simultaneously for different channels.

The manual advises installing the card vertically, not horizontally. That doesn't seem like very practical advice for motherboards with PCI slots running horizontally. Nevertheless, it's easy enough to improve air circulation internally with additional fans for the case.

The software install wasn't plug-and-play, but it was simple enough under XP. The wave driver makes the card work with standard audio software and the included Digigram Wave Mixer, a basic recording utility that sets levels, input types and digital data formats.

Product Capsule: miXart 8 Sound Cards

Thumbs Up

- ✓Flexible, scalable broadcast infrastructure
- ✓Low minimum PC requirements
- ✓Powerful onboard processing

Thumbs Down

- ✓Light on printed documentation

Price: \$1,690 (8/8 analog I/Os) —
\$2,850 (8/8 analog I/Os + 8/8
CobraNet I/Os)

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

But the real gem is the VConsole builder utility. This has the power to create the virtual equivalent of a sophisticated (and pricey) mixing board with the ability to plug-in audio effects. Different configurations of audio processing and mixing can be stored and swapped at will. Operating the VConsole isn't too hard to figure out with an extensive help file built into the program. Still, it would be nice to have some printed documentation supporting it. But once you get past the learning curve, this virtual studio — combined with the ability to synch-in added cards — adds up to an amazingly scalable solution.

The only limit is that the utility can only work on one card, but there's an easy workaround — run additional installations for additional cards. Digigram makes the miXart 8 a full-blown platform by offering an API and other tools for application developers.

The noise levels of the miXart 8 yield a respectable 85 dB S/N ratio judging by the Wave Mixer meters. This isn't as quiet as some pro audio cards suitable for hi-res 24-bit 192 KHz recording, but this is quite sufficient for most broadcast applications.

The analog miXart 8 offers a scalable, flexible off-the-shelf broadcast infrastructure to simply move and modify audio as needed. With its digitally enhanced siblings, this provides an upgrade path to the future of IP-based audio. Or, if you want that future today, opt for the miXart 8 CN now.

Carl Lindemann is director of special projects for the World Media Foundation, producer of NPR's "Living on Earth."

PRODUCT GUIDE

StudioDrive Functions As Broadcast Console

Henry Engineering says its StudioDrive, a broadcast mixer that fits in the drive bay of a PC, is suitable as an audio console for PC-based radio automation, and serves as a missing link between the PC's soundcard and the studio.

StudioDrive accepts six audio sources via four mixing channels. There are inputs for one mic, four stereo line sources and the telephone coupler. Provisions are included for external mic control, a "cough switch" and control of on-the-air warning lights. The monitor system features mic-on muting, and an Air input to monitor the station's off-air audio.

Two independent stereo mix bus outputs feed a live mix to the transmitter, and a mix to the PC for recording via the sound card. When StudioDrive is used for PC audio production, such as editing or mixing, the output of the soundcard can be monitored, so the operator can hear what is being mixed or edited on the PC.

StudioDrive's telephone coupler records audio from a POTS line, such as in the instance of recording a news actuality or the tag line of a spot. A mix-minus output is included for use with a telephone hybrid, if one is needed. A VU level display and isolated outputs for headphones also are featured.

For more information, including pricing, contact Henry Engineering in California at (626) 355-3656 or visit www.henryeng.com.



In the HR Department

Digigram upgraded its PCX range of sound cards with the HR (High Resolution) series, which the company says is designed for demanding broadcast applications such as production, on-air, continuous playback and logging. The PCX882HR and PCX881HR multichannel sound cards are the first of the cards to offer features of the HR Series.

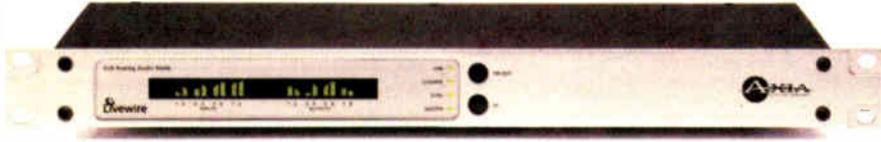
The HR Series offers hardware sample rate converters for simultaneous recording of digital signals with different sampling frequencies, a 66 MHz/64-bit PCI interface and a DSP. Eight inputs and outputs are provided, with digital I/Os in the PCX881 HR and analog and digital I/Os in the PCX882HR. Maximum levels of the analog inputs and outputs are +24 dBu.

Additionally, the HR Series features a set of drivers, including WDM DirectSound, Wave and ASIO, and a physical design using the short-length PCI format of 175 mm/6.875 inches long.

PRODUCT GUIDE

Axia Node Converts, Routes and Shares Audio

Axia Audio says its Analog Line Node audio networking component enables a real-time, low-delay interface between pro audio equipment and Ethernet. Analog audio is converted to and from 24-bit PCM digital audio network streams. Once on the network, audio can be routed, shared and mixed in the network domain.



"Modern switched Ethernet is ideal for networking audio devices," said the company's president, Michael Dosch. "Using adapter nodes, our clients have been able to eliminate snakes, routing switchers, distribution amps and miles of audio cabling. The nodes are placed near the source and target equipment, and all interconnection is over Ethernet."

Each node contains eight balanced stereo inputs and outputs, in addition to 24-bit A/D/A converters. The Livewire-enabled Ethernet port connects them to a media network based on standard Ethernet-switching technology. Nodes are connected with the same CAT-6 cable used for Ethernet data networks. Livewire networks are capable of simultaneous streams.

"In the past, the problem with using Ethernet for audio networking was latency," said an Axia Audio official. "(Axia's) Livewire technology has solved the latency problem ... Delay is less than one millisecond per network hop, which means it's virtually undetectable."

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

Audioarts R-55e On-Air Console Offers Alarm LEDs

Audioarts Engineering, a subsidiary of Wheatstone Corp., at the NAB Radio Show exhibited its R-55e modular analog radio on-air console, which the company says is tailored for small to mid markets and offers an expanded feature set over its predecessor, such as illuminated LED switches and a flip-up meterbridge that enables access to I/O connectors and logic programming dipswitches. R-55e retains the two stereo program busses of the R-55, as well as its two mono busses, optional telephone caller input and opto-isolated logic control with machine interface.

Add-on options include: a six-input stereo line pre-selector module; a dual failsafe power supply system; and remote tape modules. The company R-55e console is available in a 9-, 13- or 21-fader mainframe.

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

Online Music Search Available to hsr/ny Clients

New York-based audio facility hsr/ny expanded its music library and search capabilities with Online Music Search, featuring 15 terabytes of online storage, which it said is equivalent to nearly 900,000 pieces of music. The service is available to hsr/ny clients, and enables the user to access Online Music Search from an Internet connection, search and license music from 70 music libraries from one location and audition streaming MP3 files.

The user can download audio files to a digital audio workstation, and has a personalized music search profile that enables the saving and archiving of favored music selections.

Clients "can access our music library, browse, pick what they need and pay only for what they use. Enter whatever parameters you like — strings, children's music, circus, drums," a company official said. "This is a great pre-production 'idea' tool, as well. Creatives can access the database and a piece of music might trigger new ideas for spots."

For more information, contact hsr/ny in New York at (212) 687-4180 or visit www.hsrny.com.

Eventide Offers Band Delays Plug-In for ProTools

Eventide's H3000 Band Delays plug-in is derived from the company's H3000 Ultra-Harmonizer effects processor, and offers ProTools users the sound of the Band Delays algorithm in a plug-in form for Mix, HD and Accel users.

Features include eight voices of tempo-based delays. Each voice has up to 1.2 seconds of delay, and either band pass, notch, high pass or low pass resonant filters. Additionally, independent level, phase and pan controls are automatable. The function generator offers 19 modulation sources, including ramp, sine, triangle, peak and MIDI.

The Beat Grid enables each voice to be locked in time with the session tempo. Each voice can be placed on the grid and quantized to a 1/16th, 1/8th, 1/4th, half or whole note, relative to the master tempo and meter selected.

Eventide's Snapshot feature allows the user to save and recall the plug-in settings via the mouse. Snapshots can be automated with MIDI program change for preset automation.

For more information, including pricing, contact Eventide in New Jersey at (201) 641-1200 or visit www.eventide.com.



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Shively 4-bay wave spaced 6810R with radomes (2001) three sets, tuned to 96.1, 96.5 and 94.7, \$4000/set. Also, 3-bay full wave spaced 6813R with radomes (1999) two sets, tuned to 101.5 and 102.9, \$3000/set. Both in storage in upstate NY, replaced in recent upgrades. Contact Tim Martz @ 415-359-1030 or tim@947hits.com

Shively Labs 6810-6R-DA antenna. This antenna is tuned to 92.5FM with a gain of 6.09 and db of 7.85. This was originally installed in 1986 and removed from service back in November. System also included raydoms for ice protection and is 20 dbk max. Pictures are available so e-mail Mraley@bbnradio.org for the full scoop. Asking \$12,000. buyer responsible for pick-up and delivery. This system is located in Alert, NC.

AUDIO PRODUCTION

Want to Sell

Moseley 6000D & E, 4 each, digital encoders/decoders. Some work, some need repair. \$500. Aaron Savage, Pacific Radio Group, 913 Kanoelehoa Ave, Hilo HI 96720. 808-961-0651 ext 130.

CART MACHINES

Want to Sell

Spotmaster R/P, \$350 +shpg; ITC stereo R/P, \$350 +shpg; Tape-caster R/P, \$250 +shpg. Donald De Rosa, WAMF, 113 Schuyler St, Fulton NY 13069. 315-593-1300 or wamf1300@alltel.net.

CD PLAYERS

Want to Sell

Denon DN M105R minidisk player. This is a commercial model we used for remote ID and PSA activations. Have gone to cd players so we are going to let these go for \$250 each "as is" +s/h. Call Mike Raley at 704-523-5555 or email Mraley@bbnradio.org for pictures.

Sony JE-470, 440 and 630 minidisc players. Very good condition. I have several of them and will let them go for \$75 each +s/h. Call Mike Raley at 704-523-5555 or email Mraley@bbnradio.org & I'll send you a picture of it.

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Audio Arts A-50 console. Used in light recording such as weather & PSA's. Has 8 faders, will let go for "as is" \$900 +shpg & handling. Call Mike Raley at 704-523-5555 or email Mraley@bbnradio.org for a picture.

Audio Arts R-60 console. Very nice working board. Has eight faders but space for more. Will let go "as is" for \$2800 plus s/h. To see a picture email: mraley@bbnradio.org.

Dynamax MSC digital series bdc audio console. New, never installed. 8 mix channels, 3 analog modules/5 digital modules, slide pots, digital metering, \$4500/BO. Michael Glaser, WRCN/MRG Assoc., Nesconset NY. 631-236-7121.

Dynamax MXE analog series bdc audio console, new, never installed. 12 mix channels, 2 mic/10 line, slide pots, analog metering, \$4500/BO. Michael Glaser, WRCN/MRG Assoc., Nesconset NY. 631-236-7121.

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Orban 8100 and 2200, \$2500 ea. Tim Martz, Martz Comm, 1592 Union St #304, San Francisco CA 94123. 415-359-1030 or tim@947hits.com.

Want to Buy

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

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RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

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Want to Sell

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Best Power Technology Model MCR2000 (2), 120V, single-phase, 2000W power handling capacity, AC power line conditions, brand new, still in factory sealed crates, \$650 each/BO. Ray Knudson, 1229 Park Ave, La Crosse, WI 54601-5641. 608-789-1894.

Proteck 20 MHZ Spec. analyzer (A-3502). Make a decent offer. Call Michael Raley (704) 523-5555 or e-mail Mraley@rb.org.

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Belar FMX Z stereo mod monitor, \$1,000 +shpg. Curt Marker, Gospel Opportunities, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

RCA AMN-1 freq & mod monitor with instruction book, \$350 +shpg. Donald De Rosa, WAMF, 113 Schuyler St, Fulton NY 13069. 315-593-1300 or wamf1300@alltel.net.

RECEIVERS/ TRANSCEIVERS

Want to Sell

Inovonics FM relay receiver model 630. All the bells & whistles, freq agile, \$800. Curt Marker, Gospel Opportunities, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

RECORDERS

Want to Sell

Optimus SCT 7500 high speed dubbing stereo cassette. Will let go for "as is" for \$75 +s/h. To see a picture email: mraley@bbnradio.org.

Pioneer stereo double cassette deck. Working condition. Will let go for "as is" for \$75 +s/h. To see a picture email mraley@bbnradio.org.

Sony stereo cassette deck TC-WE475. Working condition. Will let go "as is" for \$75 +s/h. To see a picture email: mraley@bbnradio.org.

Revox stereo R-R's (2), \$1000 or \$475 each +shpg. Donald De Rosa, WAMF, 113 Schuyler St, Fulton NY 13069. 315-593-1300 or wamf1300@alltel.net.

Tascam #32, rack mounted, \$800/BO +shpg. Curt Marker, Gospel Opportunities, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

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1K days. Alabama. Cheap! \$10,000 down. Joint venture. 478-741-1710 or wrecktech@yahoo.com.

Radio Stations, LPTV or CPs. Areas: RI, CT, MA or FL, cash waiting, would consider partnership. Call after 6PM EST. Michael Cardillo, 151 Morgan St., Cranston RI 02920. 401-942-8341 or email: Michael_Cardillo@Brown.edu.

STUDIO EQUIPMENT

Want to Sell

ATI Audio Distribution Amplifier 2016-1. We have several of these as a result of studio renovations. They cost over \$1,100.00 new but will let these go for \$100.00 each plus S&H. Contact Michael Raley at (704) 523-5555 for more information or e-mail Mraley@rb.org for a picture.

Audio Cord Cart machines. We have about several "E" series playbacks at \$20.00 each, 10 "DL" series playbacks and two "A" series playbacks at \$20.00 each. Most of them have been refurbished. We also have one "A" series P/R mono, two "E" series p/r mono and two "DL" series p/r mono. No connectors are available. Will sell "as is". Shipping and handling charges apply. Call Michael Raley @ (704) 523-5555 or e-mail Mraley@rb.org for some pictures.

Enberg BA - 6 Annunciator. Have several of them in great condition with no more than eight years of use in them. Original cost was \$359.00 each but we will sell them for \$100.00 each "as is" plus s/h. Call Mike R at (704) 523-5555 or e-mail Mraley@rb.org for more information.

Want to Buy

Looking for a used broadcast delay suitable for talk shows, 3 seconds or more. Need ASAP so we can take calls on-air again. Mike Roberts, WORC/WGFP, 19 Norwich St., Worcester MA 01608. 508-791-2111 x211.

TAPES/CARTS/REELS /CDs

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172 carts in lazy Suzan, \$300 +shpg. Donald De Rosa, WAMF, 113 Schuyler St, Fulton NY 13069. 315-593-1300 or wamf1300@alltel.net.

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Radio World

Crown Broadcast FM500R, 500W FM transiator with spare parts kit. Transmit & receive channel frequency agile. 18 months old, had complete check-up at the factory in 9/04, \$6000/BO. Ray Knudson, 1229 Park Ave. La Crosse WI 54601-5641. 608-789-1894.

TRANSMITTERS (WTS) Cont.

CSI T-25-FA FM Transmitter. Recently removed from service in Savannah, GA after 18 yrs of solid operation. Includes Relay interface for remote control and Low Pass filter but not the exciter. This is a three-phase box tuned to 89.5 FM. TPO is 25k with an efficiency of .73. This also includes a CSI T-3 which drives the final. We have the manuals for both. Asking \$9,000 plus buyer arranges shipping. Give me a call at 704-523-5555 or e-mail Mraley@bbnradio.org.

Harris Gates I, 1 KW transmitter on 1560. Bought in 1978, great condition, sell as is, buyer responsible for s/h, best offer over \$5500. G Hayes, WKKY, 95 West Main St, Geneva OH 44041. 440-466-9559.

QEI FMQ series 6.0 to 9.6FM. This xmtr did a tour of duty in Argentina but some goofy laws in this country made it impossible to permit the station to operate at this power. To make a long story short it was only in operation no more than four months. Will let this go for \$17,000.00. Call Mike Raley at (704) 523-5555 or E-mail Mraley@rrb.org for pictures.

Energy-Onix MK-5.5 in good operating condition. Recently removed from service when we moved to new site. Includes manuals & schematics, \$5000 +moving costs. Vern Coleman, WOCN, 737 W Main St., Hyannis MA 02601. 508-771-1224.

QEI 675 FM exciter, 5-20W, freq agile, \$1500 +shpg. Curt Marker, Gospel Opportunities, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

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Tepco J340 translator. Completely gone through by factory. Will be shipped from factory, RX98.1FM, TX92.7FM, \$2282 +shpg. Curt Marker, Gospel Opportunities, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

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Higher Education Assistant

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ACTION-GRAM

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PAGE	ADVERTISER	WEB SITE URL
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7	Comrex	www.comrex.com
24, 25	Comrex	www.comrex.com
5	Digigram	www.digigram.com
14	dMarc Networks	www.dmarcnetworks.com
12	ESE	www.es-web.com
35	Full Compass	www.fullcompass.com
1	Harris	www.broadcast.harris.com
31	Harris	www.broadcast.harris.com
20	Henry Engineering	www.henryeng.com
23	Logitek	www.logitekaudio.com
37	Moseley Associates	www.moseleysb.com
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18	Sabre Communications	www.sabrecom.com
10	Sine Systems	www.sinesystems.com
17	Susquehanna Radio Corp	www.susquehannaradio.com
13	Telos Systems	www.telos-systems.com
33	Telos Systems	www.telos-systems.com
11	Tieline America	www.tieline.com/rw
2	Wheatstone	www.audioarts.net
47	Wheatstone	www.wheatstone.com
48	Wheatstone	www.wheatstone.com

◆ READER'S FORUM ◆

Radio World, November 3, 2004

Don't Kill the Messenger

With all due respect, I know it is considered good journalism to publish a BBG rebuttal to the article regarding the 450 VOA employees who signed a petition and submitted it to Congress ("Voice of America Imperiled," Aug. 11, and "Tomlinson: VOA Is Not Imperiled," Sept. 8).



The problem: The BBG has a big taxpayer-funded PR department that produces these grand rebuttals. The BBG has the support of Congress and the administration who put them there, and many were nominated by the Heritage Commission, whom I used to admire. Pretty powerful group of folks.

decades at the VOA.

Murrow should be the standard; not Britney Spears. Tomlinson and the BBG don't seem to be able to grasp that.

John Figliozi
Program Manager
Monitoring Times
Clifton Park, N.Y.

RW Replies: The title of Tomlinson's article, "The VOA Is Not Imperiled," was intended as a response to Alan L. Heil Jr.'s article, "Voice of America Imperiled," which appeared in the Aug. 11 issue. We agree however that the follow-up headline was not an accurate reflection of the content of Tomlinson's text.

Programming Delivers

The letter from Walt Lowery titled "Reinvent Radio" (Reader's Forum, Sept. 8) really said it right. It is programming that gets listeners. Listeners do not need "technology" — they want entertainment and

Murrow should be the standard; not Britney Spears. Tomlinson and the BBG don't seem to be able to grasp that.

— John Figliozi

What chance do little snooks like us out here or 450 VOA employees have? Who are your readers going to believe? Us, or polished pieces produced by professional bureaucratic spin-meisters?

The effect discredits those who have been trying to shed light on a very bad national public policy disaster. I guess that "killing the messenger" is still in style. But, I seem to recall my momma telling me, "where there is smoke there is fire."

Jack Quinn
Santa Rosa, Calif.

information. It is programming that delivers the listeners.

Think about the 1940s, when radio was king. People listened to programs. In the 1950s, TV came along and the programming talent went to TV. Now in 2004 we spend way too much time in the car because of traffic.

Seems like a good opportunity for programming radio.

Jim Kirstein
Folsom, Calif.

Clear Channel Reduces Bandwidth

Throw away your GE Superradio right now. It's no good.

Ditch that Grundig AM radio in the dashboard of your Mercedes, if you have one!

Clear Channel's ability to legislate audio quality on the AM band is just nuts.

What's wrong with 7 kHz, instead of 6? Would 5500 Cycles sound better than 5 kHz? It's just a number...

And what about cheating? Any station broadcasting with a wider bandwidth would surely sound better.

The Big Gorilla has spoken, but that doesn't mean we have to agree.

Mark Heller
President and GM
WTRW(AM)
Two Rivers, Wis.

Text and Context

What am I missing here? The title of Tomlinson's response to the VOA petitioners is "Tomlinson: VOA Is Not Imperiled," (Sept. 8). Where in his response are those words written or even implied? I can't find them. Instead, all I see is a defense of the new surrogate services, with no assurances about the VOA whatsoever.

It would be helpful if someone at Radio World could explain this obvious discrepancy between headline and text.

Furthermore, re-airing virtually the same short-form newscasts hourly on what are — in essence — commercial-style pop music stations is a far cry from the type of in-depth professional journalism practiced for the past six

Our readers have something to say

"As a station owner/operator, broker, consultant, former broadcast engineer and broadcast veteran of 40 years, I read many publications. On top of my reading list for over 20 years has been Radio World, a well-written counterpoint to all the others. I especially appreciate Skip Pizzi's careful explanations of technical topics, as well as Charles 'Buc' Fitch, Tom Osenkowsky, Paul McLane and Alan Peterson. These guys write the way I read!"

Mike Rice
Willimantic, Ct.

Radio World

The Newspaper for Radio Managers and Engineers

Radio World, November 3, 2004

GUEST COMMENTARY

Radio — The Reinvented Invention

TV 'Stole Its Thunder' in the '50s. Now Fighting Satellite for Listeners, How Can Radio Compete?

by Ed Ripley

Perhaps no other medium has changed both its technology and its role in society as much or as often as radio. From the earliest "wireless" days of a century ago, to our fast-paced, high-tech new millennium, radio broadcasting has been constantly reinventing itself.

We all know about the dot-dash beginning of radio wireless a hundred years ago. We know that it metamorphosed from laboratory experiments, to emergency telephony for ships, to wartime wireless voice communication.

In the early 1920s, radio was a popular hobbyist's toy. Soon, however the early broadcasters discovered there was commercial viability in the form of advertising. From the late 1920s and into the early 1950s, radio held court as the dominant entertainment medium in the American home.

When television came along and stole its thunder, radio adapted by becoming a music, news and sports entity, and a new era was ushered in. When the long-languishing FM band came alive in the late 1960s, AM radio again reinvented itself. AM stations gradually became talk, news and religious outlets as, one by one, the FM band picked off the various music audiences.

Now, in the new century, both AM and FM stations are challenged by the likes of satellite radio, Internet-delivered programming, free downloaded music and the so-called "blog" news and editorial sites. And I believe radio will continue to survive.

Estimated profit

How we receive the signal is obviously changing from analog to digital. And many are listening to radio online, rather than through the air. But regardless of the method of delivery, radio is still the most intimate and personal of all media. The very bigness and relative remoteness of TV, movies and national publications makes these other media clumsy, remote and frequently out of touch with the average consumer.

It would be funny if it weren't pathetic to see how irrelevant much of network, over-the-air television has become. During its half-century or so of existence, it has gradually "dumbed" itself down in order to reach a lower and lower common denominator, as it struggles to maintain the mass ratings it requires to keep going. Network TV is now resorting to what amounts to little more than soft porn in an attempt to garner the last remaining audience left for it.

Too often that audience is made up of the youngest, the poorest and the least educated among us.

Earlier, I mentioned that advertising led to radio, as we know it. The radio broadcasting industry has never been particularly noted for its sharp business acumen.

There are exceptions, of course, but just as radio is a medium "written on the wind," so, unfortunately, is its business plan.

The market for radio stations has been artificially inflated, in recent years by operators who paid far more than many of these properties were worth, in order to build empires of stations. The problem is that sooner or later the station has to make a profit. Some stations sold for such wildly inflated prices that they may never be profitable. This has happened time and again to radio, and each time there has been a falling out.

Just as the stock market reacts to an over-inflated bull market, radio itself periodically has its "bust" periods, and

or not he or she is motivated to buy. A growing number of advertisers would rather buy a more affordable station and saturate its audience. The smaller station is able to give them rates that allow for a lot of repetition through the broadcast day.

Today, a number of smart station operators are using this opportunity and making their stations more attractive and affordable to advertisers.

Here in the Minneapolis-St. Paul area, Salem Communications is an example of an operator that has effectively attracted advertisers not heard on the bigger stations. Some of them had never used radio before. One station in Salem's AM cluster, known as "The Patriot," has been successful at building a faithful clientele who make a big deal out of being "Patriot Advertisers."

The radio industry has never been noted for its sharp business acumen. It is a medium 'written on the wind,' and so, unfortunately, is its business plan.

station prices come back to reality.

Radio World has cited declining ad revenues for radio in recent issues. I don't believe the problem is other media or even the economy, particularly. The problem is radio itself. For too long, the medium has treated the advertiser as the necessary evil that keeps it going. Jamming the commercials into long clusters that the listener turns off is not an effective way of reaching people to buy the product.

In the old days, spots were almost "sneaked" into the script. Should one wish to delve into early radio history, it's interesting to listen to some of the old shows of the 1930s and '40s, such as, "The Johnson Wax Program, Starring Fibber McGee and Molly." The announcer was worked into the script, and then gradually went into his pitch.

No one would disagree that radio needs a reliable way of measuring its audience. But the industry seems consumed with ratings to the point where the tail clearly wags the dog. A line from the movie "Field of Dreams" reminds us, "If you build it, they will come." This is excellent advice for radio stations, as well as baseball parks. Listeners will positively respond to a well-programmed station. Indeed, they will come to listen, and the advertiser will come because there is an avid, responsive audience.

It sounds simple, and maybe it seems naively so, but great programming remains the cart that must come before the proverbial horse.

Radio frequently talks about its "reach" in the marketplace. This works fine for the fortunate station that is at or near the top of the ratings heap. But while the listener may be "reached," there remains the question as to whether

Using long-term repetition via radio is nothing new. Again, going back to the early days of broadcasting, Procter and Gamble literally dominated the daytime radio airwaves. Why do you think those shows came to be known as "soaps"?

Up close and personal

In this time of war, radio would do well to take a harder look at the informational aspect of its programming, and this includes "music" stations.

Even now, FM, and to an extent, satellite broadcasting, is largely a big jukebox. AM stations have long been gravitating to various forms of news, talk and religious fare, and will continue to do so. FM probably always will be more of a music band, but a more aggressive national news effort might be in order. Many successful morning drive shows have integrated a good bit of news into an otherwise music-oriented format.

It is an idea whose time has come in wartime America.

I also see a crying need for better local news on radio stations. Todd Storz, the group station owner credited as the father of top 40 music radio in the 1950s, eschewed the big radio networks. One reason for doing so was that he wanted to concentrate on local news in his newscasts. His philosophy was to always lead with a local story unless world or national events took priority. His theory held that people were most interested in events closest to home, or those that most closely affected them.

His ratings shot to the top in every major market where he operated, and his fast-paced presentations of largely local news kept the music audience tuned in. Granted, it was the '50s, and a more peaceful time. But many of his news ideas are still sound.

Today, a hard-hitting, fast-paced mix of local, national and world news, locally produced, would be a welcome return of an old friend on many stations.

Radio is still a very personal and intimate medium, and essentially a one-on-one communicator. Many of the great personalities of the past were adept at talking to an audience of one, as they realized that radio gave them this unique ability. Too often, the two- and three-headed morning shows wind up being internal conversations, and the listener feels left out, a mere spectator.

Some talk shows fall into this trap, as well. We've forgotten how powerful the personal approach can be. It's time that our industry comes to realize its great strength in this regard.

Speaking of talk shows, Howard Stern announced he is leaving terrestrial radio for satellite in 2006. In the wake of the controversy over the rougher language genre of talk shows and the FCC's position, it's likely others will follow. It's a "follow the money" issue, but right now, the money is still in conventional radio. In time, as satellite gains advertiser acceptance, more of the Stern-style of talk hosts will likely gravitate to outer space.

In conclusion, many of the challenges that radio will face in this new century are different from anything in its past, and the medium will have to adapt. However, some difficulties could be alleviated by borrowing ideas from radio's past. In the final analysis, people aren't really all that different today — they simply have more choices. Radio broadcasting has been around for more than 80 years, and some ideas are so old they're new again.

But whether it's a with new concept or an old one, radio once again needs to enter a period of serious self-examination — and in so doing find a necessary measure of self-confidence.

Ed Ripley is a 30-year veteran of the radio broadcasting industry, and one of the early formatters of adult contemporary radio. He resides in the Minneapolis-St. Paul area and is an occasional broadcast consultant.

How to Submit Letters

Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry.

Letters should be 100 to 300 words long; the shorter the letter, the better chance it will be published in full. We reserve the right to edit material for space. Longer commentaries are welcome but may not reach print as quickly.

Include your name, address and contact information, as well as your job title and company if appropriate.

Send letters via e-mail to radioworld@imaspub.com, with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.

◆ **READER'S FORUM** ◆

Best Wishes

Please give my regards to Kathleen Karas. I was a client of hers, and am in agreement that her departure ("Karas Ready to Hit the Road," July 14) will be a great loss for us.

Cheers for KK, and I hope she sees this message.

Luis Luna

*Development Director
WRTU/WRUO*

San Juan/Mayagüez, Puerto Rico

Request Granted

I'm looking for the excellent article you ran in the last year regarding the importance of backup generators for radio stations. I'm writing a grant and would like to include it in the grant materials. I did find the articles regarding the disaster check lists (*Reader's Forum*, Feb. 1) and the *Workbench* article on maintaining generators ("Back Up Your Backup Systems," Feb. 1), but didn't find the overview piece.

If you can help me out, that would be great. Thanks. Love the publication. It's a big help.

Brent Gardner-Smith

*Executive Director
KAJX, Aspen Public Radio
Aspen, Colo.*

RW Replies: "Backups Keep Stations on the Air" by James Careless can be found in the Buyer's Guide section of the Jan. 14 issue.

Less Clutter Is Nothing New

Clear Channel's notion of less clutter for more money ("Radio Subtracts the Ads," Sept. 1) is not new.

Back in the early 70s, I worked for Bartell Media here in St. Louis, then KSLQ(FM). It was the first true FM top-40 station in St. Louis, competing against the then-legendary KXOK at 630 AM.

From our first day on the air, Bartell would allow no more than eight minutes of spots per hour — 12 in drivetime, if needed. They ran less, but charged more — the old business proposition of margin vs. turnover. I think the advertisers thought we were crazy, but as our numbers grew quickly, they soon saw the value. When we said on the air, "KSLQ plays less commercials" (as did everyone in those days), we could prove it.

And we kicked KXOK's butt.

*Michael C. Phares
Director of Operations
KFNS (AM-FM); KRFT(AM)
St. Louis*

'Spotty' Coverage

In regards to the letter in the Sept. 1 issue entitled HD Briefing, the author states that he found WOR's signal "spotty," although there was text on the display.

His note does not specify where he was. If he was in the immediate area of the Meadowlands and/or Newark airport on I-95, yes, the digital coverage is spotty. This is primarily because of the intermod products and RF overload created by the RF in the Meadowlands, and aircraft communications systems at Newark Airport.

I am assuming, since he was headed to South Carolina, that the author was traveling I-95, the New Jersey Turnpike. I have taken the Jersey Pike all the way to the crossing at Philadelphia and have not experienced spotty coverage on WOR's signal. If he was traveling I-287, there are some places where the digital coverage will be spotty, particularly on the north end where I-287 joins I-87. This area is in WOR's null, and you would not expect to get digital coverage that far out in our null. Don't forget — WOR has a directional pattern, and it may be possible that Mr. Pepin was traveling in our null areas when he was listening to WOR.

In regards to the text display, an HD Radio will receive the station's call letters and other information, such as the SID string, much farther out than the radio will decode digital audio.

*Thomas R. Ray, III, CPBE
Corporate Director of Engineering
Buckley Broadcasting/WOR Radio
Chairman, Society of Broadcast Engineers, Chapter 15
New York*

What Time Is It?

Kudos to James Careless for a great article on WWV ("Time Check Radio, All the Time," Sept. 8).

As a kid listening to shortwave radio — yeah, the bug bites those of us in the industry early — I found myself fascinated by WWV. However, my parents didn't have the same level of interest. "Turn that darn thing off" was the normal response after about 20 minutes of listening to the

The Time for 5 KHz AM Has Come

We applaud the recent decision by Clear Channel Communications to restrict the analog bandwidth to 5 kHz on all of its AM talk stations. It is time to admit this is a good thing for our oldest broadcast service.

The most important benefit of the change will be an immediate and noticeable reduction in the amount of first-adjacent-channel interference on the AM band. Any listener to the AM band has heard this chattering noise with its strange, flanging sound. Given the current number of AM station allocations it is impossible to overcome what is a physical reality: that modulation at greater than 5 kHz is landing on top of the next station on the dial. No amount of receiver sophistication can compensate for this. While well meant, the effort to use high-frequency pre-emphasis to reduce the noise in receivers, per the NRSC standard, has only made this situation worse.

Receiver manufacturers long ago accepted this limitation and have made 5 kHz of audio bandwidth a de facto standard, or even less. The vast majority of listeners are not able to listen to anything better than this and will not notice this change at Clear Channel.

Indeed, many savvy broadcast engineers have been using reduced bandwidth for years, taking advantage of the additional loudness that can be gained. By not wasting signal energy that can't be heard, AM stations can increase their coverage area and improve their chance at overcoming the high levels of man-made noise that create damaging interference.

Some opponents of this move complain that by making the change Clear Channel is somehow unfairly influencing the broadcast industry. The heart of this argument comes back to opposition to the IBOC AM digital system, which also requires that AM stations reduce bandwidth to 5 kHz. This misses the point. The beneficiaries of a reduced AM bandwidth are today's analog listeners, and the large number of competing stations that will no longer experience this interference. That Clear Channel has decided to make this move unilaterally is a step in the right direction, one we hope that other stations will begin to follow.

— RW

time checks over and over and over.

I learned a few things from the article and found it good reading.

*Elaine Jones
Salt Lake City*

Docket 80-90 a Win-Win'

As a local broadcaster and single station owner, I thought Maynard Meyer's guest commentary was excellent. However, I do have a slightly different take on a couple of his points.

First, I think Docket 80-90 was a good thing, for broadcasters and listeners. It created an additional supply of stations, giving guys like me had a shot at ownership and at the same time, giving listeners more signals to choose from. In my mind, a win-win.

Second, consolidation is not the problem — it's all about the local management team. Of course, the corporate honchos are going to insist the local cluster manager concentrate on shlepping spots and community service, but the astute in-market guy also is going to pay attention to his/her

audience. In my market, the group guys give us singletons a real run for our money in public service/local event coverage — and not just with fundraisers.

Finally, as Meyer states, move-ins are an effort to expand the station's audience — and usually at the expense of serving the community of license. My response to this is the idea of separate but contiguous communities began to erode with President Eisenhower and the Interstate Highway System in 1956. While some unique qualities may still exist in small towns that abut larger metro areas, in my experience, most are little more than bedroom communities of the larger anchor city.

In the case of truly rural small towns located well outside a metro population center, Docket 80-90 assured us there are plenty of drop-in opportunities available for small-market operators.

I absolutely agree with Meyer the intent of some of the FCC's efforts over the years has been corrupted by a few. But as long as he and others like him stay dedicated to the business, local radio will be in great shape.

*Jim Withers
Owner/General Manager
KSIX(AM)
Corpus Christi, Texas*

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Stations Demand the MOST*

LOTS More!

Our Generation-5 provides your operators with a straightforward traditional control surface coupled with all the benefits of digital technology. It gives you the flexibility of system-wide source, mix and destination control (any signal *anywhere*), a powerful mix-minus section and a complete event store, name and recall system. One wire from this surface can control THOUSANDS of wires in your technical operations center.

And while the G-5 *feels* like an analog console, its DSP-based mixing engine keeps your digital sources digital while converting analog sources to switched digital, eliminating crosstalk and noise. It can furnish remote and telcom functionality on any input fader without fear of feedback—a real plus in back-to-back

daily operations. Its built-in graphic displays keep operators on top of things with just a glance. And since the entire system is software based, you can accommodate any format with a press of a button.

Like all our **Generation Series** consoles, the G-5 has complete failsafe options available, such as automatic fail-over DSP and CPU cards and redundant power supplies. We can even provide scheduling software and studio mounted satellite cages that can be configured to mix independently from your main routing system.

At **WHEATSTONE** we've built and sold over a thousand digital audio consoles. The G-5 is a culmination of all that experience. *Benefit from our expertise — choose WHEATSTONE!*

 **Wheatstone**



Behind Every **GOOD CONSOLE**

There's an **EVEN BETTER ROUTER**

GENERATION 4

A Straightforward, Easy-to-Use Control Surface

There's no long learning curve required to immediately start using this traditional layout specifically envisioned for operators of all skill levels.

BRIDGE TECHNOLOGY enables the GEN-4 surface to operate far beyond the limits of its studio main-frame. Integration with the Bridge digital audio network router provides systemwide access to all station on-air and off-air audio resources via inter-linked CAT-5 or fiberoptic cable. And of course, we all know **EXPERIENCE COUNTS!** With over eighty Wheatstone Generation control surfaces already operating in the field, you can be assured your installation will proceed smoothly and on time.



the digital audio leaders

www.wheatstone.com

 **Wheatstone**

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