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## A Spectrum Marker

Should 500 kc be honored as  
 a 'Memorial Frequency'?

Page 54

## 'The Way Music Was Meant to Be'

WMKV in Cincinnati is  
 hardly, well, 'retiring.'

Page 66



# Radio World.

\$2.50

The Newspaper for Radio Managers and Engineers

March 29, 2006

## Dawson, Rackley Honored

*Kilohertz Gurus  
 Singled Out by NAB*

by Randy J. Stine

It seems fitting that Ron Rackley and Ben Dawson both receive this year's NAB Engineering Achievement Award. The two veteran consulting engineers have partnered on many international broadcast projects throughout their careers and share an admiration for each other's work. Moreover, both love AM broadcast system design and optimization.

"Ron and Ben have worked passionately in their craft and are known throughout the broadcast industry as true experts in the field of broadcast antenna systems — especially directional AM systems," said John Marino, NAB vice president of science and technology.

The NAB will honor the two during the NAB2006 convention in Las Vegas. The Radio Engineering Award is given to industry leaders for significant contributions that have advanced broadcast engineering.

"Hundreds of broadcast engineers have learned how to troubleshoot and maintain their antenna systems as a result of NAB's directional AM seminars led by Ron and Ben. Their laid-back teaching style has been very well received over the years," Marino said.

### A Clemson Tiger

Ironically, Rackley is a self-professed introvert uncomfortable speaking in front of crowds.

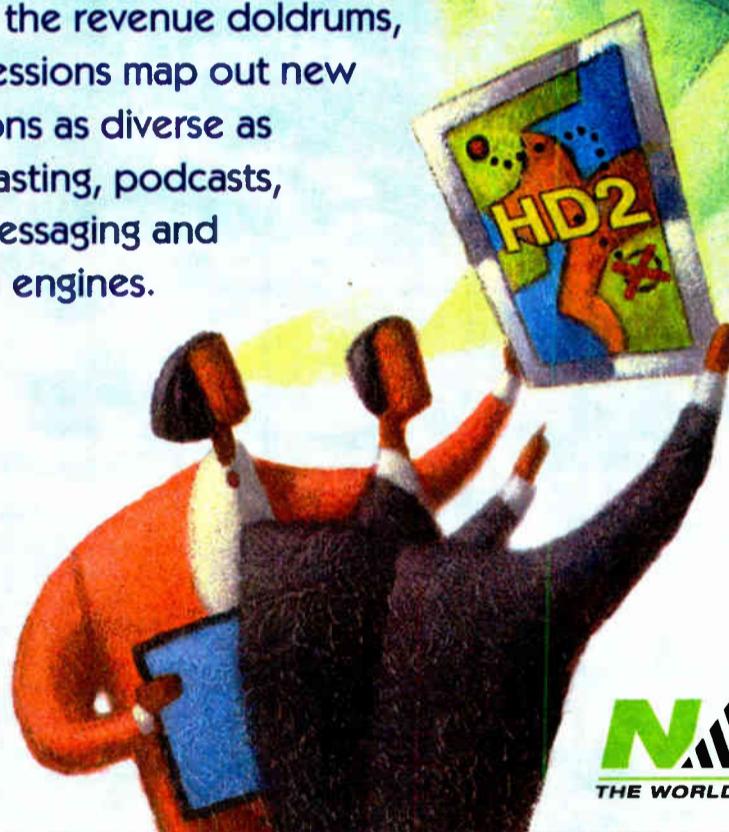
"However, I'll do it if I can help other engineers understand what AM is all about. Professionals are supposed to share information and to share knowledge," he said.

Rackley, 53, is partner in the engineering firm du Treil, Lundin & Rackley Inc.,

See ACHIEVEMENT, page 8 ▶

## Radio Searches For Its Growth

Seeking to help owners break out of the revenue doldrums, NAB sessions map out new solutions as diverse as multicasting, podcasts, text messaging and search engines.



Show coverage starts on  
**page 12.**

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# Behringer Faces \$1 Million Fine

by Leslie Stimson

**WASHINGTON** Using strong language about "egregious" misconduct, the FCC proposed a \$1 million fine for Behringer USA for allegedly marketing 50 models of unauthorized radio frequency devices — Class B digital audio music devices such as mixing consoles, dynamic processors and microphone preamps.

The company had 30 days to seek a cancellation or reduction in the fine and to explain what corrective measures it has taken. A Behringer USA spokesman declined comment.

The commission said it acted on a 2004 complaint that alleged Behringer

was marketing digital audio equipment that didn't have an FCC certification label that would certify the gear meets standards to control interference.

In 2004, Behringer told the FCC that in 2000, it began importing, marketing, distributing for sale and selling in the United States digital audio products, such as mixers, amplifiers and digital effects processors — a total of at least 66 models.

The company told the agency it had not verified compliance of the models prior to selling them. But Behringer stated that "a range" of its digital devices had been tested and indicated they had conformed with European safety requirements.

Behringer told the FCC that, after

receiving the bureau's first inquiry, it initiated measures to come into compliance, engaging a lab to test products and saying it would submit results to the commission.

The FCC said in its decision that Behringer had supplemented its response with copies of test reports demonstrating compliance of 14 of the devices with emission limits. However, the agency found that Behringer continued to market the remaining models in question.

Behringer stated that since 2004, it had imported about 93,600 units and sold approximately 100,000 units of digital devices that had not yet been tested for compliance with the FCC's rules.

The fine applies to 50 of the models;

16 were tested and verified more than a year before the date of the FCC action.

Specifically, the commission has proposed base forfeitures of \$7,000 for each of the 50 models of unauthorized digital devices it says Behringer marketed in the United States within the last year. It increased the fine "based on the egregious nature of Behringer's misconduct, its ability to pay a forfeiture and the substantial economic gain it derived from its continued marketing of unauthorized devices after the Enforcement Bureau began its investigation," the FCC stated.

The commission pointed out that the amount "substantially exceeds" proposed fines in similar equipment cases, noting it recently proposed a \$75,000 forfeiture against a manufacturer for advertising one model of an unauthorized device in various venues, and proposed a \$125,000 forfeiture against a retailer for selling several models of unauthorized devices on 13 occasions.

In 1999, Mackie Designs and Behringer settled a legal dispute in which Mackie had alleged infringement of its intellectual property rights, according to the Web site of Mackie's parent, Loud Technologies. The companies did not disclose terms of the resolution.

The FCC fine was not the only recent action in a case involving a manufacturer. The commission recently said it plans a \$25,000 fine against Ramsey Electronics for allegedly marketing two models of unauthorized FM broadcast transmitters and two models of unauthorized external RF power amplifiers. ☀

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# BE Gets New Owner

**Broadcast Electronics Looks to Investment Firm  
Audax Group to Help It Grow After Sale**

by Leslie Stimson

**QUINCY, III.** Broadcast Electronics has a new owner, one company executives believe will give the prominent equipment manufacturer deeper pockets from which to fund projects.

A Boston investment firm, Audax Group, acquired Thompson Street Capital Partners' interest in BE in late February in a deal Thompson valued at more than \$100 million.

BE President/CEO John Pedlow said the St.-Louis-based Thompson had been BE's majority shareholder for just over two years; now Audax assumes that role. BE is a wholly-owned subsidiary of BEI Holding Corp., now controlled by Audax.

The BE management team and other employees stay on, said Pedlow; he said Audax has confidence in the employees ability to grow the business. He also said BE management would retain a minority stake in the company.

Audax manages more than \$2 billion in equity and mezzanine debt capital. Company Co-CEO Geoffrey Rehnert cited BE's "strong market position" and called it an attractive platform in broadcast radio equipment.

Principals declined to disclose revenue at BE or specify what Thompson had paid for BE two years ago. Thompson Managing Principal Peter Finley said sales at BE had doubled since coming under Thompson's wing and BE had "transitioned from a small company into a large,

fast-growing" one.

"We're confident that the company will continue to perform well but could not ignore the opportunity to sell the business and provide to our investors returns that are well in excess of targets for our industry," Finley said.

According to Thompson, it specializes in investing in private business with sales of \$20 million to \$150 million and profits of 10 to 30 percent.

Ownership by Thompson had been good for the company, Pedlow said, helping it to grow.

When Thompson acquired BE in 2004, it recognized HD Radio as a trend and helped reposition BE to take advantage of that, sources close to the deal said.

In 2004, when Hoak Capital Corp. of Dallas sold BE to Thompson, Pedlow told RW the Hoak/BE relationship was "terrific" but said Hoak was "very mature and nearing the end of their investment life, and there were some things we couldn't do."

Now, with the HD Radio rollout, the new deal speaks to investors about the value of the industry, BE believes.

#### Overseas HD-R

"They understand what's happening in our market and are very supportive of the direction we're taking," said Pedlow of Audax. "They will give us the resources to do whatever we want to do."

The purchase, he said, would allow BE to execute a broad plan that involves HD Radio, and especially continue its interna-

tional activities, pointing to HD Radio projects in Asia, the Middle East, Latin America and Europe.

BE makes HD Radio and other transmission products and a studio line that integrates on-air production and automation activities with over-the-Internet and HD Radio data delivery.

The move comes more than a year after BE's purchase of The Radio Experience, which allowed it to incorporate the software technology to transmit text data for analog RDS and digital HD Radio transmissions into its HD Radio and analog transmission hardware product lines.

The deal means BE has its fourth owner in 10 years.

Pedlow came to BE in 1999 from Alpha Technologies, which manufactures powering products for cable TV and telecommunications. He replaced Doug Davis, who was interim president after the departure of Jack Nevin. BEI Holding Corp.'s parent, Hoak Capital Corp., purchased BE in 1997 and then sold it to Thompson Street in 2004.

Pedlow remains BE's president and chief executive officer and the management structure stays in place. BE, which has about 150 employees, will remain

**They understand what's happening  
in our market and are very supportive  
of the direction we're taking.**

— BE President/CEO John Pedlow

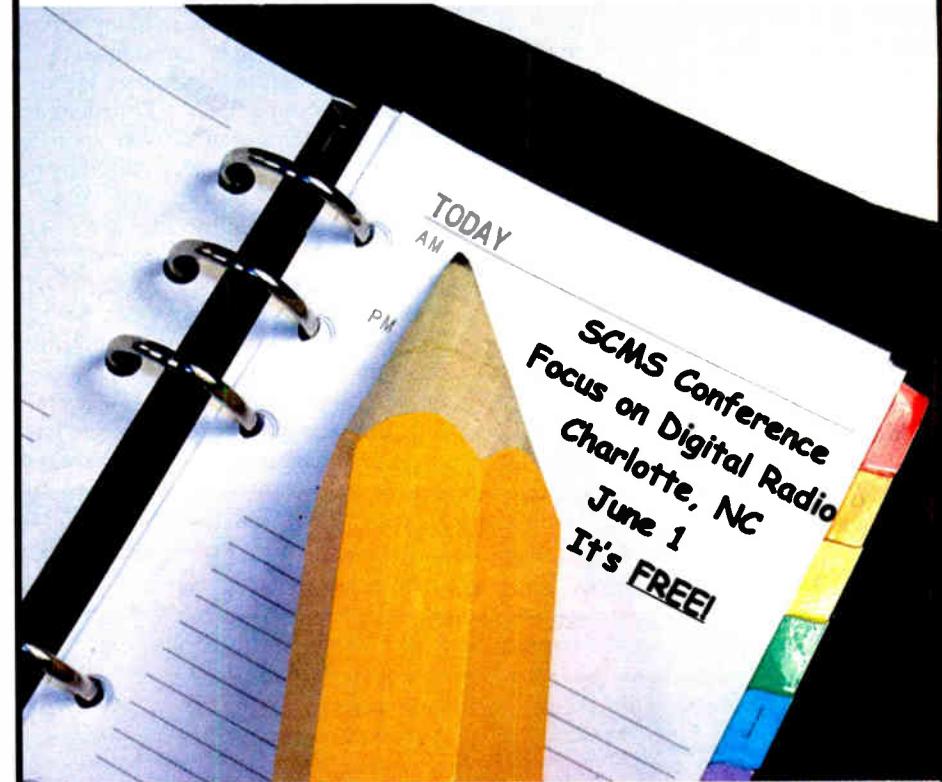
Pedlow said recent growth in BE's product sales has been driven, in part, by HD Radio, and the ability to sell Radio Experience software that complemented its broadcast transmission hardware.

BE is still looking to grow through new product introductions and more add-on product acquisitions; the Audax deal will help that effort, executives said.

headquartered in Quincy, Ill., where the manufacturer has been for 26 of its 47 years.

Kirkland & Ellis LLP advised Audax Group. GE Antares Capital led a syndicate of banks providing senior debt financing. ABRY Mezzanine Partners led the mezzanine financing. Harris Williams & Co. advised the company. ●

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## Registration for PREC Closes April 7

Registration closes on April 7 for the NPR Public Radio Engineering Conference. The conference will take place April 21–22 at the MGM Grand in Las Vegas and will include radio technology presentations on topics including HD Radio, ContentDepot and NPR Labs.



Bruce Theriault of Boulder Strategies (at podium) and Luis Guardia of CPB discuss public radio's PAD consortium at last year's 2005.

An update on the project is planned this year.

On the first day, topics include initial results of NPR Labs' efforts to map IBOC coverage, as well as HD Radio receiver performance standards and marketing strategies. Potential technical enhancement to public warning systems and best practices to minimize losses from theft also will be discussed.

Saturday's sessions focus on ContentDepot, public radio's long-promised program delivery system. ContentDepot receivers and decoders are due to begin arriving at stations this month and dual operations of the new ContentDepot and the existing satellite distribution system are set to begin in May.

Recently completed station technical upgrades are also on Saturday's agenda. To sign up, go to [www.nprlabs.com](http://www.nprlabs.com).

# Radio, Thinking in Pictures

You've heard talk from pundits (like me) who say that if managers want their radio businesses to prosper, they should think of themselves as content providers rather than broadcasters.

A company that walks the talk is Delmarva Broadcasting, owner of 11 Delaware and Maryland radio stations plus one Web-only outlet; its licenses include flagship WDEL(AM) in Wilmington. That's where I landed my first full-time job in radio; but I'm writing about the company today because it is exploring its own limits once again.

In the quarter century since I encountered Delmarva Broadcasting and probably longer, the company has innovated—in technology as well as programming, sales and localism strategies. It was an early adopter of touchscreen automation. It explored RDS-controlled billboards and AM stereo. It expanded its local news staff at a time when many AM outlets were doing the opposite. It computerized its newsroom early, built a successful in-house traffic service and has maintained a program of consistent, long-term capital plant improvement.

As I write, its engineers are setting up the company's first multicasting channel on WSTW(FM), which switched on HD Radio in December.

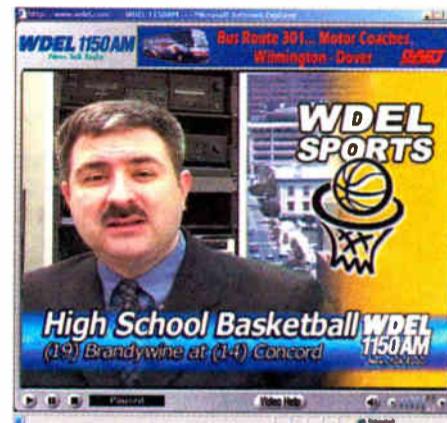
But even with that history, WDEL's newsroom staff must have raised their eyebrows when management recently handed them video cameras to replace their familiar portable audio recorders. I know I did when I read about it in an NAB convention preview story on page 20 of this issue.

## Local

I spoke to Corporate Operations Manager Bob Mercer to learn about the company's newest product: WDEL Video News, an online newscast posted at 8 a.m. each day that is available as a series of separate video story clips.

"There is no real local TV news" in Delaware, Mercer said. Delaware has no VHF outlet and very little TV service of any kind. So WDEL decided to try to fill the gap.

The service is also something of a step back in time, because WDEL(AM) served the market until the late 1950s. "Now the Web opens that opportunity up again—to extend our antenna, if you will. It's the MBA 'economy of scale' kind of thing. We've extended our product from on-air news, to on-the-Web written, to on-the-



Chris Carl hosts WDEL Video News, posted weekdays at 8 a.m.

Web audio cuts, and now to video."

The project was the brainchild of Mercer and Delmarva President Pete Booker. "We've had this vision for going on five years," Mercer said. "This year WDEL and WSTW are celebrating 10 years on the Internet, so we were early adopters.... We've seen potential for our product being extended, through the Web and the many other devices out there that are using network connections."

The daily video news roundup serves a savvy audience that is accustomed to watching news from big-market television stations out of nearby Philadelphia but hungers for more Delaware-specific content. The program is produced by the WDEL news department, using video collected in the field by radio news staffers in the course of their work. The station has six full-time news staff, and eight to 10 part-timers.

"Since WDEL was a local source of news for all these years, this was a logical extension," Mercer said. "We were able to come up with a scheme that lets our local reporters use a video camera to

record local events. The camera records digital audio as well."

Delmarva equipped the news staff with off-the-shelf, high-quality Canon consumer cameras, and purchased "prosumer" videocams, a chroma-key screen and a lighting rig in one of its production rooms. An employee with cable TV experience has the full-time job of editing and producing the newscast and running the cameras.

The field cameras capture sound for use in the WDEL radio newscasts; reporters can literally "keep the cap on," recording only audio if they want. "But we've taught them to do some very basic 'essence of the story' shots, B-roll stuff. It doesn't add a great deal of time (although some of them might argue with me about that) to the process of getting the local story," Mercer said.

Back in the newsroom, he figures, the video work adds 10 to 20 minutes to the time to edit an average story. "They come back with short clips. It's very easy to roll off, do quick edits and put a package together."

The packages are compiled into an early-morning newscast so that WDEL listeners can become WDEL viewers. Content is available in three Windows Media Player streams, with varying resolutions, plus an MPEG-4 version for viewing with Apple QuickTime or on a video iPod.

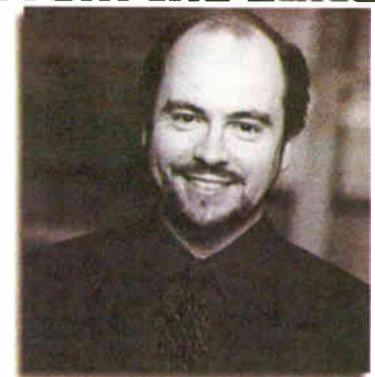
"Since we went up with MPEG-4, we saw an immediate jump in the viewing of the 'Video News,' just in the past three weeks," Mercer said. (You can watch the program at [www.wdel.com](http://www.wdel.com).)

## Pick and choose

The initial capital cost was about \$60,000. Additional expenses are bandwidth and salary for the production person. Delmarva's engineering staff was called on to run network cables for the video production package and computer, and to create customized mic cables for the camera rigs.

The video service was launched last summer and Mercer says it is growing, slowly.

## From the Editor



**Paul J. McLane**

"People aren't calling up and saying, 'We love your video news.' We tell by measuring the number of visits." Because visitors can also view stories "à la carte," often a story will receive hundreds of views. The overall daily package has fewer viewers, but each month, he says, the number grows.

A locally produced video product, Mercer knows, isn't for every station.

"Frankly I'm not sure this is a model that would work in a major market, where you have a lot of TV stations," he said. But in a city like Wilmington, where the TV news competition is from outside the immediate area, or for stations in outlying areas, he feels video news can work.

If a radio station doesn't wish to produce a full newscast or can't afford it, it might try posting just individual video stories.

Delmarva is considering consulting, to explain for a fee how it brought these elements together without overwhelming a radio news department. The station managers will have their ears open for interest during the upcoming NAB convention.

"No other radio broadcasters I know of are doing this," Mercer said. The closest thing he's seen is video offered by a radio station that has a sister TV operation. "We've only seen one or two that even came close."

I wondered about the workflow implications and whether the staff resisted. "Some days the reporters get frustrated," Mercer said, and there was some initial resistance, mostly out of trepidation of

See VIDEO, page 6 ►

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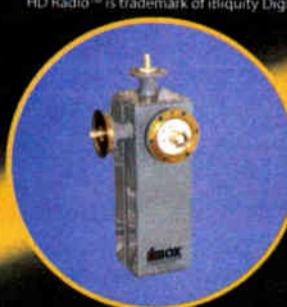
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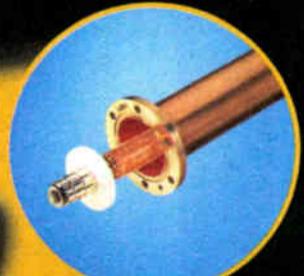
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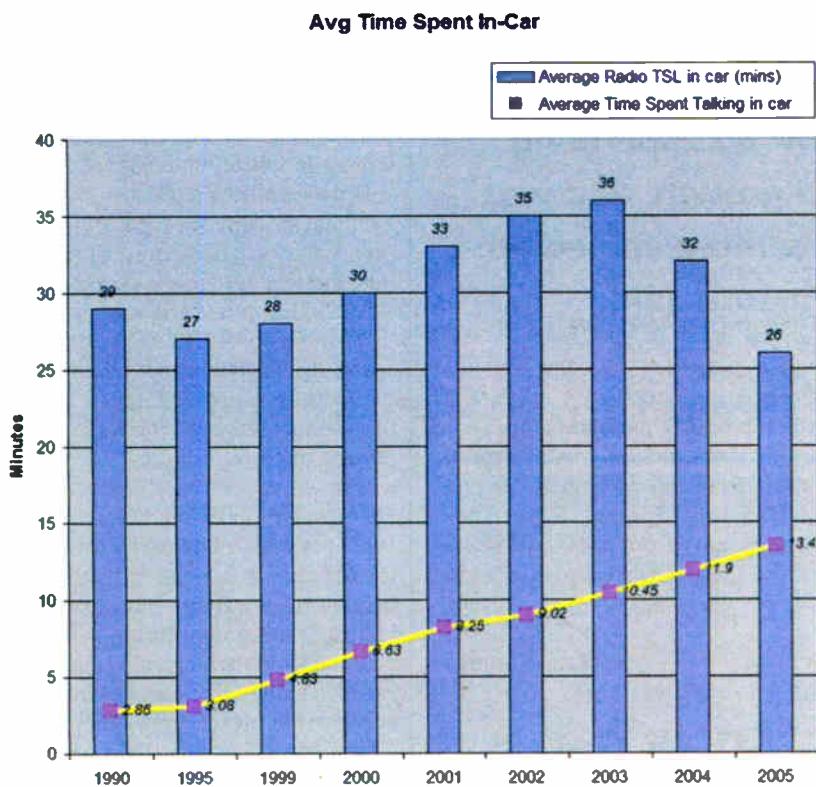
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## DIGITAL NEWS

## Cell Phone Use Cuts Radio Listening

**GLENDALE, Calif.** Cell phones siphon off a great deal of listening from terrestrial radio in the car, research suggests. That's on top of radio's losses in the vehicle to satellite radio, MP3 and iPod.



In-car time spent listening to radio increased between 1990 and 2003 but has trended down recently, says Bridge Ratings. True time spent listening to the radio (with no cell phone activity) has fallen while total time-spent-talking has increased to 13.5 minutes among those who use cell phones during their daily commute.

The statistics are important as cell phones in this country could someday rival the amount of car radios in use, according to Bridge Ratings, which completed a six-month analysis.

"The more time a commuter spends talking on their cell phone, the less time they are spending actually listening to the radio," said Bridge Ratings President Dave Van Dyke.

"We noted that a significant percentage of drivers either turned their radios down or off when engaged in a cell phone call. The implications are clear: the cell phone is vying for true time spent listening in car."

The news comes as satellite and HD Radio proponents seek ways to broadcast their content to cell phones, as in Sirius' recent deal with Sprint.

A wireless company commissioned the survey as part of a multi-year consumer study. Bridge interviewed 2,000 adult cell users about in-car behavior regarding cell talk time and radio listening. Actual TSL to radio was measured against time spent talking on cell phones.

Of the 209 million cell subscribers in the U.S., the study found that 56 percent use their phones in the car at least once a week, up from 40 percent in 2001.

While the average length of cell calls rose from 2.7 minutes in 2001 to just over 3 minutes in 2005, the length of in-car calls is, on average, 33 percent longer, Bridge found.

The amount of calls made from or to a cell phone in the car has increased from 2.1 calls per commute in 2001 to just over 3 calls in 2005, according to the

findings. That in turn translated to cumulative time spent talking in 2005 of almost 13.5 minutes per commute while true in-car radio listening in this group has fallen from 36 minutes in 2003 to 26 minutes in 2005, according to Bridge.

The Bridge study projects that in the United States, 66 percent of the population owns a cell phone. The U.S. population stands at 297 million, with 197 million cell phone users. Traditional radio's market penetration is at 93 percent or 276

Sirius through December 2010," said Sirius, referring to the end date on the jock's 5-year contract.

Stern held a press conference before the suit became public; he said CBS had a "vendetta" against him and the company is "floundering," several newspapers reported.

The New York Post reported the lawsuit would seek \$500 million from Stern. The value was not stated in the CBS announcement.

Specifically, CBS Radio alleges that Stern "breached his written contract with CBS Radio over the last 22 months of the agreement, misappropriated millions of dollars' worth of CBS Radio airtime for his own financial benefit, and fraudulently concealed his interest in hundreds of millions of dollars of Sirius stock while promoting it on the air."

Sirius gave to Stern and his agent more than 34 million shares of Sirius stock, valued at approximately \$220 million, because Sirius exceeded by the end of 2005 certain subscriber targets that were set in the Sirius-Stern contract, as previously reported.

CBS said Stern's actions, for which he received expedited compensation, occurred when the shock jock was under exclusive contract with CBS Radio. In the complaint, the broadcaster said Stern wanted to receive that stock as soon as possible "while Sirius's stock was extremely valuable" or risk a drop in that stock value.

"By taking action on CBS Radio's airtime in 2004 and 2005, Stern assured himself of immediate access to \$200 million

in assets that could be readily converted to cash," CBS alleges in the complaint.

Further, by repeatedly promoting Sirius, Stern "misappropriated millions of dollars worth of CBS Radio airtime for his own financial benefit" and for the benefit of his agent and Sirius, CBS said.

## XM Sees Black In Year-End Books

**WASHINGTON** XM Satellite Radio now believes it will achieve a positive cash flow break-even by the end of this year, predicting \$860 million in subscription revenue and 9 million customers.

In 2002, RW reported then, XM predicted it would reach the break-even point by mid-2004.

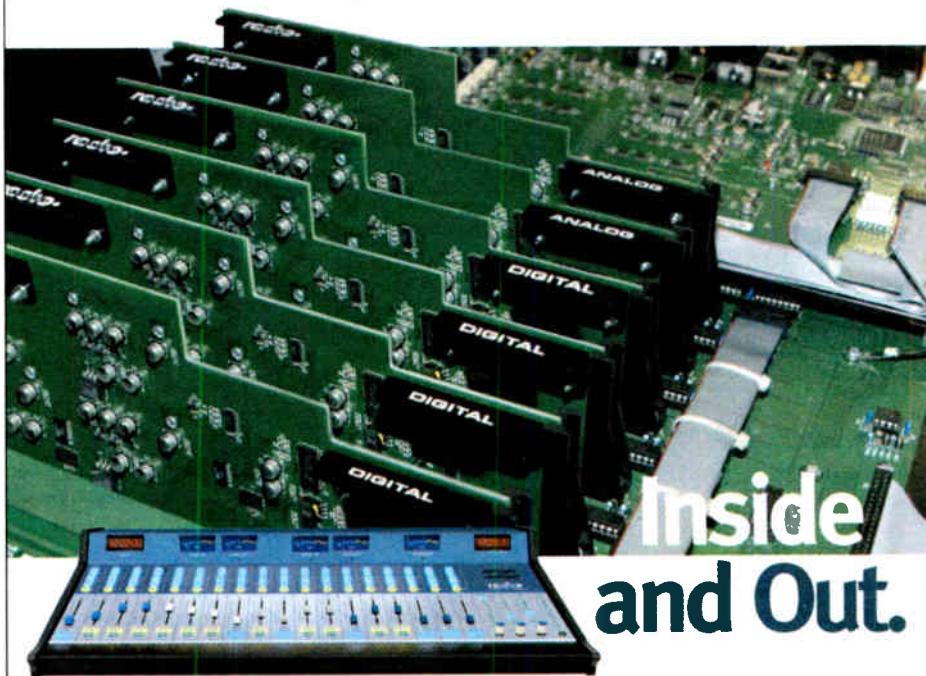
In the short term, XM's losses grew in the fourth quarter, executives said, as marketing costs rose before the holiday season and OEM subscriptions dropped. Executives attributed that reduction to sharply rising post-Katrina gas prices, coupled with the simultaneous ending of several summer purchase incentives offered by General Motors for vehicles that contain XM radios.

XM executives said this was a temporary situation as GM plans to freshen its product line this year and offer new incentives to buyers. This, in turn, would boost XM's subscriptions and profits would rise enough this year to reach cash flow break-even by the end of the year.

XM's net loss for the fourth quarter

See NEWS, page 6 ►

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# News

► Continued from page 5

was \$268.3 million; that compares to a net loss of \$188.2 million in Q4 of 2004. For the year 2005, XM's net loss was \$66.7 million, compared to a net loss of \$642.4 million in 2004.

The satcaster reported Q4 total revenue of \$177 million in 2005, an increase of 113 percent over the \$83.1 million reported a year earlier. XM's 2005 total revenue was \$558.3 million, an increase of 128 percent over the \$244.4 million total revenue recorded in 2004, it said.

The company cited subscriber growth and increases in average revenue per subscriber in connection with a price increase implemented in the second quarter for the gains.

In the fourth quarter, the cost of acquiring each subscriber was up to \$89 compared to \$64 in the same period last year. For all of 2005, that statistic was \$64, a slight increase from \$62 in 2004.

At the end of 2005, XM had 5.9 million subscribers.

## Sirius: Us, Too

**NEW YORK** Sirius also expects to cash flow break-even by the end of this year.

In releasing its fourth quarter and year-end 2005 financial reports, Sirius President/CEO Mel Karmazin said the signing of Howard Stern helped boost the company bottom line. "Howard is going to add subscribers every single day."

The company will eventually stream Stern but only when it can accomplish that securely without fear of content piracy, Karmazin said.

Sirius reported a net loss of \$311.4 million for the fourth quarter, and a net loss of \$863 million for the full year. Full-year 2005 Sirius revenue grew to \$242.2 million, up 262 percent from \$66.9 million in 2004. Average monthly churn for the fourth quarter and full-year 2005 was 1.5 percent. Subscriber acquisition costs are dropping, the company says, to \$113 for the fourth quarter and \$139 for full-year 2005.

In the fourth quarter, Sirius added 900,645 net subscribers from its retail channel and 241,705 net subscribers from its automotive OEM channel, and ended the year 3.3 million subscribers.

## Board Member Quits XM Over Spending

**WASHINGTON** Observers debated the significance of XM Satellite Radio losing a board member in February. Pierce Roberts resigned because of what he called a "significant chance of a crisis," writing in a letter to XM Board Chairman Gary Parsons.

**Roberts was concerned 'XM was spending too heavily to achieve rapid growth' and was worried about the satcaster's 'more immediate positive cash flow,' Parsons said.**

Parsons said there was a disagreement among Roberts, other board members and the company about the balance of growth vs. cash flow.

Roberts was concerned "XM was spending too heavily to achieve rapid growth" and was worried about the satcaster's "more immediate positive cash flow," Parsons said.

"Other board members differ," he said, supporting stronger programming, content and marketing efforts. "This is a balancing act for management and the board." The differing opinions, he said, are similar to what the company hears from investors at large.

XM understands it will see a positive cash flow "as soon as we pull back on the accelerator," but also believes that adding assets and value comes with every subscriber, if done on "economically rational" terms, he said.

In a statement accompanying a filing to the Securities and Exchange Commission, XM said: "The company and other directors concur in Mr. Roberts' assessment that lower programming and marketing expenditures, and a potentially lower growth rate, would likely result in earlier positive cash generation. The other directors, however, believe that the company's high growth rate, market leadership and large base of subscribers are strategically important assets to ensure the company's long-term value and can be sustained while also reaching positive operating

cash flow later this year.

"These differing views of strategic direction and balance between growth and profitability have been voiced openly for a number of years, but Roberts states that he can no longer be effective given ongoing disagreement with management and other board members."

Roberts was one of 11 board members and served on several XM board committees.

According to Roberts' bio on XM's Web site, he chairs the board of Telephia

**Inc., which provides measurement data to mobile operators, device manufacturers, and content companies. He is also a principal at Mill Road Capital. Roberts was with Bear Stearns from 1993 to 1998 as head of the telecom investment banking group.**

— Leslie Stimson

## T-DMB Gets Parisian Test

**PARIS** France is evaluating the possibilities for mobile media services, including Digital Media Broadcasting, which builds upon Eureka-147 DAB technology with additional error correction. The first trial of terrestrial DMB service launched here in February.

Mobile telecom operator Bouygues Telecom teamed with network operator VDL, television broadcaster TF1 and handset manufacturer Samsung Electronics for the demonstration service. According to a Samsung press release, the results of the trial service, which involves select Bouygues customers, will be used to determine further service plans.

The four parties began planning for the DMB trial service in July 2005.

— T. Carter Ross

## Video

► Continued from page 4 something unknown. That largely has passed, he said.

"For the most part there's a pride in their workmanship. You look at it and [realize] it's a complete professional package."

To me, a former radio news guy with a bit of TV news experience, the project is intriguing. I know this: If I were toting a camera in place of an audio recorder, it would change the way I did my job. A camera is a different beast than a microphone; the person on the other end of it will have a different response to it too.

I also can imagine issues from a management strategy standpoint. If your station requires that its radio newsmen become videographers, do you pay them as such? Do you spend money to train them in video skills? Are you willing to spend the big bucks that quality video production can cost? Might a station risk hurting its hard-earned brand image by putting out inferior video?

These questions are going to be answered by individual circumstances. But I commend Delmarva for the idea, for not simply lamenting that radio has become such a tough business but instead finding opportunities in new channels and then spending money to explore them. Oh — and of course, this is relatively inexpensive content that can attract new ad money; the service has two sponsors so far.

From Mercer's perspective, the video project is worthwhile. "Everything about it, I love. Sure, there's always learning curves and little bumps, production equipment failures, but we expected that. We worked our way through that kind of stuff."

For a station in a market with a similar set of circumstances, he said, video news can make sense as a natural extension of its product. "People," said radio veteran Bob Mercer, "tend to think in pictures."

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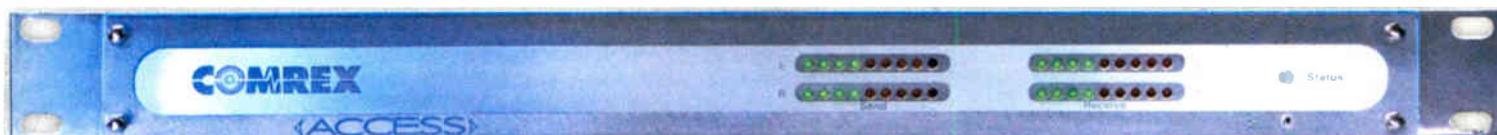


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# Achievement

► Continued from page 1

based in Sarasota, Fla. The Clemson University electrical engineering graduate is a former radio chief engineer and antenna designer for Kintronic Labs Inc. He co-founded the predecessor to his current firm, du Treil-Rackley Consulting Engineers, with Bob du Treil in 1983.

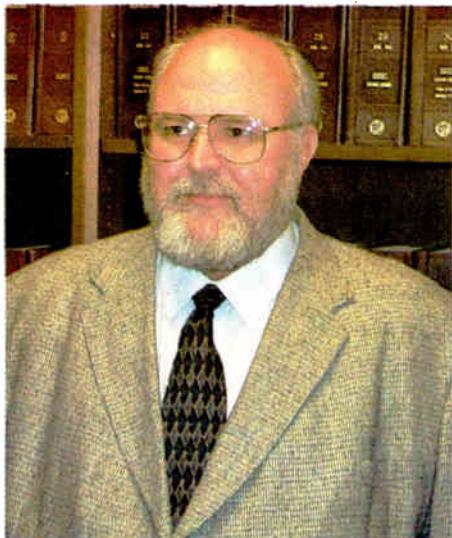
"I can't recall a time when I wasn't interested in radio," Rackley said, who grew up in Greenville, N.C., and worked as a duty operator for several local AM stations while still in high school. "I had plenty of time to read various engineering reports and study contour maps while on duty. Radio always seemed like magic to me. It seemed less like magic after I took mathematics in college."

Rackley said he found AM radio particularly fascinating, especially directional AM.

"I always had an interest in how it worked. I just thought it would be a good field to go into. I also realized with the development of computers that we would be able to limit the experimentation part of it," Rackley said.

Rackley first met Dawson while working for Kintronic Labs more than 30 years ago. Rackley built a phasor for a radio station that Dawson worked for.

"Ben is one of my closest friends and someone I trust implicitly. We have a



Ron Rackley

wonderful relationship," Rackley said.

The pair formed a partnership in 1987, the dTR/H&D Joint Venture, to pursue overseas high-power medium wave antenna system and allocation engineering projects for the U.S. government. Most projects are in excess of 50 kW, Rackley said.

"At the time the overseas work would have overtaxed any one of our firms, so we formed our partnership. We soon realized there was quite the demand for high-power AM stations from foreign broadcasters, too," Rackley said. "We are currently working on a project together in São Paulo, Brazil."

Rackley is familiar with the HD Radio

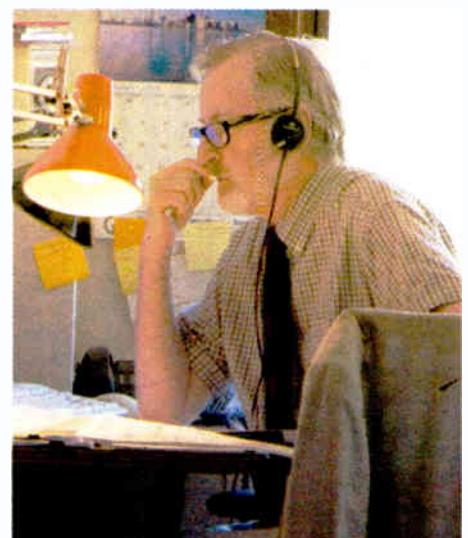
rollout in this country, having served as a consultant to USA Digital Radio during the early stages of IBOC testing in the United States. He has assisted numerous client stations through the evaluation process of converting their facilities to digital.

"AM broadcasters need to be concerned about the suitability of their technical facilities. They need to realize they may have performance in areas where they didn't before. The signal contour coverage areas will not be as large with digital AM."

"Adjacent channel noise could be an issue and coverage areas will generally be smaller," Rackley said.

Rackley isn't sure why the FCC hasn't yet authorized nighttime digital service on the AM band, although he expects it to happen sometime this year.

"Could be they are having second thoughts about the service at night, or maybe they have just been busy with other things," Rackley said. "If they don't authorize nighttime service, in



Dawson working at his drafting table, August 2005

band. There is inherent narrow-banding from the antenna pattern itself and the layout of the towers, along with other narrowband situations that result from the feed system design," Dawson said.

**Hundreds of broadcast engineers have learned how to troubleshoot and maintain their antenna systems as a result of NAB's directional AM seminars led by Ron and Ben.**

— John Marino, NAB

essence you have created just a daytime service."

Rackley, his wife Dorothy and their four children live in Bradenton, Fla.

#### Narrowband characteristics

Meanwhile, Dawson, managing partner of Seattle-based Hatfield & Dawson Consulting Engineers, believes the majority of AM antenna systems probably will be able to produce acceptable IBOC performance, despite the narrowband characteristics of AM.

"HD Radio is an interesting dilemma for AM broadcasters because so many antenna systems are inherently narrow-

As for eventual nighttime authorization for AM digital broadcasts, Dawson said of potential interference concerns, "It's necessary to understand that from an administrative standpoint, frequency allocation matters are not fundamentally engineering problems, but rather political problems. The job of regulators is to balance interference concerns with providing adequate service to certain communities."

Dawson said AM broadcasters have faced many challenges throughout his 30 years as a consulting engineer, digital just the latest of them.

"I came in at a time just after the AM

See ACHIEVEMENT, page 10 ►

#### Honor Roll

*Past winners of the NAB Engineering Achievement Award. Beginning in 1991, radio and TV winners were named; radio winners are listed.*

1959	John T. Wilner	1983	Joseph Flaherty
1960	T.A.M. Craven	1984	Otis S. Freeman
1961	Raymond F. Guy	1985	Carl E. Smith
1962	Ralph N. Harmon	1986	Dr. George Brown
1963	Dr. George R. Town	1987	Renville H. McMann
1964	John H. DeWitt Jr.	1988	Jules Cohen
1965	Edward W. Allen Jr.	1989	William Connolly
1966	Carl J. Meyers	1990	Hilmer Swanson
1967	Robert M. Morris	1991	George Marti
1968	Howard A. Chinn	1992	Edward Edison &
1969	Jarrett L. Hathaway		Robert L. Hammett
1970	Philip Whitney	1993	Robert M. Silliman
1971	Benjamin Wolfe	1994	Charles T. Morgan
1972	John M. Sherman	1995	Robert Orban
1973	A. James Ebel	1996	Ogden Prestholdt
1974	Joseph B. Epperson	1997	George Jacobs
1975	John D. Silva	1998	John Battison
1976	Dr. Frank G. Kear	1999	Geoffrey Mendenhall
1977	Daniel H. Smith	2000	Michael Dorrough
1978	John A. Moseley	2001	Arno Meyer
1979	Robert W. Flanders	2002	Paul Schaefer
1980	James D. Parker	2003	John W. Reiser
1981	Wallace E. Johnson	2004	E. Glynn Walden
1982	Julius Barnathan	2005	Milford Smith

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## DIGITAL NEWS

**Lindahl Promoted To Cox Technical VP**

**ATLANTA** Cox Radio has added new technologies to Gregg Lindahl's vice president title. He has been VP of Cox Radio Interactive since 2000.

Company President/CEO Bob Neil said Lindahl "has been a clearinghouse for many of the technologies — including many HD Radio opportunities — within Cox Radio for the past several years."

Lindahl said the Cox Radio Interactive team has done a good job building businesses around the company's brand distribution on the Internet and said the Cox

Radio platform was designed to extend to other distribution channels.

He joined Cox in 1986 as vice president and general manager of WSOC(AM-FM) in Charlotte, N.C.

**HD-R Retail Training Site Opens**

**COLUMBIA, Md.** Retailers can go to an online training site to learn how to sell HD Radio products.

The program developed with Creative Channel Services is called HD Radio University. It is free and requires a one-time registration, said Ibiuity Digital.

CCS said retailers such Best Buy,

CompUSA, Micro Center, Staples, Circuit City use the online training.

**HD-R Roundup**

**BEASLEY'S** WXKB(FM) in Cape Coral, Fla., was the 700th digital station when it turned on the juice Jan. 26, according to Ibiuity. By early March, nearly 730 had converted. Broadcasters are converting stations at the rate of more than one per day, the company said.

**BEASLEY** threw the switch on digital radio at WRXK and WXKB in Ft. Myers, Fla. The two FM stations are on the air with HD Radio. The company planned to convert sister FMs WJPT and WJBX soon.

**Achievement**

► Continued from page 8  
freeze was lifted and at a time when many broadcasters had been neglecting their facilities. I have always been interested in AM antenna performance and design and followed it very closely," Dawson said.

Dawson, 65, even taught himself calculus in high school to better understand antennas and can recall the first transmitter he fixed.

"When I was 15, I began working an air shift during the summers for a radio station in Salem, Ore., but when the transmitter broke — an old RCA 250L — I was the only one who could fix it. Then my parents moved to Portland, Ore., and I started work for KUIK(AM), which was half-owned by Harold Singleton, who was a consulting engineer. Once Harold realized I could fix things I became his gofer," Dawson said.

After stops as chief for several West Coast radio stations, Dawson formed Hatfield & Dawson in 1973 along with Jim Hatfield Jr. and Maury Hatfield. The practice today is diverse, Dawson said, ranging from about 50 percent broadcast-oriented work to mobile and government clients.

"This is the perfect job for me. It's one of the few jobs I know that allows a person to do serious intellectual work, work with your hands, write and solve complicated practical problems," Dawson said.

**Adjacent channel noise could be an issue and coverage areas will generally be smaller, says Ron Rackley of HD Radio.**

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## Confidence on the Exhibit Floor

*HD Radio, Networked Audio, ContentDepot Are Among Hot Topics for Vendors at NAB*

by Scott Fybush

Vendors who'll soon be setting up booths at the Las Vegas Convention Center say the halls of NAB2006 will be filled with buzzwords that would have been a mystery to convention attendees even a decade ago: "USB," "ContentDepot," "5.1 Surround" and so on.

At the center of the buzz is HD Radio. As recently as a year ago, the technology seemed for some major radio groups to be

a "what if" proposition. This year, with the help of the HD Alliance and the commitment of many groups to roll out and promote digital signals, it feels more substantial.

For instance, on the transmission side of the business, Continental Electronics' Dave Hultzman said at WQED(FM), Pittsburgh, the company recently installed its first D-816HD combined analog-HD Radio transmitter, a product introduced at last year's spring convention.



James Banks, left, of Kintronic Labs listens to a question on the Kintronic ATU from John York of Public Broadcasting Atlanta on the floor last year.

ERI President and CEO Tom Silliman said the HD-R conversion is one reason his company is getting to work on major FM master antenna replacement projects in San Antonio, Minneapolis/St. Paul and Orlando. "All of a sudden, the need to have HD is pushing people into replacing these antiquated systems," Silliman said.

It's another aspect of HD Radio — the multicast programming on FM — that has many vendors buzzing this year, though.

### Choices

"At NAB, I would expect one of the big highlights would be HD Radio multicasting," Hultzman said, and other vendors interviewed by Radio World agree.

HD2 channels are on the minds of clients, according to Diana Stokey, manager of marketing for Prophet Systems. Broadcasters are opening their wallets, she believes, to add automation systems to run multicast channels, which have become a central marketing point for HD Radio.

"I think (HD2) opens up potential for more programming, and for bringing more choices to their audiences."

The prospect for further multicasting, especially among public broadcasters already experimenting with a third multicast stream on FM, has Neural Audio President Mark Seigle excited about this NAB. "There's an interesting content vacuum," he said.

As broadcasters work on filling that vacuum with new multicast programming, Seigle said stations that rushed to get HD Radio on the air are now looking at tweaking processing to get the most out

of the system's digital bitstream. In some cases, such as Neural's alliance with Continental, manufacturers are working across category lines to offer broadcasters turnkey HD-R solutions.

"At this NAB, the processing world is going to be important to all the manufacturers," Seigle said. "There's an importance to getting HD1 and HD2 channels sounding great."

### Manageable

Some manufacturers are looking ahead to NAB2010 and beyond as they prepare for further expansions in multicasting, he said. "We've gotten some feedback that adding HD3 and HD4 channels is compelling, especially for the National Public Radio folks," he said.

See TRENDS, page 14 ►

## NAB Show Preview

### This Issue:

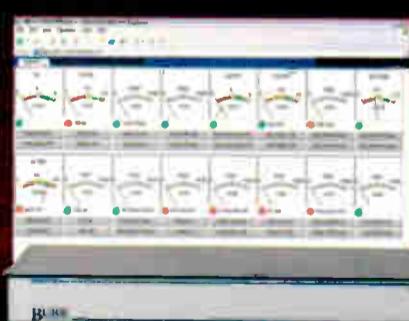
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# Trends

► Continued from page 12

"Processing companies need to think five years out," Seigle said. That includes the addition of surround sound to HD Radio, which Neural and other processing companies will again demonstrate at NAB 2006.

While NAB itself is an association of commercial broadcasters, public broadcasters shop at the convention too. Don Backus, vice president of sales and marketing for ENCO Systems, said that for public broadcasters, this NAB is "the year of ContentDepot," the distribution system that's being rolled out by the Public Radio Satellite System to combine live program delivery with on-demand content trans-

mission to stations.

ENCO is providing automation systems to public broadcasters that were not equipped with any automation to handle ContentDepot feeds, which are now expected to go live this summer, as reported by Radio World.

"I think other new developments are mostly incremental, not revolutionary, as manufacturers tweak and adjust products to meet expressed client needs," Backus said.

For many vendors, that "tweaking" includes an emphasis on convergence. ENCO, for instance, intends to show its Streamline system, which links the ENCO DAD automation system with Wicks' Visual Traffic software and with Powergold music scheduling.

At Burk Technology, "The big challenge our customers face is how to

expand their broadcasting activities while keeping engineering infrastructure at a manageable level," said Nathan Burk. For many broadcasters, that's being accomplished by standardizing certain core equipment purchases across entire groups.

## Networked audio

"What standardization means for the supplier is that versatility is more important than ever. The same piece of gear needs to work in a much wider range of applications," he said.

In many cases, all that gear is being connected through interfaces that are more familiar to computer professionals than to broadcast engineers.

"Users like the ease and reliability of USB interface, so it is likely to be a growing trend," said Hank Landsberg of Henry Engineering, which plans to roll

out several pieces of USB-equipped gear at the show.

On a larger scale, audio distribution over IP networks rapidly is replacing traditional wiring in studio plants, and that's keeping vendors of studio equipment busy. "There are still a large number of studio and automation related upgrades and building going on," Backus of ENCO said.

"What engineer doesn't welcome the chance to upgrade their plant and have it be corporate's idea?" asked Telos/Omnia/Axia spokesman Clark Novak.

"Along with RF upgrades, the purse strings are loosened a bit more to do complementary studio upgrades too," Novak said. "It should be a big year for refurb buildouts."

Overall, vendors sampled by Radio World said the industry seems confident going into NAB2006, with much of the uncertainty around HD Radio — and the fear of satellite radio dominance — giving way to more concrete planning for the future.

**Show me a guy who refuses to give up his analog plant, and I'll show you the bandleader on the Titanic.**

— Clark Novak,  
Telos/Omnia/Axia

"All of these things combine to reassure broadcasters that the industry is healthy," Burk said. "We see evidence of this when buyers take advantage of a new HD transmitter project to also add to their transmitter remote control system or get their system talking over IP. There's an eagerness to move forward with plans, which is great to see."

Novak points to recent sales of broadcast suppliers — dMarc, RCS and Broadcast Electronics — as a sign that broadcasting is becoming more closely tied to the world of information technology.

"Anyone who's been paying attention knows that audio engineers have been de facto IT experts for about a decade now. With big players outside broadcast taking a pointed interest in the digital side of radio, computer-based applications, networks and solutions are going to become an even larger part of daily life in the tech shop. Show me a guy who refuses to give up his analog plant, and I'll show you the bandleader on the Titanic," he said.

While Novak believes there's still a note of caution about the economy — nobody's "gung-ho" just yet, he said — he calls himself "cautiously optimistic" about a strong show in Las Vegas.

For ERI, at least, there's a concrete sign of confidence heading into NAB this year: Silliman said the company's expanding its floor presence, going from a 30-by-30-foot booth to a 40-by-40 foot space.

"We look forward to a good show," he said.

*Exhibitor listings, including new product previews, begin on page 28 of this issue. Also look for extensive product coverage in our post-convention issues.*

*Suppliers and attendees: What do you think is ahead for the industry? Tell our readers. Comment via e-mail to radioworld@imaspub.com.*

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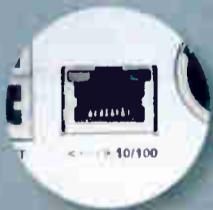
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# Vegas CEs Face Unique Critters

*Scorpions and Equipment Suppliers Are Part of Life for Sin City Engineers*

by Sharon Rae Pettigrew

If stepping in deer doo at your remote transmitter site constitutes the greatest occupational hazard of your job, consider yourself lucky.

Tracy Teagarden was attacked by an irritated roadrunner.

Joe Sands was sauntering to the back of his pickup to collect tools when a Ringtail cat, the smallest member of the raccoon family, jumped from the bed.

Bill Croghan battles black widow spiders at his AM sites and has been bitten by a scorpion on the job.

These engineers all have one thing in common. Aside from having from bad luck with wild creatures, they are all radio employees in the desert southwest of Las Vegas.

"Desert survival techniques are a must — plenty of water, good shade, etc.," said Croghan, chief engineer of Lotus Broadcasting stations KOMP(FM), KXPT(FM), KENO(AM) and KBAD(AM). He also teaches desert survival with the local Civil Air Patrol, the civilian auxiliary of the United States Air Force, on the side.

"Our FMs are on Mt. Potosi, a four-hour round trip with the 4x4 if the road is good," said Croghan. "It'll take eight hours if I have to take the Snowcat in."

A Snowcat is an enclosed-cab, truck sized, vehicle with Caterpillar tracks designed to move on snow.

KXTE(FM) are HD Radio stations, and KXTE is multicasting.

"Mt. Potosi at about 10,000 feet AMSL (above mean sea level) can get snow to the point of impassibility from October through April, and you can't



Chief Engineer Warren Brown stands in the Technical Operations Center of Nevada Public Radio.

Teagarden, chief engineer of CBS stations KLUC(FM), KMXB(FM), KKJJ(FM), KSFN(AM), KXNT(AM) and KXTE(FM), points to weather as his biggest challenge. KXNT(AM) and

seem to carry along enough spare parts for a Snowcat," he said. "Wind, dust storms and flash floods from thunderstorms can all catch you off guard."

Joe Sands, president of Desert Sands Broadcasting Inc., a contract engineering firm with numerous clients in the market, said his biggest challenge is keeping transmitters cool in 117-degree temperatures.

"The biggest potential failure in transmitter sites is not the transmitter itself, but rather the air conditioning to keep the transmitter cool," he said.

The engineering community in Vegas considers itself tight-knit.

"We are all very close," said Sands.

"We are all competitors, but realize that anyone can have their signal disrupted and have to rely on others for help. We loan each other equipment as needed, help out during outages and keep an eye out for potential problems when visiting the various transmitter sites."

Warren Brown, director of engineering at Nevada Public Radio, which has six FMs in Nevada and Utah, also serves as a contract engineer for an additional half-dozen stations. He calls Vegas the best engineering community he's worked in.

"Engineers are friendly with one another and willing to help out whenever they can," said Brown, who's been in the market since 1990.

Sands agrees. "I consider the Las Vegas radio engineers the best, most cooperative and friendly group that I have ever had the privilege of working with," he said.

## Willing to help'

Croghan said it's common for one engineer to save the others a trip to the mountaintop FM sites if possible.

Time constraints keep these engineers from talking to each other in person much of the time.

"We probably see each other 10 percent of the time in-person, the other 90 percent we connect via e-mail and telephone," said Croghan.

Brown cites the occasional lunch or bull session, while Teagarden said, "It's hard to go up Black Mountain and not run into a colleague."

The area's SBE chapter features sporadic activity, according to Sands. Croghan, who serves as the certification chair, said that the group rarely meets.

"A mail-in ballot was sent out some time back for the offices, and there was only one write-in vote for president, me," said Croghan, who turned down the job because of time constraints.

So what's it like having the NAB convention in their collective backyard every year?

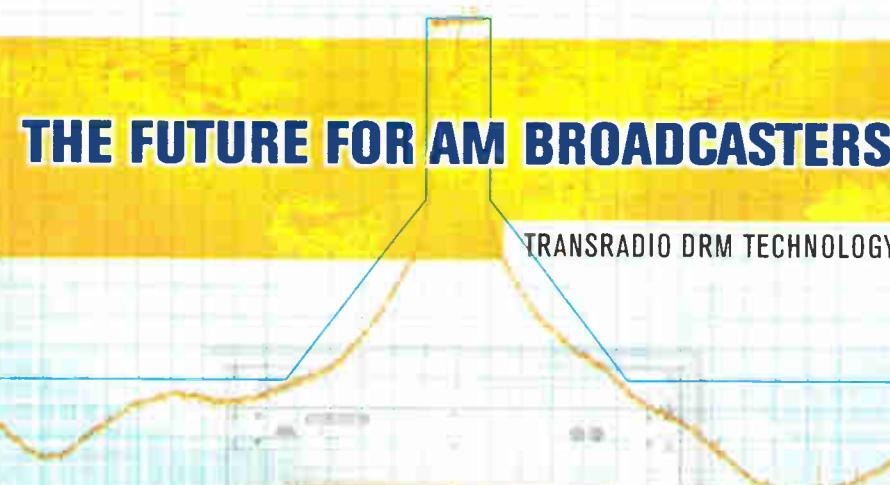
"We frequently get to put the best new See VEGAS ENGINEERS, page 19 ►





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## Beep Beep

"In 1996 I was relatively new to the desert southwest and not all that familiar with the local fauna. Early one morning, my four-tower AM directional refused to switch to day pattern, and as I was troubleshooting the RF relay in the ATU of one of the towers, I noticed an observer. Although this observer didn't much look as they have been portrayed in cartoons, I was pretty sure it was a roadrunner."

"As I continued work on the ATU, the roadrunner eventually made it to right beside me, looking into the ATU as if he were going to offer me some advice."

"Did I mention it was really early in the morning? Something made me think that a bird that dines on rattlesnakes and knows unequivocally he has no reason to fear a sleepy broadcast engineer would be a good thing to pick up for closer observation."

"In the next 500 milliseconds — roughly the time it took to realize I had made a very poor decision, and increase the proximity of myself and the roadrunner to a point he was comfortable with — I became afflicted with about two-dozen scratches, abrasions, miniature stab wounds and contusions."

— Tracy Teagarden



Tracy Teagarden remembers an encounter with a particularly unhappy roadrunner.



# "Some people don't like change. Change doesn't much care."

"I guess being the very first station to use Ethernet for audio routing has made WEGL a little famous! Someone's always on the phone:

'Tell me about your Axia system. What's the real story?'



"The real story is that two years ago, when our old analog consoles began to fall apart, we put in an Axia IP-Audio network and SmartSurface. And I've never had a single reason to regret that

decision.



"Sure, I was skeptical at first. But audio-over-Ethernet technology is compelling!

Other companies just use CAT-5 to carry audio using proprietary protocols. Axia uses standard Ethernet to build a true network with uncompressed digital streams

*plus* machine logic and program-associated data. No one else does that! I was a little concerned about dropouts and QoS problems, so we went to the Axia factory and assembled a network ourselves. It was easy to do, and it just worked. We were sold.



"The jocks took to the new board like fish to water. Show Profiles are their favorite part, since they can all have custom board setups. Some like their headphone levels blasting, some don't. Some like the mic on the left side, others on the right. I've got one guy who brings in his vinyl records every week for an oldies show; he's the only one who uses the turntables but when he loads his profile, they're ready to go.



"There were a few little bugs, but we had the very first surface! Axia support gave us new software right away and our problems were solved. Two years later, I'm more impressed than ever. I recommend Axia one-hundred percent.



"Since the first studio was installed, we've added a new production and interview studio, and we plan on building three more studios. It'll be all Axia — all the way to the transmitter."



— Marc Johnson, Chief Engineer, WEGL-FM  
Auburn University, Auburn, Alabama



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# Weekend 'Summit' Looks Into the Pod

*Podcasting, or 'On-Demand Broadcasting,' Gets Its Own Weekend of Sessions*

by James Careless

Not long ago, few NAB delegates could have told you the meaning of the word "podcast." At NAB2006, the Web-based medium has a two-day weekend series of sessions devoted to it.

Branded as the NAB Podcasting Summit, the event on April 22-23 aims to give delegates a thorough overview of podcasting. The NAB is co-organizing the summit in partnership with Future Media Concepts of New York. This is not a radio-specific event; it is part of NAB's Post-Production World Conference. But it has clear radio implications.

The summit "will address the nuts-and-bolts topics of advanced podcasting production techniques, advanced encoding, repurposing broadcast material for podcasts and methods of delivering podcasts and making them searchable," said John G. Marino, NAB vice president of science and technology.

"The summit will also tackle business issues such as licensing and copyright, generating new revenue from podcasts, audience metrics and measurement methods, marketing podcasts and of course the future trends for podcast technology."

The theme is "Podcasting: Audio and Video for a New Audience."

## New outlet

"Many broadcasters now understand that podcasting can benefit them by offering another outlet for radio programming and special events," Marino said. "Podcasting provides an opportunity to offer programming on demand. It gives radio broadcasters an opportunity to reach out to new tech devices such as iPods, and new audiences."

Art there pitfalls for broadcasters new to podcasting?

"For radio, there are none," said radio host and podcaster David Lawrence, who will be speaking during the sessions.

"If you're not a professional, you have no idea what kind of pressure you'll be under to continue to podcast if you become popular. But for pros, there's not a downside; not even incremental cost of delivery if you know how to set your feed up properly."

Saturday's sessions are oriented toward technical training; Sunday is for business pointers.

On April 22, the first session, at 9 a.m., will examine advanced podcasting production techniques, to help delegates learn effective and professional ways to prepare content. The session at 11:45 a.m. will tackle proper encoding of podcast files, for capturing and encoding content in optimal ways for MP3 players and iPods.

At 2 p.m., presenters explain how to convert broadcast content to podcasts. The fourth session of the day is at 3:30 p.m.; it will examine the many ways in which



broadcasters can distribute podcasts. The final session of Day One at 5 p.m. will march out experts to talk about podcasting tech and trends.

On the second day, the summit will begin by tackling legal and copyright laws for podcasting at 9 a.m. Broadcasters who want to stay on the RIAA's good side are likely to find this of interest. Next, at 11:45, the topic is "Podcast It! — New Revenues from Existing Content." Panelists will explain how a broadcaster's audio and video archives can be re-purposed to earn new money from podcasting.

"I plan on talking about how I take my content, the existing content I've already created, and how to make additional money from podcasting it," said Lawrence. "I'll show you how to do that easily, and to make incremental income from those newfound listeners. I hope to remove the mystery and the hype at the same time, and give nuts and bolts processes and standards so that attendees come back to their station as heroes; making more money for 'the man,' whoever that man may be."

Marino said, "It seems every day that broadcasters are discovering the benefits of offering their content via podcasting. While it's presently difficult for many to realize the revenue benefits of podcasting, I believe that over time broadcasters will provide unique content that may only be available via their podcasts, content that may be offered as fee-based services."

At 2 p.m., the summit will consider who is listening to podcasts, how to measure them and how to use this data to sell advertising. At 3:30, the experts will explain how to market podcasts.

"In order for broadcasters to relate to a new generation of listeners, they will need to put together a podcasting plan for their business," Marino said.

Finally, at 5 p.m. on April 23, the experts will congregate again to talk about podcast tech and trends.

## Profiting

Organizers hope the event will inspire them to discover new techniques and ways to earn money from their craft.

"That's exactly what people will find out when they attend this session — all the little ways that we overlook potential because we are, and have been, married to the transmitter," Lawrence said. "New avenues present themselves all the time, and podcasting is just another to gather a fruitful and loyal audience, and that means

advertising dollars or subscription dollars."

Broadcasters, NAB's Marino said, are like most business owners and managers; they want to understand the benefits of any new technology before taking the plunge.

"If they see successful business models being deployed by their colleagues and competitors, they may have incentive to try them out at their facilities. It's all a matter of understanding that this new technology offers benefits and not just time-consuming staff effort."

The screenshot shows a web page titled "East Detroit Radio". It features a banner with the text "Welcome to East Detroit Radio". Below the banner, there are sections for "Latest Podcasts" and "Manually". The "Latest Podcasts" section lists several entries with titles like "MamaPooza Detroit, Fabulous Roots of Detroit, Tribes of the Cass Corridor", "00:20 'sachet honey inter...', "00:55 'top 10 by Mylene...', "05:45 'playdough' by Candy Bend", and "09:28 'distances' by James Stephen". The "Manually" section contains instructions for using an iPod/iPod3 player. On the right side of the page, there are sidebar links for "Comment [2]", "ANN D Test Li...", "KATHIE Coddle", "OTHE... Vanou", and "THE G".

What are the implications of podcasts like East Detroit Radio, 'an Internet radio-type show, where we play some indie music (with permission) and discuss the music and other things'?

Broadcasters who ignore podcasting in the hope that it will go away are only putting themselves at risk, he says. The proliferation of low-cost portable audio devices will drive podcasting by offering attractive opportunities for creative individuals and entrepreneurs.

"This, combined with the spreading landscape of broadband wireless and the ease of downloading podcasts, will probably make the technology commonplace within the next five years."

This is why "Simply ignoring a technology that is popular with listeners is foolish, especially if a new generation of consumers using new high-tech devices can enjoy a different way to sample a broadcaster's fare," Marino said.

Lawrence added, "There are aspects of podcasting, the cachet, the hipness factor that will fade over time; but again, podcasting has no less legs than broadcasting. There are those in the industry that are tolling the funeral bells for traditional broadcasting, and the naysayers will always have something to claim as dying. I don't see it; not with 60 million iPods and many more millions being sold every month."



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World Radio History

## Vegas Engineers

► Continued from page 16  
technology on the air ahead of the rest of the country because of the trade shows," said Teagarden. "It was the experience of a lifetime to be lighting up the first DAB stations in 1999."

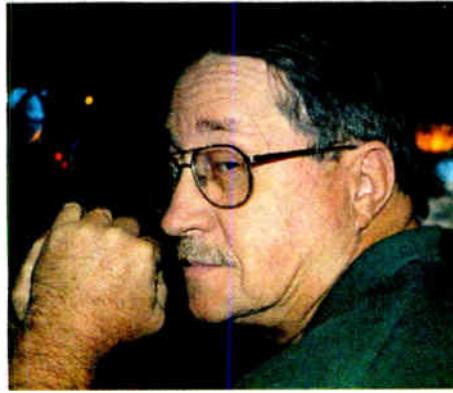
Croghan calls having the show in town a bonus as well.

"We are often asked to help as a source of demonstrating over-the-air, in-studio and remote gear."

Sands called the whole experience a mixed blessing.

"Many equipment manufacturers rely on the local engineers to host their demonstrations for show," he said. "What they don't understand is that we can't take them up and down the mountains three or four times for nothing. Many of us pay for our own gas and tires."

Sands said he only averages one to three hours of floor time per year at the NAB convention. "The rest of the time it's working on show demos or doing the day-to-day stuff that doesn't stop for NAB."



Bill Croghan is chief engineer for Lotus Broadcasting in Las Vegas.

Overall, radio engineering in Vegas is exciting, at least for Croghan.

### Demos and other firsts

"We have more happening, more opportunity and more fun than anywhere," said the broadcast veteran who has spent the 27 of his 42 years in radio and TV as an engineer. "We are seriously competitive so I get the best of equipment. We've helped do broadcasts to Germany, Denmark, Italy, Canada and a few dozen states as well as originating many network programs from our studios."

"We've had most of the greats in sports broadcasting, talk show hosts and great bands broadcasting out of our place. You never know whom you'll bump into in the hall. I gave directions to the rest room to Rita Rudner this morning."

Asked for juicy market gossip or traditions, two of these gentlemen offered eerily similar stories regarding a pair of local nameless engineers with an interesting ritual when trekking to some of the more remote transmitter sites.

Apparently the practice involves stopping the vehicle to climb out and make explicit gestures at the rough, rocky road. On one occasion, the driver accidentally locked the doors of the truck (with the engine running) during the ritual road hollering. Fortunately, the vehicle's wing windows were cracked open and allowed for a small pine tree branch to be maneuvered in to unlock the doors. (They are, after all, engineers).

The ritual reportedly continues to this day.

## Show Highlights

*Stories in this issue preview the NAB Broadcast Management Conference; Podcasting Summit; and new products planned by radio exhibitors. Here's a glance at other highlights of the convention:*

### Broadcast Engineering Conference

Keynote by Tomlinson Holman, professor of cinema-television and electrical engineering at the University of Southern California. Next issue, Radio World will explore the BEC in depth. Saturday-Thursday.

### All-Industry Opening

David Rehr's coming-out party. The new head of NAB opens his first convention by honoring Tom Brokaw, Dan Rather and Peter Jennings with the NAB Distinguished Service Award. Monday, 9 a.m.

### FCC Roundtable

Monday, 2:30 p.m.

### FCC Breakfast

Tuesday, 7:30 a.m.

### Radio Luncheon

Dick Purtan, host of Oldies 104.3 "Morning Show with Purtan's People" on WOMC Detroit, is inducted into the NAB Broadcasting Hall of Fame. Wall Street Journal tech columnist Walt Mossberg keynotes. Tuesday, 12:15 p.m.

### Latin & Jazz Party

Sponsored by Orban. Tuesday, 6 p.m.

### Career Fair

Wednesday, 10:30 a.m.-5 p.m.

### Amateur Radio Reception

Sponsored by Heil Sound. Wednesday, 6-8 p.m.

### RTNDA@NAB

Conference and expo for journalists, at the Las

Vegas Hilton. Includes super session about lessons of Katrina. Sunday-Wednesday

### Beyond Broadcast

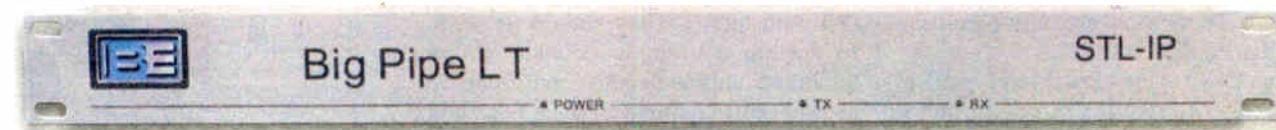
The convention also includes NAB Post-Production World, NAB Multimedia World and Technologies for Worship Conferences.



New NAB President/CEO David Rehr

### Registration:

Rates vary; \$495 is base member price for the NAB Broadcast Conference package, which includes the Broadcast Engineering, Broadcast Management and Business Law and Regulation Conferences plus luncheon ticket. Other packages are available for students, exhibits-only and other conferences. Visit [www.nabshow.com/registration/](http://www.nabshow.com/registration/)



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# Radio: On-Air, On-Site and Online

*Management Conference Topics Range From Hypnosis to Podcasting and Text Messaging*

by Ken R.

The NAB's Broadcast Management Conference, part of NAB2006, has in the past focused on topics such as the synergies of consolidation, the notion of super-serving clients and a then-unfamiliar entity called The Internet.

This year the buzzword might be "engagement."

In "Hiring Smart: Finding and Securing the Best People," Sunday morning, Tim Daniel will explain why radio and TV are behind other industries in the art of developing new talent.

Daniel, director of Sausalito, Calif.-based Noll & Associates' Organization Performance Group, said that while there are many passionate people in the broadcast world, enthusiasm alone is not enough to make a good employee.

"We like to do a half-day of training a year for our people whether they need it or not," he said. "In manufacturing, a supervisory candidate is trained for a year before he or she is put into management. What we do is take our number one biller and promote him/her to sales manager. There's no predictive correlation between those skills."

Historically there was a large pool of people eager to join the broadcast indus-

try, but according to Daniel, that is no longer the case.

"Now we're competing for labor," he said. "Recent college grads are interested in being on-air stars, but no one wants to work in the guts of our stations. Our business is more standardized, more 'corporate' now and getting the next generation interested is very hard."

Daniel also suggested that radio management puts too much emphasis on the interview.

"Words don't predict behavior," he said. "Behavior predicts behavior. And a bad hire can cost a broadcaster 1.5 times that employee's annual compensation."

A Sunday session, "Hypnotic Advertising," will feature as sole presenter programming and advertising consultant Dan O'Day.

"I've spent my adult life immersed in two subjects: clinical hypnosis and advertising," he said. "Years ago I realized that the techniques of a good hypnotherapist have very strong, exciting parallels to the world of advertising."

O'Day said the biggest problem with most advertising is that copywriters try to sell with facts: "They should be selling by creating a strong association between the brand and the targeted consumer. The second most common mistake is creating

an association ... but the wrong one!"

He added the premise of a commercial should reflect the listener's own experience.

"Then you can lead the listener from that situation with which he identifies into making his wish come true," said O'Day.

## Monday sessions

It will be a special occasion Monday morning when retiring RAB president Gary Fries says goodbye. In a session called, "State of Radio Sales," Fries, who headed the organization for 15 years, will

vice president of new technologies for Cox Radio and also vice president/general manager of Cox Radio Interactive. Joining the panel will be Bill Wheaton, vice president of media and entertainment sales for Akamai, a streaming provider.

"We're asking our experts to focus on how to leverage new technology to reach younger audiences," said session organizer Brian Parsons, Clear Channel's technology vice president. "You'll find that if you put a toe in the water, it won't be as cold as you think."

Parsons said there are now revenue models for the new media, although there are still roadblocks to be overcome.

"Getting into the mobile space is daunting because it involves a lot of play-



Sheila F. Kirby of Interep Innovations will talk about how radio competes in the modern media world.

reflect on what he has seen and where the industry is headed. But leadership is not the only change in the air.

"There has been a lot of smoke and speculation about satellite radio and a number of other competitors, but the truth is that radio reaches 94 percent of the American public each week," said

ers and the carriers insist on a huge cut for themselves," he said. "Streaming is challenging because of the rate structure but we'll present some good tips and show how this can be done profitably."

According to Parsons, the biggest misconceptions about podcasting, streaming and text messaging are that they are difficult to do and not worthwhile.

"The benefits include increased revenue and a way to turn younger audiences into P1 listeners," he said. "This session is all about not being old fashioned radio anymore."

**This session is all about not being old-fashioned radio anymore.**

— Brian Parsons

George Hyde, executive vice president of training for RAB. "Since the dawn of satellite radio, terrestrial radio has added more weekly listeners than satellite has added subscribers."

Fries also will address the topic of audience measurement, noting that advertisers are demanding more accurate metrics.

In the futuristically titled "How 2 B COOL in the N3W T3CH Age" Monday afternoon, discussion topics will include podcasting, streaming and text messaging.

Moderating will be Gregg Lindahl,

## Tuesday sessions

Tuesday morning in the "Podcasting for Profit" session, Holland Cooke will offer case histories and recent research on the viability and potential profitability of station Internet sites and podcasting.

Cooke, news/talk specialist for McVay Media, mentioned WDEL(AM) in Wilmington, Del., a market in the shadow of Philadelphia. With no local TV, the radio station filled the news gap by replacing the old audiocassette recorders assigned to their seven local reporters with digital videocams.

"Several thousand of our listeners who have opted into our e-mail blast news summaries can now see a fully produced video newscast that is sponsored with new advertising dollars," he said. "Station President Pete Booker told me that he views his operation not as a radio

See MANAGEMENT, page 22 ▶

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# Making Digital Radio Work.

World Radio History

# Management

► Continued from page 20  
station, but as a content factory."

Cooke quoted WDEL General Sales Manager Chris Walus as saying, "Our on-air inventory is finite. Our online inventory is infinite."

In this session Cooke will unveil the surprising results of a recent survey he conducted with 1,215 adult radio listeners. He asked them what non-music features they would want to download as podcasts. Cooke disclosed that the second most popular — cited by 78 percent of respondents — answer is "weekend fun-formation," or as the survey referred to it, "things to do in your area this weekend."

"Local programming and weekend automation have compromised radio in the post-consolidation era," said Cooke. "The new media will suck in listeners that radio is short-changing. Stations that 'mail it in' on the weekends are just leaving money on the table."

RAB's Hyde envisions stations capturing the highlights of each broadcast day and offering these tidbits in downloadable bites. In fact he coined a term for this service: primecasting.

"And each primecast could have premium sponsorship opportunities, of course," he said.

The annual "Small Market Round-table" will also be held Tuesday morning.

"Part of our session will be an idea swap," said Dean Sorenson, president,

Sorenson Broadcasting Company of Sioux Falls, S.D. "You bring in a few good ones and you take a few new ones with you."

He said that one of the issues facing all small broadcasters is recruiting.

"That's followed closely by training, motivating and retaining," he said. "If we can do these things well and keep our turnover down, we'll be spending more time calling on customers and solving their problems."

Another challenge Sorenson sees is

keeping stations locally focused, an issue that is shared with bigger broadcasters as well.

"We have to keep our listeners tied in," he said. "That will make us an important part of their lives."

Co-facilitator of this session will be Paul Gardner, president of KELK(AM)/KLKO(FM), Elko, Nev., who sees the coming of HD Radio as an issue.

"Conversion is a challenge because there's a lot to multicasting that we've never done before," he said. "In small

can sell to their advertisers."

Increasingly important is the third place the broadcaster meets its listener: online.

"Many stations have excellent Web sites now. We work with CBS Radio, and they out-stream every major news broadcast you can watch on television," she said. "Now I can go to the Internet and hyperlink to a second platform. I may get involved with permission-based marketing. If a car dealer lets me design my own car, for example, that creates loyalty."

In the afternoon session, "Change, Chaos and Opportunity: How to Make More Money with NTR," Sylvia Allen, president of Allen Consulting in Holmdel, N.J., will be the sole presenter.

George Hyde, who helped organize the session through RAB, said radio should use its one-on-one relationship with the listener to get them to turn out for sponsored events.

"It's about how we maximize dollars," he said. "I've had more than one broad-

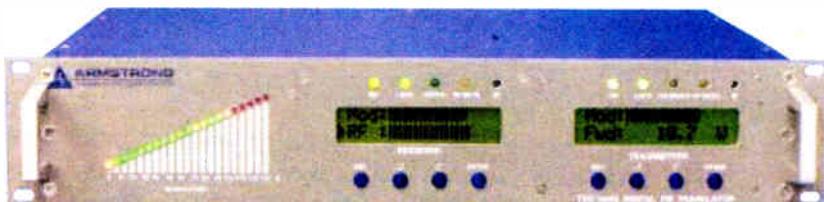
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suck in listeners  
that radio is  
short-changing.**

— Holland Cooke



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markets, one person might serve as manager, sales manager and chief engineer, so we don't have the luxury of larger broadcasters who can assign a specific task to a specialist on staff.

"Another challenge small broadcasters face is just meeting payroll," he said.

In a Tuesday morning session, "Google Rules: GM Drools," Sheila F. Kirby, president, strategic sales and development at Interop Innovations, will identify three fronts on which stations need to meet their listeners.

"The most obvious is on-air," she said. "You rent space in consumers' brains, even with a background music format. And we have more listeners than we think we do because our metrics are antiquated."

The second front is on-site.

"Stations are localized in their approach. They can have bar nights or they can sponsor sporting events," said Kirby. "The good stations haven't abdicated that and localism is something they

caster tell me that if we don't understand radio and its relationship with the Internet we will not be a major player with automotive clients."

Allen said attendees at this session can expect to learn how buyers think and what they want.

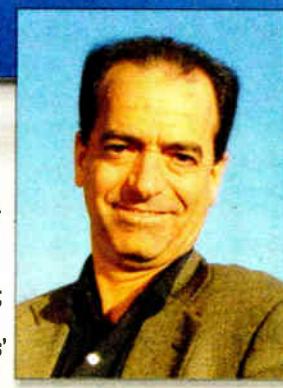
"Media sales and non-traditional revenue sales are 180 degrees different," she said. "Media sales can happen last-minute, but NTR must be more carefully planned because the advertiser has to consider the component pieces besides media. Buyers want to know how the proposal will fit into their overall goals."

Allen also advised sales reps not to use the word "package" when seeking NTR.

"Each presentation has to be customized," she said. "And I'll show you how to sell ahead of the budget cycle, too."

**WE GIVE YOU PIZZI**

Name: Skip Pizzi  
Column: The Big Picture  
Experience: 31 years in broadcasting, audio, music, computer and publishing industries  
Certifications and industry honors: Member SMPTE, SBE, AES; former chair of AES D.C. chapter; winner of AES Board of Governors Award; winner Public Radio Regional Organizations' PRRO Award  
Mentors/heroes: Don Davis; Ed Greene; Neil Muncy; William Zinsser; Nick Negroponte; Bill Gates  
Quote to live by: "Our generation will always speak digital with an accent."



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 SLX24-BETA58 Handheld w/Beta 58 List \$902.32  
 SLX14-85 Bodypack w/cardioid lav List \$931.44



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 SLX14-93 Bodypack w/omni lav List \$850.00  
 HA8089 Helical antenna option List \$650.00

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CD01UPRO w/XLR out List \$699.00

CD01U w/o XLR out List \$599.00

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**NEW!!**

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XENYX-1202

XENYX-802

XENYX-502	1 mic preamp, 2-band EQ, 5 inputs and main mix, stereo CD/tape, plus headphone output	List \$54.99	\$44.99
XENYX-802	2 mic preamps, 2-band EQ, 8 inputs, and an FX Send control for each channel	List \$79.99	\$59.99
XENYX-1002	2 mic preamps, 3-band EQ, 10 inputs, and an FX Send control for each channel	List \$89.99	\$69.99
XENYX-1002FX	2 mic preamps, 3-band EQ, 24-bit FX processor, 10 inputs, and an FX Send control for each channel	List \$109.99	\$89.99
XENYX-1202	4 mic preamps, 3-band EQ, 12 inputs and an FX Send control for each channel	List \$109.99	\$89.99
XENYX-1202FX	4 mic preamps, 3-band EQ, 24-bit FX processor, 12 inputs and an FX Send control for each channel	List \$139.99	\$109.99

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# Take a Break and Head on Out

*Clear Your Head From the Convention Fog  
By Walking or Cabbing to Lunch or Dinner Nearby*

by Jackie Broo

The Las Vegas Convention Center, all 3.2 million square feet of it, is an amazing display space. But as any NAB attendee will tell you, covering that space can be a challenging endurance contest.

Exhibitors arrive at the convention center early and don't leave until evening. Radio and television executives and engineers cram conferences, meetings and the exhibit floor in a rush to see everything in a short time span. By the second day, you might feel that you are getting in touch with your caveman roots as you enter this huge fluorescent "cave" with few windows and little contact with the outside world. The bright desert sun blinds us when we finally emerge.



The nearby Marriott Renaissance Las Vegas Hotel includes the ENVY Steakhouse.

There is life outside of the LVCC; and there is food. So shake those caveman blues by planning a lunch break, a late afternoon snack or a dinner meeting nearby.

## Sports junkies

A number of eating establishments are a short walk or drive away.

Vegas partying landmark The Beach is across the street. Location is a big plus, once you get past the fact that its décor shows a lot more wear and tear in the light of day and there is a definite lingering odor of a kegger party from the night before. The Beach serves adequate American, Mexican and Italian food, i.e. sandwiches (3/4 lb. hamburger, pizza and salads). A section of the bar has a sports theme with 80 video displays for sports junkies who need a quick fix.

Right next door to the Beach on Convention Center Drive is Piero's Trattoria. It isn't open for lunch but it's a

great place to end the day with a quick drink and appetizer or a fabulous dinner. It opens at 5:30 p.m. A Zagat Award winner, Piero's features Italian cuisine with steaks, pastas, lobster, stone crabs (in season) and veal. Reservations are recommended. Piero's has handy paid parking during the day for convention attendees.

The Las Vegas Hilton Hotel is situated right next to the LVCC. The Hilton is a five-minute walk from the center and has a number of restaurants where a weary convention-goer can get a quick bite to eat. They include The Buffet at the Hilton, with the likes of pizza, carved roast beef and Caesar salad; the Margarita Grille, specializing

## A number of eating establishments are a short walk or drive away.

in spinach enchiladas, spicy burritos, chimichangas, tostadas, tacos and fajitas; Paradise Café for burgers, omelets, club sandwiches and salads for breakfast, lunch and dinner; and Quark's Bar and Restaurant in Star Trek: The Experience. It features American fare with hamburgers and pasta.

## Exhibition kitchen

For really quick dining the Hilton has a food court with familiar names in fast food such as Pizza Hut and TCBY, along with Las Vegas Subs and Fortuna Coffee and Wine Experience.

For dinner, the Hilton showcases four fine dining restaurants: Andiamo, Benihana, Hilton Steakhouse, Garden of the Dragon and Teru Sushi.

Andiamo presents the dishes of Italy and the Mediterranean prepared in an exhibition kitchen. Benihana features "guys with swift knives" at hibachi tables. The chefs put on an exhibition as they prepare the Japanese cuisine.

What's Las Vegas without a steakhouse? The Hilton's version presents steaks, veal chops and more. The Garden of the Dragon Restaurant prepares Szechwan, Peking style, Northern Mongolian and Cantonese cuisine in an intimate setting. Teru Sushi features some 40 types of fresh sushi shipped in daily and prepared by a licensed Japanese sushi chef. Reservations are suggested for all the restaurants.

A short walk from the LVCC South Hall is the Marriott Renaissance Las Vegas Hotel. It has two lunch possibilities, the Aroma Coffee Show and the ENVY Lounge.

Chef Richard Chamberlain's ENVY Steakhouse fea-

## Nearby Food

*More about the restaurants/hotels mentioned in the accompanying article. All phone numbers use the 702 area code.*

The Beach, 365 Convention Dr., 731-1925  
Piero's Trattoria, 355 Convention Center Dr., 369-2305

Las Vegas Hilton Hotel, 3000 Paradise Rd., 732-5111

Marriott Renaissance Las Vegas Hotel, 3400 Paradise Rd., 733-6533

Del Frisco's Steak Restaurant, 3925 Paradise Rd., 796-0063

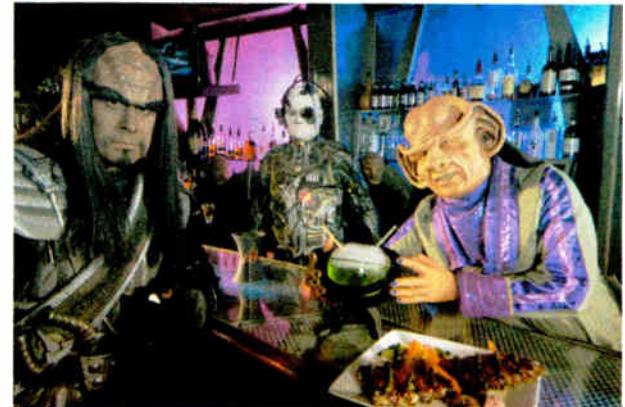
Shalimar Indian Restaurant, 3900 Paradise Rd., Citibank Plaza, 796-0302

Gordon-Biersch Brewery Company, 3987 Paradise, 312-5247

Bahama Breeze, 375 Hughes Center Dr., 731-3252

FedExKinkos and Starbucks, 395 Hughes Center Dr., 951-2400

tures "traditional steakhouse cuisine with a twist" along with Kobe filet, prime rib roast, Black Angus filet and prime bone-in rib eye. A walk-in wine cellar features 1,500 bottles of wine.



Quark's Bar and Restaurant is part of the Star Trek attraction at the Hilton, but you can enter without going through the ride.

Five minutes away by cab are a number of good restaurants including Del Frisco's Steak Restaurant; Shalimar Indian Restaurant; Gordon-Biersch Brewery, featuring micro brewed beers, great sandwiches and salads; and Bahama Breeze, for Caribbean-influenced food and drinks. If you have some emergency printing to do, a 24-hour Kinko's with WiFi service — and an attached Starbucks, also open around the clock — is nearby.

Not enough choices? The Strip is a few long desert blocks away from the LVCC. Take a walk, clear your head and you'll be hungry when you get there.

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# Conference Looks at FCC Agenda

*Sessions Let Attendees Meet With Regulators to Discuss Compliance, Enforcement, Consequences*

by Lauren Rooney

FCC regulations, especially those governing indecency. New rules about political ads. What ASCAP and BMI fees will mean to HD Radio.

These are some of the issues facing station managers. Organizers of the Business, Law and Regulation Conference at NAB2006 say they are bringing together federal regulators and private attorneys to educate station owners and managers on many of the changes they face.

"Enforcement is a big issue, complying with FCC regulations is high on the list of things radio broadcasters have to deal with," said Joan Dollarhite, NAB Legal Department director of operations and planner of the Business, Law and Regulation track sessions.

## Regulation 'grab bag'

Dollarhite said the most important session for radio owners and managers is the "FCC Round Table" Monday afternoon. The Round Table is an informal setting where broadcasters can meet in small groups with FCC regulators and legal experts.

"The broadcaster will be able to identify issues important to him and ask specific questions about that rather than relying on the NAB to identify what their hot topic is," said Dollarhite.

The FCC Breakfast, Tuesday morning at 7:30, is another session Dollarhite said station managers and owners should heed. There, a high-level official from the FCC will talk about the agenda the FCC has and what regulatory actions are coming. Commission chairmen or commissioners have taken part in the event in the past.

Another session to help station man-

agers meet requirements is "FCC Compliance and Enforcement," Monday morning, with moderator Jerianne Timmerman, senior vice president and



Jerianne Timmerman

deputy counsel of NAB. This session will cover regulations such as tower safety, public file rules, license renewal process, the Broadcaster Self-Inspection Program and indecency.

"Enforcement," she said, "is always a grab bag with a variety of areas where licensees can run afoul of commission rules. Indecency remains a very hot issue both at the FCC and in Congress. There is stricter enforcement but no better definition of indecency."

According to the FCC Web site, the commission received 1.4 million complaints of indecency in 2004, but less than 190,000 in the first nine months of 2005. The trends in complaint statistics are watched closely by both regulators

and industry critics. Timmerman noted that comments regarded as indecent today might have been just borderline a few years ago. And modern conveniences like the Internet and e-mail have made it easier for listeners to contact the FCC.

"Anyone who wants to send a complaint to the FCC can do so with little effort so the FCC gets more complaints about indecency because it's so easy to send them," said Timmerman. "You also have organized groups who work to generate complaints, particularly in the indecency area."

## Tricky' rules

Listeners seem to have a better understanding of what a station must do to maintain its license. Public files need to be in order, and new regulations concerning political ads need to be followed as we enter into a congressional election year.

"Advertising and Controversial Content in a Political Year," Tuesday afternoon, will discuss such changes. Moderator Ann Bobeck, associate general counsel for NAB, said when station managers see political copy, they'll have to be sure the content is correct, the sponsorship is correct and, depending on the flavor of the ad, will have to include certain information in their political file.

"If, for example, I am 'Citizens For a Better America' and I'm going to run an issue ad telling listeners to call their Washington congressman and talk about Medicare, the stations will have to disclose the rates in their political file. But if I'm talking about calling your state congressman about your state Medicaid, I don't have to disclose those rates," Bobeck said.

The changes stem from McCain-Feingold legislation that was put into place to improve tracking of hard and soft money in political advertising. The rules that resulted are tricky.

"They require broadcasters to be very well versed in very complex regulations. These are tough rules and even under the best intentions broadcasters can slip up. Our job is to make the rules as clear as possible," said Bobeck.

Consequences, she said, can be significant, including FCC forfeitures and having to explain before the Federal Elections Commission as to why you improperly ran an ad. That can be expensive even just in terms of attorney time.

Political advertising will be one of the topics discussed in the session. It also will cover promotions in children's programming, advertising of Internet gambling and weight loss and prescription drugs. Bobeck said regulations regarding drug advertising are in a state of flux.

"There are new guidelines the FDA has been trying to push through, and we'll talk about where those guidelines are going," said Bobeck.

## Flat fee

While advertising is the moneymaker for radio stations, music is what brings in the listeners. Issues related to music licensing will be discussed in the session, "ASCAP & BMI Terrestrial, Internet and Digital Radio Performance Licenses," Wednesday morning.

Panelists are Jonathan Weiss of law firm Weil Gotshal and Manges and Keith Meehan, executive director of the Radio Music License Committee.

"Our session will discuss the status of the ASCAP and BMI licenses including the structure, duration and fees payable under each of the allocation methodology employed to distribute the industry-wide flat dollar figures to individual stations," said Meehan.

The radio industry is off of the revenue base for calculating royalty fees payable to the performing rights licensing organizations, or PROs. Meehan said the main issue now is arriving at a rea-



Ann Bobeck

sonable flat fee for the industry.

"The radio industry believes that a flat dollar figure is far more appropriate than a percentage of revenue, because while music may be an important programming ingredient for many stations, it does not drive revenue," Meehan said, adding that factors such as air talent, branding, contests and sales go into making stations successful.

"Stations do not pay for any other product or service on a percentage of revenue basis."

The ASCAP agreement runs through the end of 2009, but the BMI agreement expires at the end of this year. There has yet to be any agreement on a dollar figure. The jury also is out on a fee structure for HD.

"As we have only had preliminary discussions with BMI, it would be inappropriate to offer more detail as to specifics of those discussions," said Weiss. "Similarly, our discussions with the PROs and our own internal thinking with regard to how to price digital multicasts, or HD, are still in their infancy."

However, any HD license agreement is expected to be "experimental" at the start.

Digital is a topic that will have its own session in the business track called "HD Radio: If You Built It, They Will Come," on Monday afternoon. The session will include Ibisquity updates, discussions on revenue generation, programming possibilities and pitfalls and marketing.

The full list of sessions designed to help radio station owners and managers better understand new regulations and learn about new technology can be found at [www.nabshow.com](http://www.nabshow.com).

"The goal is to help owners and managers run their stations more smoothly," said Dollarhite.

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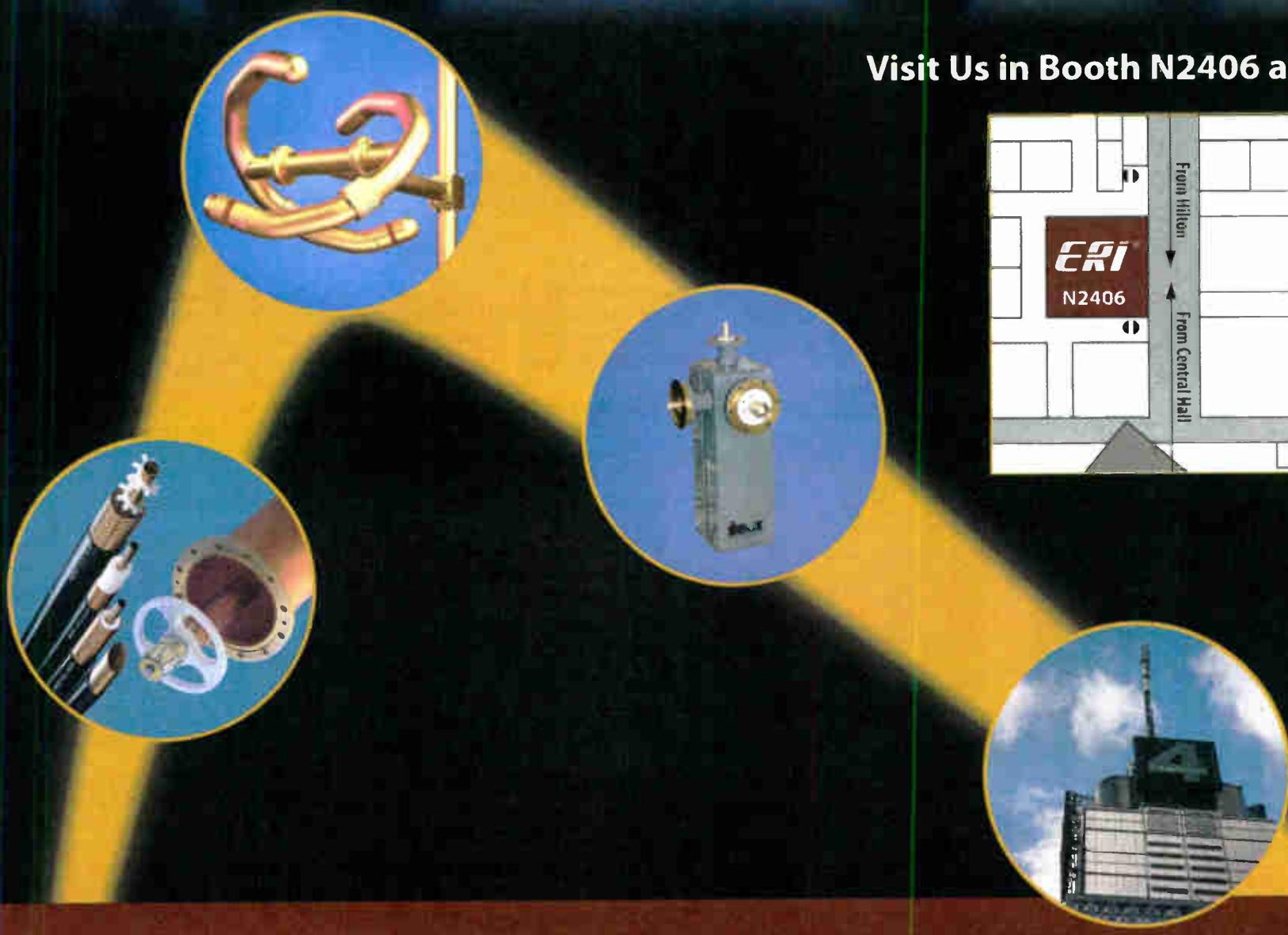
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## Radio Booth Listings

# **NAB2006**

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### **25-Seven Systems N2513**

*Intro:* Audio Time Manager, version 1.30 Software upgrade adds new "Cue" mode, expanding the unit's storage capacity.

*Also:* Audio Time Manager is a time-compression processor that lets broadcasters create up to 12 minutes an hour of "extra time." Stations can use ATM to extend local breaks in network shows with no loss of content, prevent unplanned interruptions from generating make-goods and smooth joins to random-starting events like press conferences.

### **360 Systems SU2993**

*On Display:* Instant Replay, DigiCart Audio Server, Shortcut Editor

### **615 Music C1959, R436**

*Intro:* Promo Accelerator consists of music themes written for TV/radio promos.

*Also:* "Gold and Platinum" series, King size, AMP, Music Shop, Music Gallery, Promo Accelerator, Sound Burners FX and ZEN libraries.

### **A.N.T. Antenna Nord telecomunicazioni C139**

*Intro:* ANT130 Protocol converter for remote control/telemetry unit. Connected to the RDF (radio data front end) becomes an interface to virtually any manufacturer of equipment with a known protocol. ANT128 DVB-T quality control card. Same as the analog card, monitors all main parameters of a DVB-T channel like MER, C/N, PER, BER, RF level.

### **AccuWeather C4314**

### **Acoustic Systems N1614**

### **Acoustical Solutions Inc. C4817**

*Intro:* Studio In A Box, four studio packages including RPG Acoustical Foam, Diffusers and Corner BASS Traps and the Alpha WOODfuser is 2'x 2'x 2' thick.

*Also:* AlphaSorb and SoundSuede Fabric Wall Panels, SONEX and RPG Acoustical Foams, AudioSeal Sound Barrier

### **ADAM Audio USA N4506**

### **Adobe Systems SL3732**

### **AEQ SA N3518**

*Intro:* Phoenix codec is an audio platform for future communications requirements. It has two communication interfaces slots that accommodate modules configured as primary and backup. The modules are for PTSN (worldwide compatibility) and GSM (Dual to Quad Band); further modules are ISDN (incl. AAC), V35, G3, IP and Bluetooth/WiFi. The power supply allows hot-swapping between internal Li-Ion battery and built-in battery pack. Also new, Arena digital mixing console provides configurable inputs and outputs, both analog and digital and two kinds of control surfaces. It includes fader start, monitor muting, control room and studio signaling, intercom, cough muting, remote control of hybrid and codec, etc. Unlimited number of N-1 circuits can be created. Features are physical input and output routing, selection on each fader and the capacity to assign/ monitor any signal to each fader.

*Also:* AM03 Self-Amplifier Monitor, BC2000 Digital Router, CADDY AD&DA Converter, CourseMulticodec, Eagle Codec, Impact Router, MPAC02 Portable codec, Systel6000 Multiplex and talk show system, Swing Portable codec, TL02 Portable Codec, TH02 Telephone Hybrid

### **AEV S.P.A. N1533**

### **Agiosat Global Communications C6547**

*Intro:* Agiosat 3G is a satellite-based IP centric mobile system designed to provide global connectivity for voice, data and video.

### **Allied Tower Co. N2132**

### **Altronix Research Inc. N911**

*On Display:* Model 6612 Coaxial Load Resistor, Model 6606 Convection Resistor Load, Model 77100 Coaxial Load Resistor

### **American Radio Relay League Lobby**

### **American Tower Corp. N3637**

*Intro:* ATC Expanded Site Portfolio of more than 20,000 U.S. towers is home to broadcast installations ranging from full-power TV and radio RF plants to ENG, traffic cameras and Doppler radar installations. From mountaintop sites out West to 2,000' structures in the nation's heartland and along the Eastern seaboard, some of the most advanced and technologically superior facilities on the air.

### **Anchor Audio N1322**

### **Anixter C1957**

*On Display:* Audio cable, connectors, patch bays, racks and accessories

### **Aphex Systems N2906**

*New:* Model 240 Dual Logic Gated Compressor features two linkable independent channels of two patented signal processors, the Easyrider compressor and the Logic Assisted Gate. The Easyrider controls average levels without pumping, breathing or dulling at the same time

### **NAB2006 Exhibit Hours**

Mon. April 24	9 a.m.-6 p.m.
Tues. April 25	9 a.m.-6 p.m.
Wed. April 26	9 a.m.-6 p.m.
Thurs. April 27	9 a.m.-4 p.m.

*RTNDA exhibit hours at the Hilton are Mon.-Wed. and vary. See NAB Web site.*

*This section contains a selection of exhibitors of interest to radio attendees at NAB2006. Highlights are paid for by exhibitors, information is from the companies. Check the on-site program for changes, late-registering suppliers and the full list of convention booths.*

*Booths preceded by the letter N are in the North Hall of the Las Vegas Convention Center. C indicates Central Hall, SL is South Lower Hall, SU is South Upper Hall, OE is Outdoor Equipment & Technologies. MR is Meeting Room. Booths preceded by R are RTNDA booths at the Las Vegas Hilton.*

it controls peaks. The Logic Assisted Gate effectively and positively reduces noise without the pops, clicks or chattering associated with conventional gates. Additionally the compressor release is frozen when the gate is closed.

### **APT N1217**

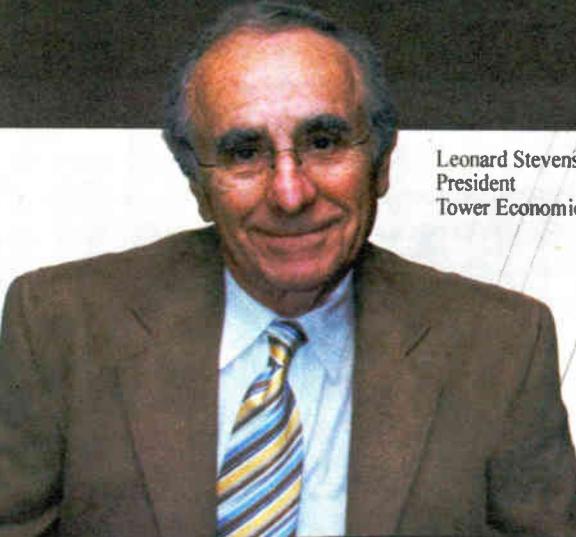
*Intro:* WorldNet Oslo is a codec for multi-channel audio applications, transporting content over E1, T1 or IP. Featuring enhanced apt-X coding, the unit delivers real-time, near-lossless quality on up to 24 channels. New is the option to transport audio over IP in addition to E1/T1 links for STL/TSL and studio-to-studio networking applications, opening wider bandwidth for transport of broadcast audio with greater control and monitoring. Also, WorldNet Chicago II offers digital audio over IP for bidirectional stereo transport featuring enhanced apt-X to provide low delay, AM, FM, DAB and HD Radio audio quality while ensuring costs of an audio network remain competitive through use of an IP transport network.

Scalable in bandwidth, the Chicago II is also an appropriate solution for low-cost engineering communications channels. The WorldNet Rio audio codec is now available with an optional E1/T1 interface. The unit is a full-duplex, multi-channel, multi-algorithm audio codec using standard and enhanced apt-X. WorldNet Rio delivers high-quality audio for inter-studio networking, remote/outside broadcasts and STL applications. Also presenting the Enhanced apt-X algorithm in multiple formats: Motorola DSP, TI, ADI, Verilog and ARM7. Enhanced apt-X licensing options will be available to third-party manufacturers. *Also:* The WorldNet series of audio codecs enable transport of low-delay, AM, FM, DAB and HD Radio quality audio over a variety of telecom links such as IP, ISDN, X.21 and E1/T1.

**APW Enclosure Products SL2132**

*Intro:* The Stantron Broadcast Rack reflects

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Leonard Stevens  
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system integration trends related to broadcasters' requirements for rack space efficiency. The Stanton Broadcast Rack is low profile at 22 inches.

*Also:* Audio-video rack, Pioneer Enclosure Cabinet, Frontier Series of sloped consoles

#### Armstrong Transmitter N611

*Intro:* XLator is an analog and HD FM translator, designed as a replacement for existing analog-only translators. The XLator picks up the HD Radio signal and a station's analog signal and retransmits them at the assigned translator frequency. Since the unit does not bring the received signal to baseband, no additional ubiquity licensing fees apply.

*Also:* AM and FM transmitters, the "E Pack," STL systems, antennas and passive RF products.

#### Arrakis Systems N2026

#### Ascent Media Group SU2947

*Intro:* Engineering, systems integration, consulting and technology support for broadcast, cable, entertainment, satellite, telecommunications, production/post-production and corporate video industries.

#### Associated Press R212

*Intro:* AP Online Video Network is an ad-supported news video service that draws on the newsgathering resources of the Associated Press to provide video summaries of breaking news stories for Web sites.

#### Associated Production Music C1551

*Intro:* MyAPM, a music search and download system, is an online portal offers customized project management. Use the search system to access collection, audition tracks and manage projects online. Create customized folders containing notes, music tracks and other information and share them online or via e-mail.

#### ATA Audio Inc. N4519

*Intro:* Prontonet-IP is a codec over IP with ISDN as a backup. Uncompressed bidirectional audio over IP. LAN Interface 10/100 Base-T Ethernet for control and audio transmission. Dolby E transmission over IP by using AES/EBU I/O in transparent mode. Algorithms include MPEG 2/4 AAC LC and AAC LD. The Scoop E-Z over Inmarsat delivers audio using the new BGAN

Inmarsat terminal. Can be used over ISDN or IP. Coding algorithms of G.722 and MPEG. Low-delay 7kHz also available in IP.

*Also:* Scoop E-Z

#### ATCi/Antenna Technology C4746

#### ATI/Day Sequerra N1800

*Intro:* The M2.0 HD Radio Modulation Monitor provides synthesized, pushbutton tuning for AM and FM bands including multicast channels. It features balanced audio outputs at +4dBV on 3.5 mm Eurostyle (Phoenix) modular connectors, transformer-isolated 110 ohm S/PDIF digital audio output that is 5.1 surround-capable, a multi-function vacuum fluorescent display, 10 preset stations each for AM and FM bands, Left and Right Audio "signal present" indicators, demodulated audio peak level indicator, HD audio locked and delay bit front-panel indicators, headphone output with screwdriver gain control on front panel and HD Radio digital to analog program time-alignment monitor

*Also:* M4.0 HD Radio Tuner

#### ATS Communications C8115

*Intro:* Rock n Roller Multicart, an equipment moving and support vehicle for location production, moves up to 500 pounds of equipment cases, sets up with up to three shelves for on-location support; All-Terrain R12 has four pneumatic or no-flat wheels.

#### Audem-Aztec Inc. N2532

*Intro:* Goldeneagle HD AM, FM, AM/FM with spectrum analyzer continuously monitors multiple AM and FM analog and HD signals with a single unit. Web accessible, streaming audio, time/level alignment measurements, optional spectrum analyzer, multicast, PAD and RDS data monitoring. Scan a market with a click, automatically configure stations to monitor. Send alarms via e-mail, text, voice message, SNMP. Also: Navigator HD-FM is a compact, affordable product for field surveys and on-site/studio monitoring of your FM and HD signal. Frequency agile. It combines an FM monitor (RF, modulation, audio, Pilot, RDS) and HD monitor (QI, C/N, DA, DAAI, SIS ID). Also: Transmitter Remote Control IP2 Choice V2, in a 19" rack form, is a modular system for remote management and monitoring. Connect to all equipment at

a remote site thanks to three serial ports, 128 digital inputs, 40 analog inputs or 64 relay outputs. Peripherals accessible with one telecom line (Ethernet, PSTN coming soon). Thanks to its routing functions configurable with associated ScriptEasy software, the IP2choice automatically sets up the suitable TCP/IP link to connect peripheral with a remote server or provide it with Internet access. Also: Remote Control Silver remote control system for permanent monitoring of devices on the transmitter site. It monitors in 16 digital inputs, 8 analog inputs, 8 relay outputs and one RS-232 (call for other configurations). Configure using ScriptEasy software. Compatible with Goldeneagles, the Remote Control Silver can also be managed by the Broadcast Manager. Also: Silver FM Monitoring remote control system for permanent off-air monitoring of stations. Using one FM receiver, the system monitors automatically in real time the quality/continuity of eight FM programs and notifies relevant person of problems by sending an alarm. Functions include audio streaming, scanning, measurement consultation.

*Also:* FM\_MC4 Mobile FM, Navigator FM mobile FM, World-Class RDS encoder FMB80, RDS Silver, FMB10 RDS encoder, FMX480 sound processor, digital stereo generator, RDS encoder, DARC encoder and digital composite clipper, Broadcast Manager: user-friendly Web server system that can manage alarms, measurements and data from any Goldeneagle (HD, AM, FM, TV).

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Web Site: www.audemat-aztec.com*

#### Audio Precision N1317

#### AudioScience N1514

*Intro:* ASI6600 series sound cards feature a PCI Express interface and include eight stereo out, four stereo in, analog and AES/EBU I/O, multi-channel record, playback and mixing features.

*Also:* ASI5000 and ASI6000 series sound cards, ASI2416 modular Cobranet interface, ASI8700 series tuner cards

#### Audio-Technica U.S. Inc. N3218

*Intro:* Now available in cocoa, the MicroSet Omnidirectional Condenser Headworn Microphone, model AT892c-CO, has a capsule diameter of 2.5 mm. It is a micro miniature headworn mic with contoured loop hooks behind either ear for a secure, comfortable fit with or without glasses. Offered in black, beige and cocoa, with terminations for Audio-Technica and other wireless systems.

*Also:* AT3060 phantom-powered tube microphone, AT822 and AT825 stereo microphones, AT849 stereo boundary microphone, AT804 omnidirectional dynamic field microphone, 40 Series studio production microphones, 30 Series studio production microphones, 20 Series studio production microphones, ATH-M40 Precision Studiophones, ES991, ES993, ES995 dual-element microphones

#### Australian Monitor N1822

#### AV Internacional S.L. N4231

#### Avid Technology Inc. SL701

*Avlex Corp. N1324*  
*Intro:* Mipro MA-909 Wireless Mixer is a UHF true-diversity 16 frequency agile wireless mixer that combines up to two wireless microphones, a CD player, mic and line inputs into a rack-mountable 2 RU control mixer with wireless transmitter; Superlux Pink Stick is an audio test signal generator that operates on phantom power and requires no batteries; Superlux 4U2SET, a handheld two-channel multi-function real-time analyzer, includes a RT60 decay time meter, THD+N meter and a room equalization calculator.

*Also:* Avlex, Superlux and Mipro microphones, wireless systems and electronics

#### Axel Technology SRL N2433, C111

*Intro:* Falcon 50 FM/TV versions of a dual LCD display with digital six-band processor for FM, DAB and TV audio broadcasting. New version has two large displays for control and monitoring over operating parameters from the front panel; also Oxygen 3 MKII on-air mixing console; Soundtrack is radio automation software for stations, networks and public address. Reliable, cost-effective. Includes professional and Soundblaster-compatible audio cards, automatic and manual operation with live-assist and advertising planning.

#### Axia, a Telos Company N2714B, N2515

*Intro:* Network-based professional audio products for broadcast, production, sound-reinforcement and commercial audio applications. Products include digital audio routers, DSP mixers and processors and software for configuring, managing and interfacing networked audio systems.

*Also:* Axia iPlay, Pathfinder, Axia AES or Analog Nodes, Axia Microphone Node, Axia Router Selector, Axia Engine, Axia GPIO Node, Element: modular control surface, Smart-surface: control surface

#### Azden Corp N4218

*Intro:* FMX-32 field mixer, the low-noise three-channel FMX-32 designed for the professional videographer. MSRP of \$450.

*Also:* Wireless microphone systems

#### Belar Electronics Lab Inc. N2418

#### Belden CDT Electronics Division C1655

*Intro:* Audio/video cables that meet shipboard standards including the American Bureau of Shipping, IEEE 45 and IEC 60092-376 for low smoke and zero halogen. Low Cap OFHC

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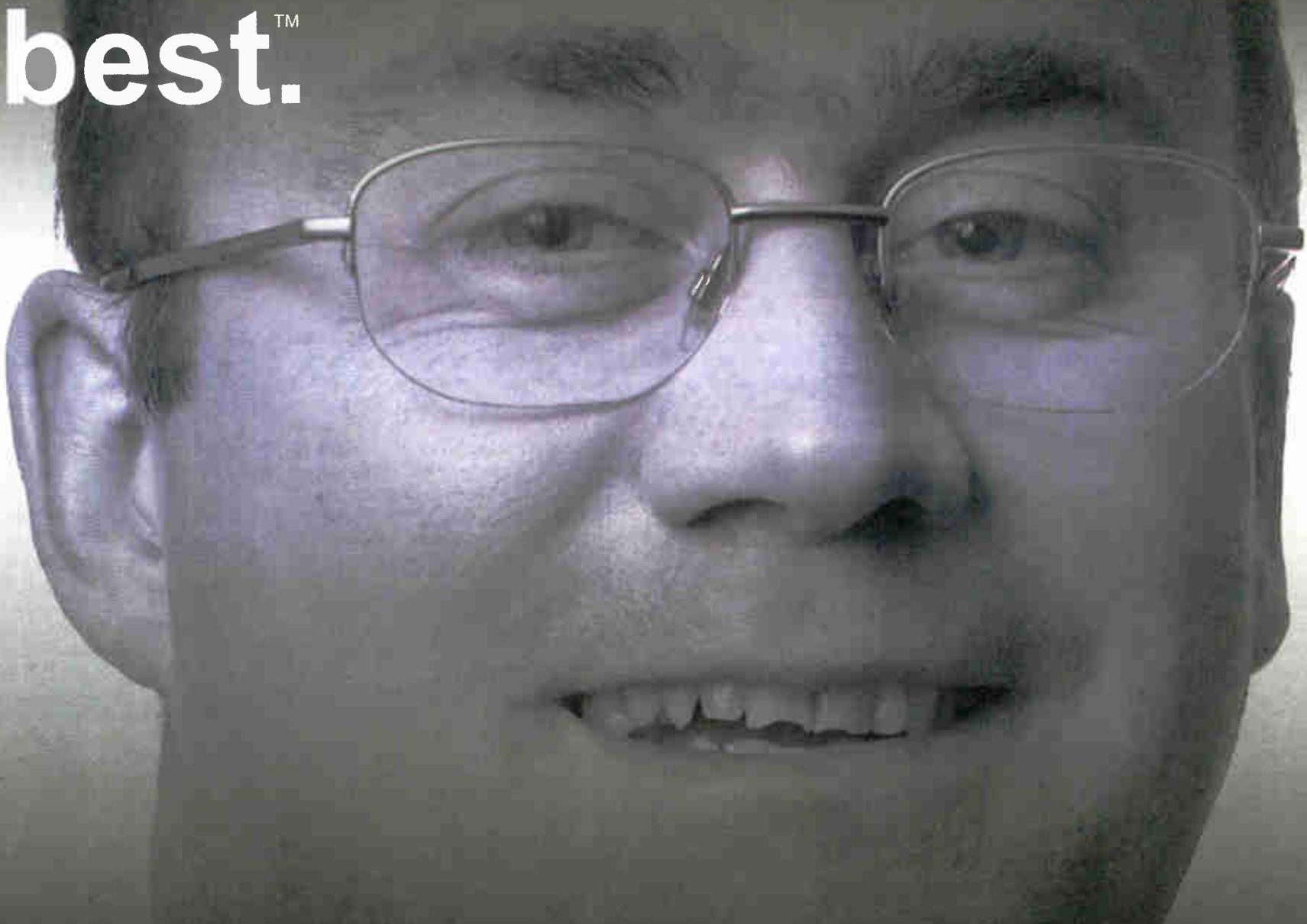


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*Also:* Mic cables, single-pair line-level and digital audio cables, analog and digital multi pair snake cables, speaker cables.

**Bext Inc.** N3508  
*On Display:* LEX Series, FX Series, FR Series, STLS, broadband FM antennas

**Beyerdynamic Inc.** N2412  
*Intro:* The MCE 86 II, a condenser shotgun microphone featuring phantom or battery power including suspension mount that is lightweight and quiet. The MCE 86 IICAM condenser shotgun microphone includes a camera mount kit with cable and windscreens.  
*Also:* Audio recording, ENG, interview and broadcast remote

**BGS** N2711  
*Intro:* Tower Switch is a box located at the tower site that will give tower specific information and emergency contact info to crews working on the tower; Radio Systems Digital Consoles; AudioScience Cards; Axia Console and Routing, move audio around your facility on Cat-5 or -6 without clashes or dropouts using off-the-shelf Ethernet switches and Axia nodes.

**Bid4Spots.com** N1326

**Bird Electronic Corp.** N2911

**Bittree Inc.** C3547  
*On Display:* Audio, video, data patchbays and patchcords

**Bomar Interconnect Products Inc.** SL4156  
*Intro:* RBC Series 75-ohm coaxial RCA plug, a precision audio/video true 75 ohm. Fits most standard coaxial video cables.

**Broadcast Electronics** N1808  
*Intro:* The Big Pipe LT, a high-bandwidth STL link boasts AES/Analog/HD Radio/Ethernet/RS-232 inputs/outputs. It delivers up to 45 Mbps of reliable, bidirectional transport over radio links or Ethernet landlines. The Dashboard for IDI 20 HD Radio Data Importer interface helps the importer provision and encode the HD Radio bitstream for HD2 multicasting. It features intuitive menuing and control/status interface with other components in the HD Radio equipment chain. Also: 4MX 25 AM Transmitter, the second release in our 4MX transmitter series, provides 25 kW in a compact chassis. And The Radio Experience Now Playing Station Manager, software for data management of all program channels for all stations in a cluster. AVLogger captures and archives audio.

**Broadcast Microwave Services** C2326  
*Intro:* The Digital Media Transport Package allows Internet Protocol Datagrams to be routed. It includes simultaneous file and video transmission, simple interface to laptop or NLE systems and integrates with Studio LAN/servers

**Broadcast Software International Inc.** N3515  
*Intro:* Simian 1.7 features full automation or live assist, triple-overlap segues, automatic weather and time announcements, voice-track editor built in, background recording, supports GPIO devices, dynamic HTML Web page, exports track data for RBDS/RDS/DAB, touch-screen capable and multiple HotKey sets.  
*Also:* Simian 1.7, SkimmerPlus, WaveCart, Speedy, Stinger

**Broadcast Store** C1239

**Broadcast Tools Inc.** N1400  
*Intro:* The ADMS44.22 provides analog and AES digital mixing and switching while the WVRC-8 features dial-up voice remote control and Internet capabilities

**Burk Technology** N3802  
*Intro:* New products and updates for Burk's line of broadcast facility control systems. Burk is expanding its platforms to meet new needs. Watch live demos of the latest developments in transmitter remote control systems and facility management software.  
*Also:* GSC3000, ARC-16 and VRC2500 broadcast facility control systems with central management software and monitoring accessories

**Burle Industries Inc.** C2016  
*On Display:* FM power grid tubes, cavities

**Burli Software Inc.** N800  
*Intro:* The News Podcast Engine computer newsroom system introduces a podcasting feature. A single click by journalists uploads any news audio as a fully formed podcast. News staff no longer deal with titles, headers, audio formats, XML or complicated uploads. System administrators have full control over format, episode and upload options.  
*Also:* Burli Radio Newsroom System

**Calrec Audio Ltd.** N917  
*On Display:* Alpha System Plus, Sigma System Plus, Zeta System Plus, Hydra Networking

**Canare** SU4164  
*On Display:* Cables, Connectors, Bulkheads

**Captain Digital.Com** N414  
*Intro:* Radio Traffic.Com: New traffic and billing software with avail, order entry and management approvals via Internet. Consolidated reports and dashboards. Handles 99,999 users and 9,999 stations. Captain Digital.Com: Sixteen digital audio systems for the price of one, including on-air studio system with phone recorder/editor, production recorder/editor, voice tracker, CD ripper, remote capability, automated weather, etc. Unattended Weather.Com: Current, accurate audio weather for unattended stations using satellite or voice-tracked formats. Several national announcers to choose from, or use your own. Pays for itself with sale of naming rights and weather conditions at area sponsors. Uncompressed Music.Com: 60,000 premium quality songs delivered on hard drive in the format of YOUR digital audio system. Your choice: Uncompressed, MPEG-II or MP3. Affordable.  
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**CDR Software** C-7114  
*Intro:* wxView gives viewers free radar and weather forecasting tools on their PC. It runs in user's tool tray showing your station logo.

**Chorus Call Inc.** N3137

**Clark Wire & Cable** C6330

**Coaxial Dynamics** N1319  
*Intro:* LCD Display Wattmeter Model 81030. Located in Middleburg Hts., Ohio, we have been a leading manufacturer of precision equipment for the measurement and termination of RF power for over 30 years.

**Coffey Sound** N4526

**Comet North America** N2511

**Comrex Corp.** N2722  
*Intro:* Access IP Codec: Broadcast-quality, real-time audio over the public Internet! Access delivers mono or stereo over DSL, cable, Wi-Fi, 3G cellular, satellite. Given the challenges of the public Internet, it's no small boast to say that Access will perform in real time over virtually any available IP connection. Contact Comrex to get a free booklet that explains Access BRIC technology and how it differs from traditional IP codecs.  
*Also:* STAC Studio Telephone Access Center easily manage talk shows, call ins and phoners; Digital Hybrids to send and receive audio from a connected telephone line; POTS, ISDN, GSM codecs: Matrix, Bluebox, Vector, Nexus, Envoy for high-quality remote audio.

*Kris Bobo, VP Development*  
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Fax: (978) 784-1717  
*E-mail:* kris@comrex.com  
*Web Site:* www.comrex.com

**Com-Tech Srl RF Filters** N1131

**Continental Electronics** N1702  
*Intro:* HD Radio Exporter/Signal Generator: The first of a series of Continental HD Exciter products, the CEC Exporter/Signal Generator is a full-featured package for FM HD Radio. The Exporter/Signal Generator includes audio and data inputs, GPS receiver and HD Signal output as well as a 1/4 VGA screen, keyboard and touchpad. HD Radio Importer: The CEC Importer offers all the features needed to generate Supplemental Audio Service audio and program-associated-data for input to the multiplexed HD Radio transmission. 811/812 HD Radio FM Transmitters: Solid-state HD transmitters are optimized for use in high-level combined and space-combined FM applications requiring 250 or 500 watts of reliable linear power. The 250-watt RF module contains the RF amplifiers, metering, control, power supply and internal cooling. The transmitter is in a 19-inch rack with output filter and cabinet cooling and for the 500-watt transmitter it includes system combining, metering and control.  
*Also:* 816HD FM transmitter offering the highest-power HD FM transmitter available.

*Michael Troje, Sales Manager*  
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(800) 733-5011  
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*Web Site:* www.contelec.com

**Control Concepts Corp.** C113

**Countryman Associates.** N3202

**CPI/Eimac Division** C1526, N1611  
*On Display:* 4CX20,000E, 3CX1500D7

**Crown Broadcast** 3912

*Intro:* The FM10K solid-state transmitter will output up to 11,000 watts power, with no tuning needed across the FM band, with a three-year warranty and a small footprint. Also: Crown's IBOC translator offers an "Offset Design" receiver and linear amplifier in separate and combined applications to allow analog and digital signals to pass through the system without demodulation, requiring no additional licensing from IBIQUITY for transmission. Also: The plug and play satellite remote control for Crown Broadcast translators and transmitters that allows for command and control via the Internet

is called Airsis TM2000. No phone lines or cumbersome dish. Crown will launch FM-A Amplifiers, a derivative of its FM100-, 250- and 500-watt transmitter/exciters. These units will allow those who have low-power exciters the ability to upgrade to Crown quality without discontinuing using their current exciter.

*Also:* FM Series transmitters and translators, Omnia DP-3 internal audio processor for Crown products

**CRT Custom Products Inc.** N624

*Intro:* Media Packaging product packaging, replication, fulfillment and mailing service  
*Also:* Printing, packaging, replication, binders, slipcases, fulfillment, mailing service

**Cte International srl** N1525

*Intro:* Automatic Change-Over Unit. The ACU 1+1 model is a universal automatic, change-over unit capable of controlling radio FM and television transmitters and repeaters. ACU 1+1 features a baseband and RF internal switch and can control an external high-power coaxial relay. In case of a breakdown of the primary signal, it operates the subsequent switch-over to the auxiliary source, thus ensuring continuity of service. The internal coaxial relay allows switch-over of RF signals of up to 350 W average power up to 1 GHz and 150W up to 3 GHz. By means of the dedicated DB25 connector located on the back of the unit, it can interface with any type of external coaxial relay to control any high-power installation. The unit, which is microprocessor-controlled, allows the software-operated configuration of operating parameters, such as low power threshold, wait and switching time.

*Also:* Transmitters, receivers, amplifiers, links, antennas and accessories

**D&C Electronics** N2432

**D&R Electronica Weesp B.V.** N1433

**D.A.V.I.D. Systems Inc.** N3034

*Intro:* D.A.V.I.D. Systems simplifies the integration of Internet and other 21st century technologies with radio's broadcast traditions. RDS/RBDS text messages and PAD images are automatically sent from the software's enormous stores of metadata fields, giving priority to Amber Alerts, EAS messages and manually inserted promotion content such as contest information or the sponsors of remote broadcasts. The chore of turning finished programs and productions into podcasts is likewise processed automatically in the background. D.A.V.I.D. Systems feeds content directly to station Websites, placing pictures, text and audio files in the appropriate locations. If desired, content in the database can be searched by listeners through the Web site including archived material. Customized portals can be created to give advertisers and/or station personnel working outside the network the user-rights to access the database, allowing them to browse content, audition files, download tracks in portions or their entirety in any format, edit a production remotely and upload new content, all from any laptop or PC with a connection to the Internet; also, D.A.V.I.D. is first to implement the newly standardized RF-64 surround sound format. In cooperation with broadcasters, the IRT and EBU staff D.A.V.I.D. engineers developed this new specification. It is available as an upgrade to all customers. The file format is designed to meet the requirements for multichannel sound in broadcasting and audio archiving. It is based on the Microsoft RIFF/WAVE format and Wave Format Extensible for multichannel parameters. Additions are made to the basic specification to allow for more than 4 Gbyte file sizes when needed. The format is transparent to the BWF and all its chunks.

Also: DigaSystem, Latitude Edition, Database Manager, MTE, Remote Reporter, EAS Alerter, DigaROC, DigAirange  
**Doug Bertelmann, Sales Manager**  
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 E-mail: doug.bertelmann@davidsystems.us  
 Web Site: www.davidsystems.us

**Dalet Digital Media Systems** SL1132  
*Intro:* New to the DaletPlus Radio Suite is the P3000 player and recorder. It interfaces with Harris HAS and Encoda automation systems with a separate interface for both the player and recorder. The primary use is for automating large-scale operations. This application provides up to 16 simultaneous stereo output channels from a single server. Highlights include play and record control by HAS and Encoda automation. The product also supports a new Dalet feature called "Containers," automation that can call a single event that has multiple titles. The latest release of DaletPlus Radio Suite offers an enhanced DaletPlus Audio Engine. The new engine allows mixing of audio sample rates as well as multiple-perceptual audio encodings. The enhanced DaletPlus Audio Engine supports Digigram boards and other industry-standard audio devices with WAVE (MME) drivers.

**Dan Dugan Sound Design** N2431

**Davicom, a division of Comlab** N1000  
*Intro:* Next-generation MAC remote monitoring and control system using secure, 128-bit encrypted IP communications (LAN, WAN, Internet), can accommodate two modems (one as a primary link using landline and a backup using GSM, for example). New units are bilingual (one ASCII and one Unicode character set) and allow each user to select the language of choice for MacComm displays and the vocal interface. Units have 128 timers, allowing users to program AM day/night pattern changes, to set multiple alarm-call rosters for vacations, normal-duty, special-occasions, etc. More virtual logic gates (128) allows users to program more conditional actions and complex logic functions and now 128 configurable virtual relays allow users to set up additional relay command actions without using actual physical relays. Physical and virtual relays are individually software-configurable for latch, follow and variable-length pulse modes, to better match equipment control requirements. Also 16 alarm lists for conditional alarms, two event logs including a user-defined log to focus in on desired information, new hardware board with faster processor, more RAM memory, integrated IP, more configurable system status and log transfer functions. Also introduced: MacComm version 5 communications software.  
 Also: Davicom MAC units, Scientel Broadcast Interfaces

**DAWNco** C7141  
*Intro:* Satellite Feed Switcher, Super High Stability LNBs, Starlook Satellite Identifier, Satellite Fiberlink, Outdoor rated, Off-Air 8VSB Digital Channel Demodulator  
 Also: Data Fiberlinks, AV Fiberlinks, Broadband Fiberlinks, Satellite fiberlinks, Fiber Optic Cable

**DB Elettronica Telecomunicazioni SpA** N3505  
*Intro:* KF 5.0C is a 5.0 kW FM solid-state amplifier/transmitter. New coupling architecture helps realize a dramatic reduction of dimensions to produce the smallest solid-state 5.0 kW FM transmitter in the industry. This involves great simplification in maintenance, facility of transport and installation and a dramatic reduction of floor space. With weight

and cooling reduced, transport, installation and maintenance operation are simplified. Also new, PFS 30000/LD 30 kW solid-state liquid- or air-cooled FM transmitter uses the latest industrial Mos-Fet technology to render a high-power solid-state transmitter at a price similar to those of tube transmitters. Three 12 kW amplifiers are combined through a high redundant coupling device which allows you to keep the system on air even during maintenance to some of its components. The high efficiency of RF amplifiers (Cold-Fet) and the use of PFC filters in the switching power supplies allow reduced AC power consumption with benefit to cooling and management plant costs.

**Delta Meccanica Srl** N2834

*Intro:* FM receiver band-pass filter to manage low-power applications at an affordable price.

**Denon & Marantz Professional** N600

*Intro:* PMD671 High-Resolution Compact Flash Recorder, 24-bit, 96 kHz PCM capable for unrivaled fidelity, "Virtual Third Head" for confidence monitoring (Read After Write), Time-Shift Playback capability for random access playback while recording, no moving parts-no maintenance, USB 2.0 port for easy file transfer to PC, records uncompressed 16 and 24 bit PCM .wav files at 8, 11.025, 12,16, 22.05, 24, 32, 44.1, 48, 82 or 96 kHz, records .mp2 mono (32-192 kbps), records .mp2 stereo (64-384 kbps), records mono .mp3 files (16-160 kbps), records stereo .mp3 files (32-320 kbps). A 1 GB CF card can hold almost 30 minutes of uncompressed stereo (24 bit, 96 kHz) PCM audio, just over 90 minutes of uncompressed, stereo (16 bit, 44.1kHz) PCM audio, over 35 hours (stereo) or 70 hours(mono).mp3 audio. 4 to 6 hour audio life with standard AA alkaline batteries, optional rechargeable NiCd or NiMH batteries, condenser mic, two XLR mic connections with +48v phantom power, dramatically upgraded microphone preamps, RCA line I/O, built-in monitor speaker, optional RC600 wired remote control with peak indicator. Also new: PMD560 - Installation Solid-State Recorder.  
 Also: PMD660, PMD670, CDR420, PMD570

**Dielectric Communications** C2020, N412

*Intro:* MobileMedia antennas and filters for the 1.67 GHz spectrum including panel and traveling wave antennas. Various pattern options. Unique approach of the traveling wave design allows for a broad choice of beam tilt and gain without increasing the above-the-horizon radiation. The mask filter with less than .3% bandwidth has excellent performance in a compact design. The filter uses a pseudo-elliptic design with high Q dielectric resonators. This design is excellent for low-cost, high-power applications. Also new: DFM Series Manifold Combiner is a low-cost multi-station combiner solution that allows similar performance to a traditional multi-station combiner at a significantly reduced cost. Similar in appearance to a traditional branch-style combiner although electrical performance is far superior. The output manifold comprises a single coaxial line, has a separate tee junction for each input frequency and a short circuit stub on the end farthest from the output. As with all combiners, each input to the manifold combiner requires a band-pass filter tuned for the input frequency. This filter in turn rejects all other frequencies in the manifold; also see booth listing for Flash Technology.  
 Also: 7C 7P and 7S Series 700 MHz Antennas, HD Plus Antenna, HDR Dibrid Combiner

**DiGico** N4527

**Digidia** N3334

**Digigram Inc.** N1222

*Intro:* UAX220 Audio Mouse edition USB

Audio interface for broadcast and other demanding pro audio applications, now with enhanced ergonomics, better audio quality and optional mic preamp (UAX220-Mic); PCX924HR/VX222HR succeeds the PCX924v2 and VX222v2 and benefit from the characteristics of new HR (High resolution) series of sound cards: 2/2 balanced analog and digital AES/EBU I/Os, comprehensive set of drivers (driver for the Digigram SDK, as well as low-latency WDM DirectSound, ASIO and Wave drivers), 32-bit/66 MHz PCI Master mode (PCI and PCI-X compatible interface), 24-bit/96 kHz converters, LTC input and inter-board Sync., PCX924HR-Mic and VX222HR-Mic: built-in phantom-powered mic preamp, AES42 compatible, parametric 3-band EQ & Maximizer. Also new: LX6464ES PCI network sound card with DirectSound, Wave and ASIO drivers. It can transmit and receive 64 EtherSound channels, thus connecting computer-based audio applications to the EtherSound network. In broadcast, ES881/ES1241/ES16161 and LX6464ES form a compelling solution for multichannel audio delivery and distribution via standard Ethernet. EtherSound is the elegant, simple and open standard for networking digital audio using off-the-shelf Ethernet components; also, eXaudi XIP882 is the first product to embody eXaudi technology, an IP audio streaming, processing and routing system. It combines in one device the functions of four traditional product categories: IP streaming client/servers, audio processors, routers and codecs. eXaudi enables integration of radio automation applications and audio transport over IP networks within a scalable, manageable and integrated system, which makes the broadcast chain easier to manage and reduces engineering

and operating costs.

Also: PCX882HR, PCX1221HR, LCM420, PCXpocket 240, VXPocket 440.

**Digital Rapids Corp.**

SL616

*Intro:* Copper, for wirespeed, secure delivery of media over the Internet with tunable rate control and bandwidth scheduling which provides control over network utilization.

**dMarc/Scott Studios/Maestro**

N3511

**Dolby Laboratories**

SU2923

*Intro:* Dolby Media Producer is a suite of content creation tools for DVD and high-definition media. The suite includes the Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools.

**Dorrough Electronics**

C1233

**DPA Microphones Inc.**

N608

*Intro:* 4090 and 4091 microphones have an omnidirectional condenser capsule in a light-weight aluminum housing with a 3-pin XLR connector. They have a 19mm barrel housing in anodized black aluminum, sleekly tapered down to the 5.4 mm capsule, accepted as one of the best sounding capsules available. The total length of the mics is 12 cm fitting neatly into the mic clip included. Designed for use with 48V phantom powered systems, these mics will operate with voltages down to a minimum of 5V. The 4090 has a noise floor of 23 dB(A), sensitivity of 20 mV/Pa and can handle 134dB SPL. The 4091 is acoustically identical with the 4090, but has sensitivity of 6mV/Pa, a noise floor of 26 dB(A) and it can handle 144 dB SPL.  
 Also: Microphones, Windpacs, accessories



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**DRM Networks** N1226

*Intro:* MediaGate online billing e-commerce system for digital management; Content Management Service offers streaming, hosting, transcoding, digital rights management and work flow management; Device Management Utility manages content on portable devices. *Also:* Online employment services for rich media content

**Dymo Corp.** N2133**Efron Computerized Studios** N408**Electronics Research Inc.** N2406

*On Display:* SHPX Rototiller Antenna, LPX Rototiller Antenna, LYNX Antenna, 1180 Series Master Antenna

**Electrosys Srl** C311

*Intro:* DAB L-Band HPA module, air-cooled solid-state amplifier: max. 280W output power in DAB modulation, provided with internal power supply and control system; also FM products line including solid-state products up to 40 kW output power, based on air-cooled amplifier modules with 2.5 kW output power and provided with own power supply and control system. The transmitter is modular with max of five amplifiers for each rack. Optional remote control system.

**Elenos** N1826**Elettronika Srl** N2436**ELTI** N3631**EMR Corp.** N1300**ENCO Systems** N617

*Intro:* StreamLine is an all-inclusive station automation, traffic management and music scheduling system. StreamLine tightly integrates all functions in a single turnkey system solution. StreamLine includes DAD's powerful automation features with traffic management capabilities from Wicks Visual Traffic and music scheduling from Powergold; also new, DAD's Content Adaptive Processing, CAP, option, enables instant changes to Omnia audio processing settings based on currently playing content. The opti-

mum audio processor setting for voice, genre, recording, age or other variation is set automatically, providing unique sound quality without compromise; PADapult allows real-time manual sending of data to HD Radio, RDS, Web sites and more (up to six locations) directly from your control room while also integrating data output from your automation system or satellite provider. PADapult operates with DAD or as a stand-alone application with any automation system.

*Also:* DAD

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**Energy-Onix**

## N3335

*Intro:* DRE: Expands FM station capability of transmitting two additional digital mono programs. No change required in existing transmitter. Documentor/Audio Logger: 365-day audio logger permits station to select previous programs by minute, hour, day and month. Can drive 10 terminals simultaneously via LAN or Internet connections. Roadcaster: RPU, VHF and UHF remote pick-up, 40-watt transmitter and frequency agile receiver. Contains 16 frequencies selectable by front-panel switch. TeleLink #2: Linux-based hardware and software that permits broadcast-quality STL over a reliable Internet or LAN connection. ECO-15 and Legend 1500C: These additional transmitters add capability to the Energy-Onix FM transmitter line. Thus, broadcasters can purchase a one-tube transmitter with 15 kW output and solid state with 1500-watt output. This is in addition to the one-tube 4 to 30 kW transmitters and 1 kW to 10 kW solid-state transmitters. *Also:* Documentor, SST-30FS exciter, SSA-500 and 1000C broadband amplifiers

**ESE**

## C1639

*Intro:* ES-102U is a GPS Master Clock/Time Code Generator. It receives accurate time and date information from GPS satellites and supplies this data to the user in the form of four

types of time code/ Two one-pulse-per-second outputs and a GPS "Lock" output are available. The supplied software allows the user to change settings of the ES-102U via a serial port or USB interface; also new, ES-185U/NTP offers a Network Time Protocol output that allows for network time synchronization, this model is an enhancement to our popular ES-185U and includes NTP output, IRIG AM or TTL time code, SMPTE time code selection (Drop frame, NDF, EBU and Real Time) through supplied software and USB connection for configuring set up features. On-board 12-channel GPS receiver; 700 Series is a family of programmable event controllers that provide a number of contact closure outputs at predetermined times. These controllers allow the user to automate a multitude of events with simple programming. Various models are available from time-code readers (ESE, SMPTE/EBU, IRIG) to stand-alone clocks and elapsed timers with thumbwheel, keypad or PC interface programmability; also, ESE's line of enhanced NTP Time Servers provide a simple method of putting accurate time information onto a network; ES-110 generates a stable source of 10 MHz and 1 PPS using GPS satellites as a reference.

*Also:* Master clock systems, audio & video distribution amplifiers, SMPTE/EBU Time Code products, audio level indicators & interfaces

**Euphonix**

## N1002

*Intro:* System 5-MC Integrated DAW Controller for audio post recording, editing and mixing, can control multiple DAWs including Nunedo, Pyramix, Pro Tools, Logic Pro and Digital Performer. The MC Media Application Controller forms a central editorial section with up to 48 channel strips each with moving fader, eight knobs and TFT screen. MC Media Application Controller is designed to speed and enhance control of professional applications on Mac or PC, the MC is suitable for editorial work in film, audio post or video. The MC can switch between controlling multiple workstations including Final Cut Pro and Avid Media Composer.

*Also:* System 5-B/BP and Max Air Digital Audio Mixing Systems

**Eurotel**

## N4222

**Eutelsat**

## C4541

*Intro:* Hot Bird satellite broadcast neighborhood.

**EV Microphones**

## N1214

**Eventide Inc.**

## N2416

*Intro:* VR615B Broadcast Logging Recorder features Linux for reliability and networkability and offers an optional TFT display for front-panel control, dual 250 GB drives and comes in eight channels of mono (four channels of stereo) or 16 channels of mono (eight channels of stereo). Capable of storing 323 channel/days at 44.1 kHz sample rate, plus DVD-RAM for archiving; also new, BD600 Extended Remote option for automated broadcast chains. Sixteen bipolar opto-isolated inputs may be configured to drive BD600 functions and general-purpose delay inputs. Sixteen open-collector outputs may be configured to output BD600 status indicators or to pass through delayed versions of the inputs. An RS-232 output provides a delayed version of the input, useful for driving a time display or for delaying an Internet feed; H7600 Ultra-Harmonizer effects processor delivers a 174-second sampler and features powerful preset sorting capability. The H7600 features the stereo algorithms from the flagship H8000FW, 1,000 in all, including our collection of stereo post-production effects plus dozens of new environments; Anthology II plug-in bundle for Pro Tools TDM includes all nine plug-ins from

Anthology plus EQ65 Filter Set, EQ45 Parametric Equalizer, E-Channel configurable channel strip, Ultra-Channel Deluxe Channel Strip, Precision Time Align positive or negative time alignment for tracks, Quadravox four-voice pitch shifter.

*Also:* BD600, BD960, DSP4000B+, Eclipse, Reverb 2016, H7600, Anthology II

**E-Z UP International, Inc.**

## N3031

**Fairlight**

## SL2923

*Intro:* The multi-configurable Constellation-Anthem digital audio console unites recording, mixing and editing functions into one powerful console. The configurations meticulously resemble traditional split recording consoles, classic in-line mixing consoles and the most advanced audio post-production consoles.

*Also:* Constellation-XT

**Federal Communications Commission** N3526**FiberPlex Inc.**

## N2031

*Intro:* LightViper VIS-1832 is a 32x8 fiber optic transport system; LightViper VIS-4832 is a 32x8 fiber optic transport system; LightViper 1808/0808 is an 8x8 fiber optic transport system; LightViper Shadow is a self contained 64x32 fiber optic transport system.

**FileWave USA Inc.**

## C9649

*Intro:* FileWave automated cross-platform solution to mass install, configure and manage new software and patches; also Asset Trustee, an automated cross-platform solution to collect and report installed software, hardware and system information.

**FirstCom Music Inc.**

## C1535

*Intro:* MusiQuick Local for ease of hard-drive delivery. Users can have access to our 15 catalogs at full-resolution AIF files on a networkable hard-drive. The drives are customized with as few as 100 CDs or as many as 1,900, pre-loaded with MusiQuick Local, the company's signature search and audition program. (Mac and PC compatible) The search interface allows users to search music by any combination of key words, moods, tempos, styles and CD categories.

**Fischer Connectors**

## SU5193

*Intro:* SS/ SSC Series: shortened connector for demanding environments. Manufacturer of circular, precision electronic connectors with a fail-safe keying system, Fischer offers a shortened version of its standard push-pull locking plug. The shortened body connectors are suited for military, medical, broadcast, instrumentation and other applications that require unparalleled reliability; also, WSO Series: right-angle plugs to replace the obsolete WS and WSE Series.

**Flash Technology**

## N412

*Intro:* M2M condition monitoring solutions are designed to save time and money by allowing users to remotely access, monitor and manage equipment from anywhere. Monitor and manage non-IT based assets such as HVAC units, back-up generators, security access instruments, street lamps and cooling towers. Solutions can help with predictive maintenance which can streamline operations and reduce unnecessary operating expenses. Simple enough to monitor lights at a cell tower or complex enough to manage and control a cooling tower at a large power plant.

**Fraunhofer IIS**

## C2507M

*Intro:* 5.1 Surround Sound for FM HD Radio. Telos, Omnia, Axia, Broadcast Electronics and Fraunhofer IIS participate in live demonstration of non-matrix 5.1 Surround Sound for FM HD Radio. The underlying Fraunhofer IIS surround encoder/decoder system employs technology

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defined in the forthcoming ISO/MPEG Surround specification. MPEG Surround is a generic surround extension, which can be associated with any perceptual audio codec while remaining backward-compatible to stereo or even mono. The achieved audio quality is very close to a fully discrete surround system despite the fact that the surround image is represented by a very low additional bit rate down to 3 kbps. Also: At AVC Alliance booth, Fraunhofer demonstrates protected video and audio streaming over IP, applying the most efficient audio and video codecs available.

Also: Tower lighting and monitoring

**Genelec** SL4791

**Global Security Systems LLC** N2733  
*Intro:* GSSNET All-Hazard Digital Alert System uses the nationwide FM broadcast infrastructure to provide target area coverage messaging coverage and a proprietary messaging system that allows secured and encrypted data with layered and targeted messaging to "need to know" personnel.

**GMPCS Personal Communications Inc.** C4846  
*Intro:* Inmarsat BGAN Terminal, based on IP technology, delivers data rates of up to half a megabit via a small, lightweight satellite terminal (about the size of a notebook PC). The terminal is easy to carry, quick to set up and simple to use.

Also: Satellite communications equipment and services

**Harris Corp.** C807  
*Intro:* Flexstar Family of HD Radio Solutions. The Flexstar HDX-FM exciter will have its NAB debut, offering advanced, real-time adaptive correction technology. It can be seen with the Flexstar HDI-100 importer, HDE-100 exporter and Z-Series FM transmitter as part of an HD Radio Engine multicasting demonstration. The company will introduce Flexstar BoostPro, which allows stations to operate multiple transmitters from a single HDX-FM exciter. Also new, ZX low-power FM transmitter based on Harris' Z-Series of transmitters, it is available in 500-, 1000- and 2000-watt power levels for analog broadcasting. Upgrades to HD Radio are achieved when driven by the Flexstar HDX-FM exciter as a hybrid analog/digital system or in digital-only mode; also, Intraplex NetXpress transport solution is a managed networking platform that can send multiple services, including audio, data and PBX phone communications, over a single IP connection. New features such as echo cancellation, PBX phone system links, T1/E1 circuit emulation and forward error correction for stations considering a transition to IP-based STL connectivity; also, Harris PR&E VistaMax Envoy offers simpler VistaMax-like networking solutions suitable for smaller-market stations and larger markets with less complex frame requirements for newsroom or similar applications; Harris PR&E NetWave on-air console is available as a standalone console or with VistaMax connectivity and offers affordable, reliable, high-quality digital radio for smaller on-air studios.

Also: VistaMax audio networking, 3DX transmitter line, DAB transmitter range, DRM transmitter range, Harris NeuStar family of 5.1 and pre-codec conditioning products.

**Hardata S.A.** N3138

**Harrison** N1522

**Heil Sound** N407  
*Intro:* Heritage Pro. Vintage design and high-performance, large-diaphragm dynamic element make this mic the best of both worlds. PR Series large-diaphragm dynamic microphones. Also: PR20, PR30, PR40

### Henry Engineering

**N1200**  
*Intro:* USB Matchbox is a USB-to-XLR audio codec for broadcast and professional audio applications. Bi-directional, stereo, Burr-Brown 8X oversampled A-to-D and D-to-A. This USB-powered unit solves all the problems caused by PC-sound cards. Has balanced XLR I/O, true professional levels with lots of headroom, plus monitor output with remote mute. Superb audio performance in a self-contained unit that can be rack mounted. Also available: USB Match Plus: adds peak LED metering and headphone amp; also new, USB Match Plus, Same as USB Matchbox, but with addition of accurate LED peak metering that read levels referenced to digital FS. Also includes reference-quality headphone amplifier for critical aural monitoring of input or output audio. USB powered; Digital D.A. 2x8 is a compact distribution sys-

tem for AES/EBU digital audio signals. Two inputs, eight outputs, dual-mode system can operate as either a 1-in, 8-out DA, or as a pair of 1-in, 4-out DAs. Inputs, outputs are individually transformer isolated. Units do not add any delay, latency or jitter. Built-in compensation for low input levels and high-frequency rolloff caused by long cable runs; also, USB Mic Match is similar to USB Match

Plus, but with an additional XLR input for a mic. Makes an ideal mic-to-laptop interface for desktop or field use. Mic on/off control included, with tally output, monitor with muting. Also stereo line inputs, XLR line outputs. USB powered.

Also: Matchbox HD, Superelay, Multiphones, Powerclamp, Studiodrive With USB, Twinmatch, Digistor-MP, Stereomixer, Autoswitch, Stereoswitch, Logiconverter, USDA 2x4, Digimatch 2x6

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### HHB

**N1822**  
*Intro:* FlashMic DRM85 Digital Recording Microphone professional digital recording microphone combines a high-quality, Sennheiser omni-directional condenser capsule with an in-built, broadcast-quality Flash recorder; also, CDP-88 Professional Compact Disc, a 1U rack-mounting CD player packed with an array of professional features and a complement of analog and digital connectivity.

Also: Portadrive PDR2000 Location Sound Recorder, CDR830 BurnIT Compact Disc

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**Hollywood Edge** C1744  
**Intro:** The High Impact Series is a five-disc collection of 2,200 action sounds for production, recorded at various locations including the Kresge mansion, horror, science fiction, fire and explosions, impacts, crashes; Premiere Edition Vol. 6 is the sixth installment of the Premiere Edition Library, contains two bonus DVDs in .WAV format; Soundelux Music Library offers record-label-quality production; Sonic Energy Production Elements is a five-disc set that contains 1,000 effects and various stingers, rumbles and booms, includes one bonus DVD in .WAV format.  
**Also:** Edge Edition, Sound Designer Tool Kit, Animation Collection, Sonic Energy Production

Elements, Premier Editions

**Holophone** N3931  
*Intro:* Holophone H2-PRO Rev. 2, a 7.1 channel discrete surround microphone for high-end audio recording/TV broadcasting. This version includes an enhanced low-frequency channel.

Honeywell Obstruction Lighting N2922

Illbruck Inc./Sonex N1700

**IMAS Publishing U.S.**

**IMAS Publishing China** C5107C  
*Intro:* Broadcast & Production China covers technology trends and product application in content production, management and delivery with international perspective drawn from IMAS Publishing USA. 22000+ copies: InfoAV China

targets the pro AV market in China, offers coverage of industry trends and practical application information on presentation, conferencing, C&C and other AV installations, readers include system integrators and end users in business, education, government and large business venues.

IMT RF Products N2830

**Independent Audio Inc./**

**CEDAR Audio USA** N4508  
*Intro:* CEDAR Tools Retouch in sound processing technology allows you to define the temporal and spectral content of the sounds you want to remove. This makes it possible to identify noises as varied as coughs, squeaky chairs, page turns, the creak of a piano pedal and car horns. Unwanted sounds are replaced with audio that matches the surrounding signal. Retouch is available for Pro

Tools|HD & LE v6.9 onwards, operating at high sample rates and offering 64-bit internal resolution. Also new; CEDAR Auto Dehiss embodies a more advanced algorithm than previous dehissers; CEDAR Declip algorithm allows you to identify and remove most instances of clipping in a single real-time pass; CEDAR Cambridge 2.6 offers advances in the user-interface, additional features in the File Processing system, significant upgrades to the tracking accuracy of the Debuzz algorithm, plus two new modules: Vintage Decrackle and the DC Filter; also Phoenix Audio Nicerizer 16 to take the output out of the digital realm and to add the Class A characteristics and feel before the final recording. Also: Audio Developments Location Mixers, CEDAR Audio Restoration Products, Coles Noise Canceling Commentator's Microphone, DACS Mic Pres and Headphone Amps, EAR Tube Processors, MicMate Hot Shoe Receiver Mount, OKM In-Ear Microphones, Pearl Microphones, Phoenix Audio UK Mic Pres and DIs, Signex Patchbays, TL Audio Vaive Consoles and Processors.

Industrial Acoustics Co. N2132

Industry Advanced Technologies Inc. C6637

**Intro:** Firefly Illuminated Cable Protectors are high-visibility illuminated cable protectors (crossovers) designed to reduce accidents by warning pedestrians of the tripping hazard.

**Innes Corp.** **N2523**  
*Intro:* Flashlog 5 digital logger provides recording of weeks or months of audio program, using high-capacity hard disks. Windows Media 9 audio compression is used to provide near-CD quality recording. A playback mode having mono program on one channel and date and time announcements on the other can be selected. Includes Flashback 5, which can access the logger over a network connection. A graphical waveform display makes audio selection easy. Log extracts can be copied to the Windows clipboard or saved as WAV or WMA files. Date and time calls can also be included in the extracted audio; also, Delay Master 5 is a time-zone-correction audio delay built on a Windows XP Professional platform that offers two stereo channels with independent delay settings in half-hour steps from zero to 24 hours; also, Radcap FM is a radio capture card designed for simultaneous recording of 24 stereo FM stations. The frequency of each may be set in software and its audio appears as a Windows audio input device. The card incorporates 24 stereo tuners whose frequencies can be independently set under software control; Radcap AM is a radio capture card designed for recording of up to 20 radio stations; Auricon 2.2 is a professional-quality audio I/O card supplied with DSP software and a Windows WDM driver to provide sound card functionality under Windows 98, Windows ME, Windows 2000, Windows XP and Windows Server 2003. A driver providing basic wave functionality under Windows NT version 4 is provided.  
Also: Auricon 1.1, Auricon 4.1, Digitors M

Innovative Office Products Inc. N4017

**Inovonics Inc.** **N3206**  
*Intro:* 532 FM/HD Modulation Monitor shows simultaneous transmission parameters for analog FM and for HD digital carriers, built-in spectrum analyzer for occupied bandwidth; also new; 261 Digital Utility Processor is an all-digital "utility" audio processor with AGC, compression, limiting; 264 Quad Leveler with four independent channels or 2X stereo, maintains program average/peak ratios for consistent perceived loudness and system protection.

Also: Omega digital split-airchain processing

The advertisement features a large, modern digital audio mixing console as the central focus. The console has multiple rows of faders, buttons, and knobs. In the background, a computer monitor displays a graphical user interface with waveforms and data, representing the digital audio networking and processing capabilities. The AEON logo is prominently displayed at the top left, and the slogan "breaking down barriers" is written below it. A section titled "DIGITAL RADIO ON-AIR CONSOLE" lists various features and a starting price. At the bottom, there's information about attending NAB Booth # N826 and contact details for Klotz Digital.

for FM and IBOC; DAVID-III FM airchain processor; AM and FM mod-monitors; off-air translator receiver; RDS/RBDS encoders and decoders for scrolling text displays.

**IRTE SpA** C10131  
*Intro:* Digital microwave links. From 2x2 Mbps up to 2x155 Mbps, ANSI and ETSI frequency bands, PDH and SDH, mono and bidirectional, indoor + outdoor or full indoor with power amplifier.

**Italiana Ponti Radio** N4211

**Jampro Antennas/RF Systems Inc.** C1517  
*Intro:* The JMPC-HD antenna is the medium-power version of Jampro's FM Penetrator antenna, available with and without deicers or radomes, for use as a separate or interleaved antenna for HD Radio broadcast, rated at 10 kW maximum input, each bay consists of a Penetrator-style radiating element with a 1-5/8-inch shunt feed line, factory-tuned to any frequency in the FM Band II (87.5 –108 MHz) range on a tower structure that best simulates the customer's actual tower, multiple frequency design also is available, true circular polarization of the JMPC antenna offers excellent performance for HD Radio, stereo and SCA operation, typical VSWR is 1.1:1 ± 200 kHz, a higher-power rated JHPC-HD also is available; the dual input, sidemount JSHD HD FM antenna system for full-service stations provides linearity and power-handling capability, features broadband characteristics, provides isolated and separate inputs for both analog and digital transmitters, allows the digital transmitter to operate at its target power with no power lost in a reject load and no power reduction caused by "lossy" digital injectors; the Optimizer JBCP-H-HD FM side mount antenna is for digital HD broadcast applications that require separate or interleaved bays that are relatively insensitive to icing conditions as well as high power handling, each element is fabricated with thick wall brass and copper with a 3-1/8-inch outside diameter, capable of handling 40 kW, on a single frequency VSWR is 1.1:1 +/- 200 kHz or better, radomes not normally needed, factory VSWR tuned and optional field tuning may not be needed; RCHA-323-10HD Digital FM Radio combiner provides isolation and properly sized inputs for analog and digital FM transmitters, created according to HD Radio standards, self-cooling techniques provide safe combining without the need for cooling fans, for use with station provided coax and reject load or as a system with these components included for quick installation, lower-power rated RCHA-222-10HD also is available.

*Also:* Antenna systems for all broadcast applications.

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Web Site: www.jampro.com

**Jennings Technology** N411  
*On Display:* Vacuum capacitors and vacuum switches.

**JK Audio Inc.** N4215  
*Intro:* RIU-IP is a remote interface to the JK Audio Innkeeper 2 and Innkeeper 4 multiline digital hybrids. The Innkeeper 2 and 4 come standard with a screw terminal block for contact closure; and RS-232 for more advanced control. RIU-IP provides an IP interface for full, remote operation.

*Also:* QuickTap, CellTap, Voice Path, THAT-1,

THAT-2, Daptor One, Daptor Two, AutoHybrid, Inline Patch, ComPack, RemoteMix C+, RemoteMix Sport, Broadcast Host, Innkeeper PBX, Innkeeper 1, Innkeeper 1rx, Guest Module, PBXport, Innkeeper 2, Innkeeper 4

**JLCooper Electronics** SU5158

**Junger Audio** N3200  
*Intro:* Level Magic Surround relies on an adaptive level control algorithm that adjusts the right audio level from any source at any time, Automated Gain Control + Transient Processing + Peak Limiting for unattended control of program material, supporting surround sound schemes for TV broadcasting; HD/SD SDI-interface C8403 dual mode (HD and SD) audio de-embedder and embedder card for the C8000 system; and SD SDI-interface C8402 SDI audio de-embedder and embedder card for the C8000, both

simultaneously de-embedding and embedding 16 channels of audio, a 16x16 switching matrix for reassignment the audio signals is included.

*Also:* Level Magic automated audio level control, MIX4 digital desktop mixer, dynamic range processors, FM audio processors

**Kathrein-Werke KG** C3907A  
*Intro:* FM, TV, DTV, HDTV, DAB & MMDS broadcast antenna systems  
*Also:* FM radio broadcast antenna systems

**Kay Industries Inc.** N1600

**KD Kanopy** N4516  
*Intro:* Rolling Banner, a two-sided presentation that rolls from bottom to top in a circular motion, scrolling action of the fabric gets your message across, twice the banner in half the space, packs up quickly and is suitable for marketing and pro-

motional needs, available in widths of 2 feet, 3 feet and 4 feet and heights of 24 inches (x2) to 96 inches (x2), hanging version can be made to any length, graphic panels are interchangeable, allowing multiple panels for the one stand and message to be changed, one-year warranty on materials and workmanship.

*Also:* Pop-up canopies, tensioned tents, large format graphics, banners and signage

**Killer Tracks** C1255

**Kintla Corp.** N2732

**Kintronics Labs Inc.** N3211

*Intro:* A line of RF switches ranging in current rating from 150-200 Amps and in voltage rating from 30-100 kV, utilizing a new linear drive mechanism that is free of shock and vibration, has switch time of one second, offers low mean time between failure and is simple to maintain

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and service. Also, the KinStar antenna will be highlighted due to the pre-approval by the FCC for full-time non-directional operation in the U.S. market.

**Klein + Hummel** N1822

**Klotz Digital Audio Systems Inc.** N826

*Intro:* Octo-Bus Studio Network, a digital audio network that carries audio in real-time, control data and power over CAT-5 cables, synchronous bus protocol allows transmission of up to eight simultaneous channels of bidirectional digital audio including control data and system monitoring without audible latency, can be configured as a star or daisy-chained audio network without routers or hubs, using Octo-Bus the VADIS platform can be expanded by a range of products that ease studio installation; DiAN Routing Control Panels control the VADIS router, control VADIS without a PC, RCPs suit any type of router application, configuration software for the configuration of an audio router with associated RCPs; also, AEON Audio Networking Console, a cost-effective mixing solution combined with an integrated router, based on Klotz ultraslim console modules, allows flexibility in console layouts and studio setup, available with 8-, 12-, 16- and 20-fader control surfaces, AEON Setup Tool software is included; Workflow Implementation, as broadcaster operation has been limited by the technology installed in their facility, Klotz engineers use a combination of VADIS consoles, audio and control network infrastructure and customized software to implement a workflow solution to match each broadcaster's specific requirements.

*Also:* VADIS audio media platform; VADIS D.C.II

**KLZ Innovations LTD** N2036

**Kramer Electronics** SL549

**Larcan USA** C4119

*Intro:* Broadcast solutions from "start to success," experience analog to digital technology at its best, our solutions are customer-driven and customized; Eclipse Series; 8VSB RGEN Transcoder; Magnum Series; original in state-of-the-art M Series; MX and MXD Series of low-power transmitters/translators

*Also:* FM Series translators/transmitters

**Lawo AG** N3808

**Lawson** SU1647

*Intro:* Professional design services, architecture and MEP engineering, 20 years experience designing for the broadcast industry, including renovation of existing facilities to site acquisition, design and construction of new facilities,

licensed architect in 50 states, specialized design firm with track record of design and construction, from newsrooms to transmitters.

**LBA Technology Inc.** N4512

*Intro:* AM Directional Phasor Systems offer precise coverage patterns requiring minimum adjustment and yielding maximum stability. Directional antenna systems are computer-designed, circuitry features jack and plug test points, toroidal meters and phase samplers are standard, antenna systems constructed with concern to avoid arcing and overheating, connecting tubing of generous diameter is employed with corona rings and ball gaps where needed for electrical gradient relief and component protection, attention is given to internal and external grounding and personnel protection; also, TGR-50 Transportable Antenna System provides a deployable medium-wave broadcast antenna for use in emergencies or when maintenance is required for the station's main antenna. Available for purchase or as a leased unit, 50-foot antenna mast assembly, antenna tuning unit and ground radials (set of 60 at 50 feet each) are shipped in three containers; also, Tunipole series of folded unipole antenna system kits for AM broadcast use, advantages in efficiency, lightning protection, bandwidth and FM feedline isolation, supplied with components for installation on towers between 12- and 36-inch face size, depending upon makeup of existing antenna tuning unit additional electronic parts are needed to complete installation at most broadcast stations, the UP-310 series are used in most low-power installations, for stations utilizing powers of 10 kW or higher, or with bandwidth problems, the UP-600 series is recommended, permission should be obtained from the FCC prior to utilization of these systems; also, Tomco Impedance Analyzer; ERM Series provides first responders with critical communications, for public and industrial emergency, communications, accepts a variety, of HF, VHF and UHF antennas, features a 8 x 10 foot communications, shelter, a tilt-to-vertical, crank-up 45, foot tower, outriggers and topside metal storage, cabinets.

*Also:* AM DA systems, ATU, folded Unipole antenna, TOMCO test equipment

**LEA International** C1642

*On Display:* DS30 surge protector, DS21S surge protector

**Lectrosonics Inc.** N3225

*Intro:* UCR401, a battery- or DC-powered receiver with Digital Hybrid Wireless technology for compandor-free audio, compatibility with analog transmitters, 2xAA operation extends battery life over previous products,

RF spectrum analyzer eases frequency choice among 256 channels within each block; SMD, a miniature transmitter using Digital Hybrid Wireless technology, can be remote-controlled using RM unit, 256 frequencies available per block; SMQ, a high-powered miniature transmitter using Digital Hybrid Wireless technology, 2xAA battery powering for long operational time with 250 mW RF power; RM remote control for SM, SMD and SMQ transmitters using proprietary audio signal, transmitters can be programmed for audio level, frequency, sleep mode for battery conservation, mode changes and other features, RM signal activates the transmitter through the transmitter's own microphone.

**Linear srl** N402

**Location Sound Corp.** N3926

**Logitek Electronic Systems Inc.** N2802

*Intro:* To be announced at show  
*Also:* Mosaic digital control surface, Audio Engine digital audio router, Remora digital control surface, router control panels and software, vMix virtual console, vScreen customizable user interface, audio VU meters, surround meters

**Mackay Communications Inc.** C5543

*Intro:* Demonstrations of Inmarsat's BGAN service will be provided to show broadcasters how remote broadcast costs can be reduced. Mackay provides voice and data products for remote broadcast and emergency applications from Inmarsat, Iridium, Globalstar and MSV.

**Mackie** SL561

**Magnum Towers Inc.** N3918

**Manhattan Production Music** C1955

*Intro:* All Media Music, a library from producers of BRG; Music Library Delivery via iPod & iTunes lets users see our library in one iPod and iTunes, exportable to be used in multiple edit bays.

*Also:* Apple Trax, MPM, Live Trax and Audiophile Sound Effects Series

**Mayah Communications** SL1206

**Media Monitors** N627

*Intro:* Local cable and broadcast TV monitoring, see and hear commercials that aired on local cable TV systems and local TV stations in selected markets on the same screen as spot info from local radio stations; Newspaper monitoring, see print ads from local newspapers in selected markets on the same screen as local radio spots.

**Megatrax Production Music** C1259, N1500  
*On Display:* Libraries, jingles and radio programming

**MGE UPS** C7837

**Micro Communications Inc.** C307, N418

*Intro:* FM transmitting antennas for horizontal, vertical and circular polarizations, elements for both triangular and square tower structures, standard and custom patterns available; FM channel combiners for low-, medium- and high-power applications, multiple channels in one transmission system; coaxial components for RF system installations including coaxial transmission line, filters, elbows, switches, patch panels.

*Also:* FM switches, filters, antennas

**Micronwireless** N4531

**Microwave Advances** C122

*Intro:* MicroSynth, a handheld, battery-operated frequency generator, provides a tuneable synthesized RF signal source for commercial bands, units cover either a 500 MHz or a 1 GHz range in microwave bands between 2 GHz and 23 GHz; MWA-23SM Phase-Lock Loop circuit, increases frequency stability of .001 percent for a microwave link transmitter in the 23 GHz frequency band to meet new FCC frequency specifications, used with new or existing transmitters operating in the 21.2-23.6 GHz frequency band, optional receiver phase-lock loop is available.

**Middle Atlantic Products** SL1181

**Modular Components National** N1532

**Modulation Sciences Inc.** C118

*On Display:* Composite Clipper, STLs, distribution amplifiers, FM modulation monitors, SCA generators

**Moseley Associates Inc.** N2402

*On Display:* SL9003Q, SL9003T1, Lanlink, PCL6000

**mSoft Inc. C** 1242

*Intro:* MusicCue V. 4.0, an asset management system for a production facility to replace the hundreds or thousands of CDs they need to search music from on a daily basis, for production music and popular music, lets users search across libraries and cross reference to other music, reads an EDL file to automatically create a music cue sheet accurate to the tenth of a second of what was used in a production.  
*Also:* mSoftPlayer

**Multidyne Video & Fiber Optic Systems** SU1729

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**Musicam USA** N914  
*On Display:* NetStar, RoadStar, Prima Series, TEAM, SuperLink, RoadRunner

**Myat Inc.** C817

*Intro:* Myat's 3-1/8-inch Coaxial Switch offers advanced drive mechanism that allows the unit to trip interlocks before actuating, switch quickly and then lock securely in the switched position, manual bypass, available with a rackmount local/remote switch controller; FM/VHF Switchless Combiner, a modular drive system that allows the combiner to quickly move between positions, dual guide rails and independent switch mounting.

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**Nagra** N3100

**NATEXPO** C10212

*Intro:* Established by the National Association of TV and Radio Broadcasters with participation of major Russian companies involved in TV and radio, in support of the Federal Agency of Press and Mass communications and the Federal Agency for Culture and Cinematography, in partnership with the NAB.

**National Weather Service** N4018

**Nautel** N1302

*Intro:* V5 HD Radio FM Transmitter features Digital Adaptive Pre-Correction technology for HD Radio transmission, for complete compliance with the IBOC Spectrum Mask under changing environmental conditions, switchable between FM, FM+HD or HD only modes to provide an analog backup to your HD system; V10 HD Radio transmitter; XR50 50,000 Watt AM Digital Transmitter, a compact footprint 50,000 Watt AM transmitter designed for HD Radio and DRM operation; XR25 25,000 Watt AM Digital Transmitter; XR12 12,000 Watt AM Digital Transmitter 12,000 Watt AM transmitter for HD Radio and DRM operation, features dual DDS excitors with automatic switchover for analog exciter backup to HD Radio digital systems.

*Also:* FM transmitters: FM1, FM2, Q20, Q40; AM transmitters: J1000, ND5, NA100, NA200, NA300

**ND SatCom** C6544

*Intro:* Smart Uplink, compact uplink systems with embedded components, easy integration, quick delivery, configurable

**Netia** N3208

*Intro:* SMS (Short Message Service) module for Radio-Assist 7.5 range of digital audio software programs enables stations to increase revenue by using mobile phone platforms as a way to communicate interactively, allowing on-air talent to play interactive SMS and voting games with listeners; AIR-DDO playout module, spread over two monitor screens, the GUI displays four broadcast channels and offers access to help and preparation tools, including a cuer, on-air monitoring, playlist modification, recording and production, DJ functions; Statistics module for Radio-Assist 7.5 allows users to measure and monitor the effectiveness of elements of daily broadcasts including the number of times an audio clip has been played, the broadcast rate and the total number of times an advertisement has been broadcast; Multitrack XT for Radio-Assist 7.5 editing tool for multitrack digital audio recording and editing, suited for audio editing and production work, mixes linear and compressed data on a single track, features include time stretching, pitch shifting, noise reduction,

unlimited undo/redo; copy-paste, insert, drag-and-drop; simultaneous recording and playback, noise gating, support for CD audio engraving programs and import/export MP3 files.

*Also:* Radio-Assist 7.5 range of digital audio software programs

**Neumann**

N1822

**Neutrik USA**

C6033

*Intro:* EMC-XLR cable connector consists of three-pole male/female XLR cable connectors with integrated LC-filters, which avoid the RD interference and LF noise, 360-degree shield contact on the female connector that ensures shielding and chassis contact, suitable for solving ground loops, RF interference and Pin 1 problems, OpticalCon system based on a standard optical LC-Duplex connection; Sealed Ethercon Assembly Kit, an assembly kit for D-Series EtherCon connectors to achieve a water-

proof IP54 connection, users can replace the frontplate and push lever with the kit components to achieve an IP54 protection.

**Nicom USA Inc.**

N3435

**Novella SatComs Ltd.**

C7845

*On Display:* Frequency converters, tracking receivers, uplink power controllers and redundancy systems

**NPR Satellite Services**

C6841

*On Display:* Space segment, equipment, uplink services, system design, engineering support.

**Nucomm Inc.**

C320

**OMB**

N1812

*On Display:* Transmitters, STL, mixer, audio processor, antennas

**Omnia, A Telos Company** N2714, N2515  
*On Display:* Omnia audio processing for radio, Omnia mastering processor, Omnia A/X processing software

**Omnirax**

N2424

*On Display:* Innova Broadcast Furniture combines modular components with custom-tailored shapes to fit requirements of on-air, production and imaging studios.

Conventional case-work cabinetry can be provided so that the entire facility has a unified look and feel. Each project builds on our expanding repertoire and parts library. CAD/CAM design and manufacturing ensure repeatability and accuracy. Pre-production renderings allow everyone involved to see how finished studios will look. Innova is shipped with pre-assembled and flat-packed components along with detailed instructions for ease of assembly by facilities personnel, integrators or Omnidax-trained pro-



## Applications

- STL links over IP networks
- Distribution of live or shared programming
- Multicasting
- Remote broadcasting over IP networks
- Automatic fallback to ISDN

## Communication Interface

- 10/100 Base-T interface
- ISDN U or S/T
- X21

## Coding algorithms

- Standard and Enhanced apt-X™, G711, G722
- MPEG1/2 LAYER II, MPEG1/2 LAYER III
- MPEG 2/4 AAC LC, MPEG4 AAC LD (Low Delay)
- PCM Linear Uncompressed Audio Over IP

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fessionals. Tools specific to the installation are included.

**OMT Technologies** **N2908**  
*Intro:* iMediaTouch 2.6 hosts new features and additions; iMediaDatacast 2.0 an HD PAD optional module for iMediaTouch Automation Software, features Inovonics support and enhanced features; iMediaTouch compatibility with Axia over IP consoles.  
*Also:* iMediaTouch - Broadcast Automation Software, iMediaLogger, iMediaAdCast, iMediaPIX - Live Assist Module, iMediaImport - Auto Import Module, iMediaMultiStream - Multi-Channel Live Stream Encoder, iMediaAccess - Widea Area Content Management

**Opticom** **SU4183**

**Optimal Solutions Inc.** **C7107**  
*Intro:* Business Intelligence provides a Data Warehouse "Cube" for easy access and manipulation of data from the OSi-Traffic database. This provides users with key spot level information that can be used to customize any type of database query from the OSi-Traffic system. Allows user to drag and drop, filter, group and aggregate attributes on the fly to create endless reporting views, provides a module based on Microsoft Sharepoint technology that provides customizable views in any combination of centralized sales and billing data from the OSi-Traffic system.

**Orban/CRL** **N1136**

*Intro:* Orban Optimod-AM 9400, all-in-one processing for analog AM and digital radio channels. Until now, if you wanted an AM audio processor that provided no-compromise, independent, multiband processing for analog AM and digital radio (like iBiquity's HD-AM, system), you had to buy two boxes. Orban's Optimod-AM 9400 changes that by offering two independently adjustable processing chains: one for the analog channel and one for the digital channel. The only processing common to the two channels is the AGC and stereo enhancer. Beyond this front-end processing, you get two of everything: equalizer, five-band compressor/limiter and peak limiter, each optimized for its intended transmission channel; also, Orban Opticodec-PC 1010, the first MPEG-4 AAC/aacPlus encoding software for high-quality streaming audio. Opticodec-PC offers the most important feature that the basic netcaster is looking for in an encoding product: entertainment-quality sound at economical bit-rates. AAC/aacPlus is changing the way streaming audio and netcasting are perceived. For a given bitrate, it sonically outperforms any other codec.  
*Also:* Orban Optimod-FM 8500, Optimod-FM 8300, Optimod-FM 5300, Optimod-FM 2300, Optimod-PC 1100, CRL Amigo Series

**Overly Door Company** **N4511**

**Paradise Datacom LLC** **C7541**  
*Intro:* Evolution high-speed modem (IF or L-Band) continuously variable data rate from 4.8 kbps to 52 Mbps, second-gen turbo operates up to 52 Mbps with 16QAM, internal Web-server based monitor and control, built-in diagnostics; also, compact outdoor SSPA with fiber optic interface-C, Ku, X & S frequencies, power levels from 10W to 250W, L-Band input option, wireless Bluetooth M&C.

**Patriot Antenna Systems** **OE107**

**Pelican Products Inc.** **SL1847**  
**PESA/Fortel DTV** **SU1370**  
*Intro:* The 2048x2048 Audio Router in 36 RU, also, Cheetah audio router, a base unit of 64x64 in 1 RU or 128x128 in 2 RU and expandable to 2048x2048 in 36 RU, the Cheetah audio router has a small form factor and a distributed

architecture that is compatible with Dolby-E, while supporting synchronous and asynchronous signals and sample rates up to 96 kHz.

**Peterson Systems International** **N4522**

**Phasetek Inc.** **N706**  
*On Display:* Custom AM broadcast equipment.

**Philips Content Identification** **SL1840**  
*On Display:* Audio watermarking: Compotrack, Cinfence (digital cinema)

**Philips Semiconductors** **N218**

**Phonak Communications AG** **N1736**  
*Intro:* Invisiy, RF in-ear receiver, earpiece, IFB, discreet, invisible, programmable; also, Invisiy TX, a 9.5" studio transmitter, narrowband, VHF 150-220MHz, RF; also, Invisiy Wireless Remote Control, discreet, real-time control, channel, scan, sync, re-programmable

**Pineapple Technology Inc.** **N422**

**Popwire AB** **SL1047**

**Potomac Instruments Inc.** **N2422**

*Intro:* PI-4100 medium wave field strength meter, is a portable self-calibrating metering device, SBAS augmented GPS positioning, E-Data friendly transport software, BW Shape Factor (-6 to -75 dB): 2:1, harmonics measured to 5.2 MHz  
*Also:* 1900 Series Directional Array Monitor, PI-4100 MW Field Strength Meter, AA-51A Audio Analyzer, AG-51 Audio Generator, SD-31 Synthesizer/Detector

**Prime Image Inc.** **C5136**

*Intro:* Time Tailor Audio, time management for audio content owners, through an undetectable process utilizing proprietary algorithms time-reduces audio programming in real-time, on air and without compromising program integrity, variable selection adds from .01-milliseconds to 4-minutes within 10-minutes to 2 hours, for stereo or mono broadcasts.

**PrimeLED Inc.** **N606**

**Primera Technology** **SL1233**  
*Intro:* TuffCoat with AquaGuard is a water-resistant and smear-resistant inkjet-printable CD-R and DVD-R.

**Prism Media Products** **N1327**

**Pristine Systems Inc.** **N614**  
*On Display:* Digital automation for music-on-hard-drive and satellite operations, Auto Promo, voice tracking, LiveWire, CobraNet, website content, music scheduling and much more. Also BlackBox digital audio logger; and Summit Traffic & Billing software is the best alternative for your traffic needs, any size operation.

**Production Intercom Inc.** **N405**

*Intro:* DMH948 Broadcaster's Headset, an all-in-one headset, with four interchangeable condenser microphone capsules from omni to hypercardioid; also, the AS100 Broadcast Announcer Station, allows broadcasting and communicating with one headset. Powered by and compatible with popular intercom systems; also, AS200 Broadcast Announcer Station, includes features of AS100, but with two channels; the FR4000 Half-Duplex Wireless System. Combined with our HD-903, an Icom repeater with transceivers acts as a wireless system, range is 2-5 miles depending on antenna and power settings.  
*Also:* DMH948, AS100, AS 200, FR4000

**Professional Label Inc.** **C10844**

*Intro:* CD DVD Custom Printed Sleeve Kits include one label sheet for every two sleeves, as there are two labels per sheet. Sleeves

available for use with these are white paper with flap, white Tyvek with flap and white paperboard with no flap.

*Also:* DVD CD packaging, Labels, cases, sleeves, mailers

**Professional Sound Corp.** **N4022**

*Intro:* DV ProMix 6 portable audio offers six inputs each equipped with quiet pre-amplifiers, switchable low-cut filters, pre-fade listen switches and dedicated line outputs; also, Elite Series Carbon Fiber boom poles has super high modulus carbon fiber tubes, aircraft aluminum fixed threaded mounts and locking collars; DV SGM1 Shot Gun Microphone, a compact, lightweight package offers a flat, smooth frequency response and a low self-noise artifact; also, the Miranda Audio Mixer for field production has options that include 12 inputs, eight main output busses and two auxiliary output busses. Inputs and outputs are individually metered.

**Professional Sound Services** **C7730**

*Intro:* Lectrosonic Wireless UCR/401/SM portable digital wireless receiver with small miniature transmitter.  
*Also:* Wireless, Mics, Boom poles, Digital Recorders

**Promedia** **SL1224**

*Intro:* CD/DVD Wallets/Storage Cases; CD/DVD Replication/Duplication, Silkscreening.  
*Also:* 16 DVD-R, Overwrapping Machine, Aluminum CD/DVD Storage Case

**Propagation Systems Inc. (PSI)** **C330**

*On Display:* FM broadcast antennas, combiners, filters and transmission lines. Various configurations including panels, Slant-V and Power-Tiller in directional and non-directional designs in standard and IBOC broadcasting modes. Ask about pattern optimization, customizing, multiple station antennas and turnkey installations.

**Prophet Systems** **N3522, C4431**

*Intro:* XLR8R has the ability to create and post Podcasts. The NexGen podcast module is integrated easily into the workflow at a radio station; also, the Prophet Importer which enables advanced HD Radio capabilities like multicasting and datacasting. The stand-alone module can work with any automation system.  
*Also:* NexGen Digital, MusicGen Pro, NewsGen

**Radio Advertising Bureau** **Lobby**

**Radio Frequency Systems** **C1217**  
*On Display:* RF System Digital Monitor, Heliflex range of air dielectric feeders and accessories, CPF2500 family of antennas.

**Radio Music License Committee** **N3924**

**Radio Systems** **N1211**  
*Intro:* Studiohub+ Matchjack Amplifiers. Extended application A/D and D/A converters and analog and digital distribution amplifiers.  
*Also:* Digital consoles, StudioHub+ wiring system, DAs, clocks, phone interfaces

**Radiofusion.com S.A.C.** **N1513**

**Radio World/IMAS Publishing** **N3500**  
*On Display:* Radio World, the newspaper for radio managers and engineers, now celebrating our 30th year. Featuring industry experts, leading columnists and journalists like Paul McLane, John Bisset, Skip Pizzi, Guy Wire, Scott Fybush, Buc Fitch, Leslie Stimson, Tom McGinley, Mark Lapidus and Ken R. Also: Radio World Engineering Extra, edited by Michael LeClair, six issues a year dedicated to "deep tech" coverage of the radio broadcast industry. We are now also preparing the 2007 Radio World Industry Source Book & Directory.

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**RCS**

**N602**

*On Display:* Selector music scheduling, Linker promo scheduling, Master Control studio automation.

**RDL Radio Design Labs**

**N3331**

*Intro:* RU-ADL2 studio-quality audio delay with a low-noise DSP, separate time delays for two audio outputs and adjustable delay from 0 to 135 ms; AV-HK1 "Hum Killer" audio isolation module for isolation in an unbalanced line, ground-loop elimination, unbalanced stereo galvanic isolation or isolation in rugged field case; AV-DC4 line-level audio divider/combiner combines audio signals to a single output, combines stereo line-level signals, feeds a mono signal to stereo inputs or combines multiple lines to a single input; AF-SH1 panel-mounted and RU-SH1 Rack-Up Series rack-mounted stereo headphone amplifiers with integrated VCA stereo level control, balanced or unbalanced inputs and switch-selectable input sensitivity.

**Remote Audio**

**N4514**

*Intro:* HN-7506 high noise environment headset monitor provides extreme isolation from outside noise and uses Sony MDR-7506 drivers with special baffling.

**Richardson Electronics**

**C526**

*On Display:* FM pallets, power grid tubes and amplifiers

**Richland Towers**

**C746**

**Ricsonix/Grace Distribution**

**N4024**

**Riedel Communications US**

**C8507**

*Intro:* Connect IP provides intelligent intercom interfacing to IP-based networks, allowing for matrix-to-matrix connections, from matrix to control panel(s) and distribution of audio over IP, converting one AES3 stream configured to individual bandwidth needs.

**RIZ-Transmitters Co.**

**N625**

*Intro:* DRM MDI Modulator produces DRM signal from max four stereo audio sources, produces DRM signal from DRM/DI stream and RIZ Content Server which generates MDI stream.

**Rohde & Schwarz Inc**

**C830**

*Intro:* UP300/350, a professional analog audio analyzer for production, laboratory and service, high signal quality, high-end measurement characteristics, extensive measurement functions, dual-channel signal generation and measurement, R&S UP 300 for analog interfaces, R&S UP 350 for analog and digital interfaces, remote control via USB interface.  
*Also:* UPV

**Roland Systems Group**

**SL3781**

*On Display:* S-4000, AR-3000

**Rosendahl Studiotechnik**

**N1822**

*On Display:* bonsaiDRIVE miniature hard disc recorder, nanoclocks digital audio clock server, nanosyncs direct digital audio clock and video sync generator, MIF3 MIDI time code interface, WIF2 Word clock interface, BIF Bi-phase interface

**RTI-Research Technology International** **C2851**

*Intro:* RTI professional tape erasers, a range of tape degaussers in sizes and capacities for professional audio, data and video tape recycling requirements; also, Optical Disc Restoring Machines remove deep scratches, clean and



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**Rubi-T Mini Console**  
6" high mixer for news, edit,  
voice tracking, and lots more.

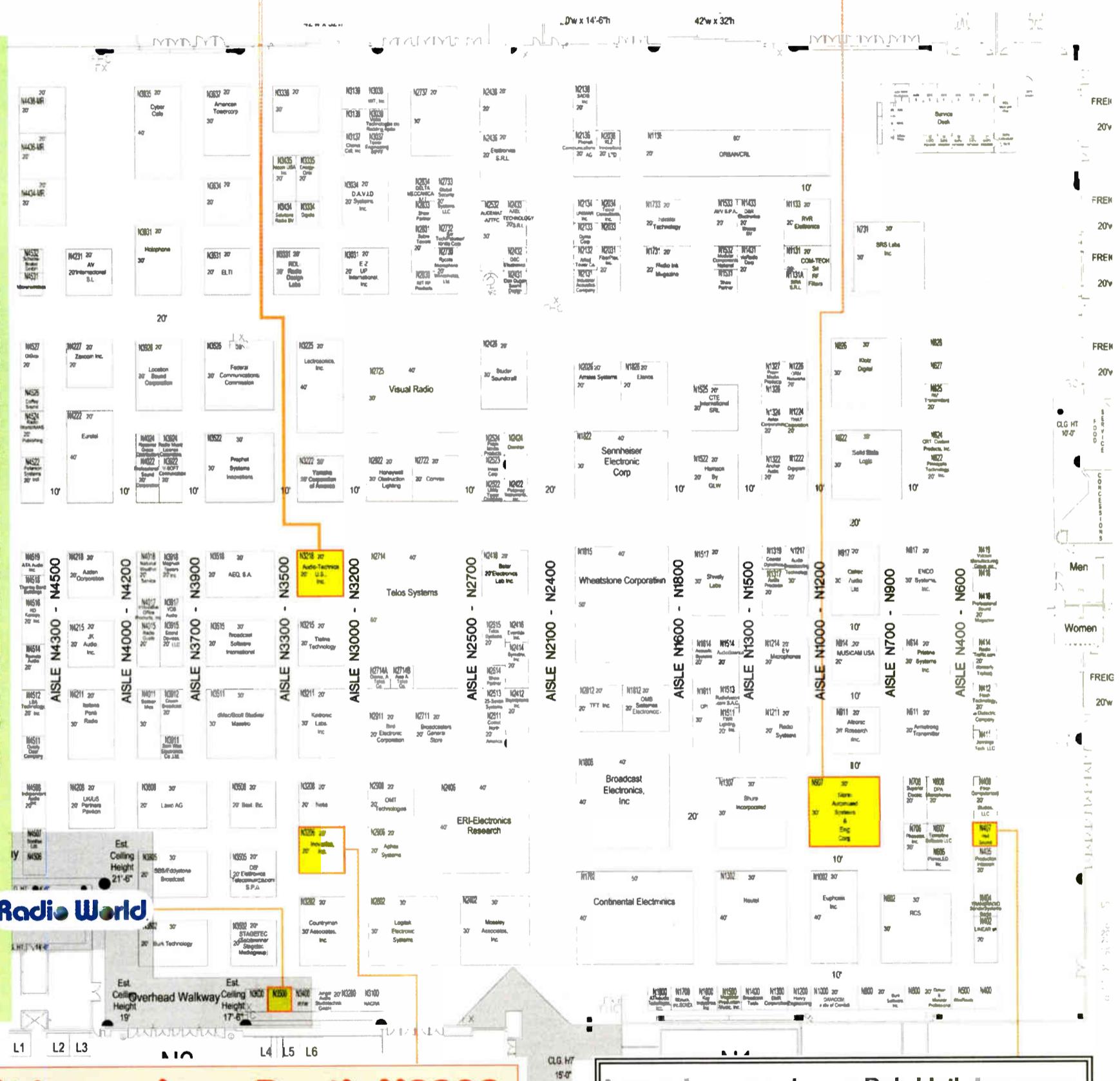
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**RVR Elettronica** N1133

**Rycote Microphone Windshields** N2731

**Sabre Towers** N2831

*On Display:* Towers and tower components

**SADIE Inc.** N2138

**Sam Woo Electronics Co., Ltd** N3911

**Sanken Microphones/Plus24** N4011

*Intro:* DCD-8 Word Clock Distriplayzer, a word clock distributor/generator; also, Sanken C0-100k Studio Condenser Microphone, a 100 kHz mic for professional recording, not just measurement purposes; the Sanken CS-1 Short Shotgun employs the same technology as previous Sanken mics in a smaller, ultra-compact housing.

**SBS/Eddystone** N3805

**Schulze-Brakel GmbH** N4532

**SDS** C9119

*Intro:* SDSleBroadcast, Microsoft Windows-based integrated broadcast software for television, networks and radio stations, it incorporates sales, traffic, programming, operations and billing into a single solution  
*Also:* SDSTraffic, SDSProposal, SDSVAR

**Sencore Inc.** SU3009, C3810

*On Display:* Digital audio analyzers.

**Sennheiser** N1822

*Intro:* SK 5212 is extremely frequency agile. It features a 36 MHz tuning window in which you can access up to 7,200 frequencies in 5 kHz steps, across the UHF spectrum (450-960 MHz); also, the NET1 Network System acts as a hub for up to 10 Sennheiser wireless systems. It coordinates and automatically configures frequencies for connected components and portable units through wireless sync on the front panel. NET1 can operate as a standalone device or connect via Ethernet to a PC for control of frequency coordination and parameters vital to the operation of multi-channel RF systems; also, the 3250 series of wireless monitors for demanding stage applications.

**Seratel Technology** N1733

**Shively Labs** N1517

*Intro:* 2914 low-power bandpass filter, compact bandpass filters for FM stations under 1000 watts; also, the 2912 low-power notch filter, notch filters for FM stations under 1000 watts; the 2930 Low-Power Branched Combiner, a branched combiner for combining two or three FM stations under 1000 watts into the same antenna; also, the 2940 low-power balanced combiner, a branched combiner for combining

two or more FM stations under 1000 watts into the same antenna.

*Also:* FM broadcast antennas, FM combiners, coaxial transmission line components.

**Shure Inc.** N1307

**Sierra Automated Systems** N907

*Intro:* Rubi-T Mini Console, Mini Rubicon broadcast console, 6" high, any number of input modules, monitor modules, talkback modules. Ideal for news booths, edit booths, voice booths, voice tracking, mini secondary effects mixer in on-air studios and lots more. Features full-length 100 mm P&G fader, On/Off, four programmable source select or bus assignment buttons; also, turnkey project management, design, fabrication and installation, radio broadcast studio design, furniture, pre-wiring and on-site installation. SAS' studio design team brings a combined 50 years of experience in major market projects. We manage the project from design to completion, teaming with a select group of top-notch custom broadcast furniture makers and field wiring crews.

*Also:* Rubicon Broadcast Consoles, 32KD Digital Routing Switcher

*Howard Mullinack, Director,  
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*E-mail: radio@sasaudio.com*

*Web Site: www.sasaudio.com*

**SIRA S.R.L.** N1131A

**Society of Broadcast Engineers** Lobby

**Solid State Logic** N822

*Intro:* C Series Digital Consoles, the C100, a broadcast console with an "all-in-one" rack design, scalable control surface, TFT channel metering displays and 5.1 surround capabilities. The C200 is based on the MTP control surface and provides dedicated one knob per function control surface. It is suitable for creative mixing applications, such as music or entertainment, where hands-on access to a large number of controls is essential. The C300 is a compact, assignable console for sweetening and mix creation; also, the AWS 900 analog workstation system combines processing and digital; also, rack-mounting outboard signal processing units

**Solutions Radio BV** N3434

*New:* Stand-alone Webradio (WMA and MP3) for easy listening to the Internet without the use of a PC/computer. A standard telephone line or DSL connection suffices.

**Songs To Your Eyes Ltd.** C2163

*Intro:* Metal Rock Riffs & Heavy Beats Vol.3. Our latest CD release featuring live metal rock bands playing agro instrumentals for production companies dealing with Xtreme sports, action, reality shows etc; also, Lounge/Groove/Elec-

tronic Vol.3 is a collection of trip hop grooves; Hip Hop Instrumentals Vol.4, the work of platinum recording artist Spike Rebel from Chicago; Trailer Music Vol.2, Composer Chris Farrell has scored over 20 feature films. This CD showcased his work with live orchestras. Vocal Cocktail Vol.2, our latest vocal compilation features the work of numerous talent in the genres of Hip Hop, Rock, '80s, Pop and Dance Music.  
*Also:* Production music library, music consultation, clearance.

**Sonic Solutions** SL3750

**Sonifex Ltd** N4507  
*Intro:* DHY-03 offers digital telephone performance over a standard analog phone line without compression, universal line compatibility, input and output gain adjustment, typically 75 dB rejection, input and output metering, conferencing, RS-232 serial control, local/remote line hold switching, integrated auto-answer, a balanced mic/line input and balanced line output; also, RB-ADDA2 combined A/D & D/A converter, 24 bit 192 kHz, a 1U rack-mount which produces an AES/EBU, S/PDIF or TOSlink optical level digital audio output from a balanced XLR or unbalanced phono stereo audio input and vice versa. It supports high sample frequency rates up to and including 176.4 and 192 kHz, has additional independent AES/EBU and Word Clock synchronizing inputs so that the A/D and D/A sections can operate independently, has front-panel push-button switches for main settings and a serial RS-232 port so that the RB-ADDA2 settings can be controlled remotely.

*Also:* Net-Log 4 channel network audio logger. S2 analog/digital radio broadcast mixer. Redbox range of DACs, word-clock, audio & headphone DAs, microphone & matching amplifiers, mixers, source selectors, silence detectors, limiters, a power controller and stereo to mono converters.

**Sound broadcast service Ltd.** N3805

**Sound Devices LLC** N3915

*On Display:* MixPre, 302 and 442 Field Mixers, 7-Series Audio Recorders

*Mr. Jon Tatooles, Managing Director*

*300 Wengel Drive*

*Reedsburg, WI 53959*

*(608) 524-0625*

*(800) 505-0625*

*Fax: 608-524-0655*

*E-mail: jon\_tatooles@sounddevices.com*

*Web Site: www.sounddevices.com*

**Sound Ideas** C2151

*Intro:* Series 6000 Extension VI, collection of general sound effects on 10 CDs and one DVD ROM; Headline News Music, 81 tracks of royalty-free production music tailored for newscasts; Club Elements, 420 musical elements with a "club feel" on two CDs; Podcasting Production Toolkit, 128 kbps MP3 sound effects and music on one CD-ROM for podcast productions; and Twisted Tiger Music II, 100 royalty-free music tracks.

*Also:* Mix Music, Twisted Tiger Music, Mix Signature Music.

**Soundcraft** N2426

*Intro:* BB100, small-format analog audio console in four chassis sizes with up to eight sub-groups, four internal mix-minus feeds and eight aux busses; MH2, medium-format dual-purpose live sound reinforcement console in four frame sizes with four stereo channels, four-band sweepable EQ and 10 aux channels; Live 8, full-featured front-of-house desk in four frame sizes with two stereo channels, eight group busses and UltraMic+ preamps; EPM compact multiformat audio mixer in three frame sizes with two stereo channels, two configurable aux busses, three-band EQ and transparent GB30 preamps.

*Also:* RM1ds and RM1d digital on-air audio consoles and B800 and B400 analog broadcast audio consoles.

**Soundfield Ltd.** N1326

*Intro:* ST350, portable surround microphone system with the ability to feed B format and stereo signals simultaneously.

**Soundminer Inc.** C2063

*Intro:* Soundminer XP, a Windows XP version of the Macintosh OS Soundminer asset-management system.

*Also:* Soundminer asset-management system.

**SRS Labs Inc.** N731

**Staco Energy Products** C107

**StageTec/Salzbrenner StageTec Mediagroup** N3502

**Stainless LLC** C2447

*On Display:* Towers and tower modifications; analysis and engineering studies; installation and maintenance services.

**Statmon Technologies Corp.** C8511

*Intro:* Axess v. 6.1, the latest version of the Axess remote control and facility management product suite uses Internet protocol to provide multisite, multiuser facility control and management, including EAS remote operation, alarm management and notification and data logging; EIF-32+, Web-enabled facility management and remote control solution with 10/100baseTX network connectivity and support for up to 192 channels of telemetry, status, control, external serial device connection and on board temperature, voltage and humidity sensors.

**Stratacache** SU231

*On Display:* OmniCast, data distribution software that consumes minimal network bandwidth and server resources when sending digital content.

**Stratos** C9843

*Intro:* BGAN, Broadband Global Area Network mobile satellite service providing simultaneous high-speed data up to 492 kbps and voice connectivity from almost anywhere from a lightweight satellite terminal.

*Also:* Inmarsat, Iridium, Globalstar and VSAT solutions.

**Studer** N2426

*Intro:* The OnAir 3000Net option migrates OnAir 3000 desks from a standalone operation to an open, networked environment that taps connected Studer SCore units for control and access to all interconnected audio sources; also, the Call Management System (CMS) uses VoIP technology to replace the physical telephone hybrids and codecs with integration to most PBX systems with VoIP interfaces, as well as POTS lines, ISDN lines or the Internet.

*Also:* Vista 8 digital live production mixer; OnAir 3000 and 500 Modulo on-air audio consoles.

**Superior Broadcast Products** C131

*On Display:* FM solid-state transmitters, FM broadband antennas, coax and transmission line and connectors.

**Superior Electric** N708

*On Display:* Stabiline power quality products, including automatic voltage regulators, uninterruptible power supplies, transient voltage surge suppressors and power conditioners.

**Switchcraft Inc.** C9316

*Intro:* Studiopatch Series audio patchbay with support for the EZ Norm concept and geared

### Product Showcase

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toward use with digital audio workstations; EH Series connectors mounted in XLR panel housing, including BNC, RCA, USB, FireWire, DB-9, DB-15 and other styles.  
Also: Audio connectors, patchbays/patchcords, adapters, jacks/plugs

**Symetrix Inc.** **N2414**  
*Intro:* GENx192 low-jitter studio master clock with eight Word, four AES-11 and two S/PDIF clock outputs, as well as AES-3/11 and Word clock input; 88192 eight-channel A/D/D/A converter; Orion 8088 DSP with eight analog line-level inputs, +4 dBu / -10 dBV software selectable and eight analog line-level outputs, +4 dBu, as well as two 66 MHz Sharc floating point processors and RS-232, RS-485 and Ethernet control ports; 6200 digital voice processor with dual mono or stereo operation mic preamps, filters, de-essers, EQs, compressors/limiters/AGCs and symmetry, stores up to 256 voice profiles with recall by remote or time-of-day schedule.  
Also: 6100 broadcast audio profanity delay, 581E audio distribution amplifier, 304 headphone amplifier and 422 stereo AGC-leveler.

**Systems Wireless** **C5119E**

**Tascam** **SL2913**  
*Intro:* HD-P2 high-definition portable stereo recorder supports up to 192 kHz/24-bit recording with two built-in XLR mic-level inputs with phantom power and storage to CompactFlash with time-code input.

**Techni-Lux Inc.** **C9641**  
*Intro:* Gaffstage Tape, cloth tape with a non-residue adhesive designed to not leave a gooey mess on cables upon removal.

**TecNec Distributing** **C5541**  
*Intro:* JackReel-3 high-capacity steel-frame cable reel with a cushion-grip carry handle; JackReel-CVR3 connector plate mounts on a JackReel-3 center hub for punching and loading a variety of connectors on the reel; DelvCam DELV-LCD1 combo stand for an LCD monitor; and VESA LCD mounting bracket for field and studio monitoring.

**Telecast Fiber Systems Inc.** **SU4717**

**Telestream Inc.** **SL2781**  
*Intro:* Flip4Mac WMV Components extend QuickTime-based applications so that Mac users can play, import and export Windows Media video and audio files on Mac OS X.

**Telos Systems** **N2714, N2515**  
*On Display:* POTS/PSTN and ISDN codecs, ISDN hybrids, interface products for talkshows, teleconferencing, audio production, remote broadcasts and intercom applications.

**TextCaster** **C10247**  
*Intro:* TextCaster, permission-based text messaging system for delivering information to listeners via SMS text messages; iBAS Internet Broadcast Alert System, software application gives law enforcement personnel the ability to feed public safety information, such as AMBER Alerts, into a station's Emergency Alert System, Web site, text messaging service, etc.

**TFT Inc.** **N2012**  
*Intro:* 5200 Series STL transmitter and receiver with front-panel frequency agility for analog composite or monaural STL or backup applications.  
Also: STLs, RPUs, modulation monitors and Emergency Alert Systems.

**THAT Corp.** **N1224**

**Thermo Bond Buildings** **N4518**

**Tieline Technology**

*Intro:* i-Mix G3 mixer-codec and Commander G3 field and studio codecs adds wireless broadcasting over the Internet capabilities via a broadband cellular network to its PSTN/POTS, ISDN, GSM wireless and wired Internet transmission capabilities.  
Also: Commander G3 field and studio codecs; i-Mix G3 codec with built-in mixer; and ProSolutions audio/video products.

**Torpey Time**

**SU946**  
*Intro:* Model CLK-29 compact clock display able to display time information from Leitch, ESE, SMPTE, EBU, DQS, IRIG-B, NPR or NMEA-183 time code.

**Tower Consultants Inc.**

**N2034**

**Tower Elevator Systems Inc.**

**2116**

*Intro:* Smart Reel Control System, direct wired

**Towerline Software LLC**

**N3037**

*On Display:* Tower analysis, inspection, design, retrofit and upgrade services.

**Transaudio Group**

**N407, N1326**

**Transradio SenderSysteme Berlin AG**

**N404**

*(formerly Telefunken SenderSysteme Berlin AG)*

*Intro:* The DRM DMOD2 Digital Radio Mondiale exciter for the 9 kHz to 27 MHz frequency range includes a passive reserve, RF backchannel, single- (SCS) and multi-channel simulcast (MCS) functions, audio

encoder and GPS receiver.

*Also:* MF transmitters, VHF/FM exciters, DRM exciter and DRM receivers

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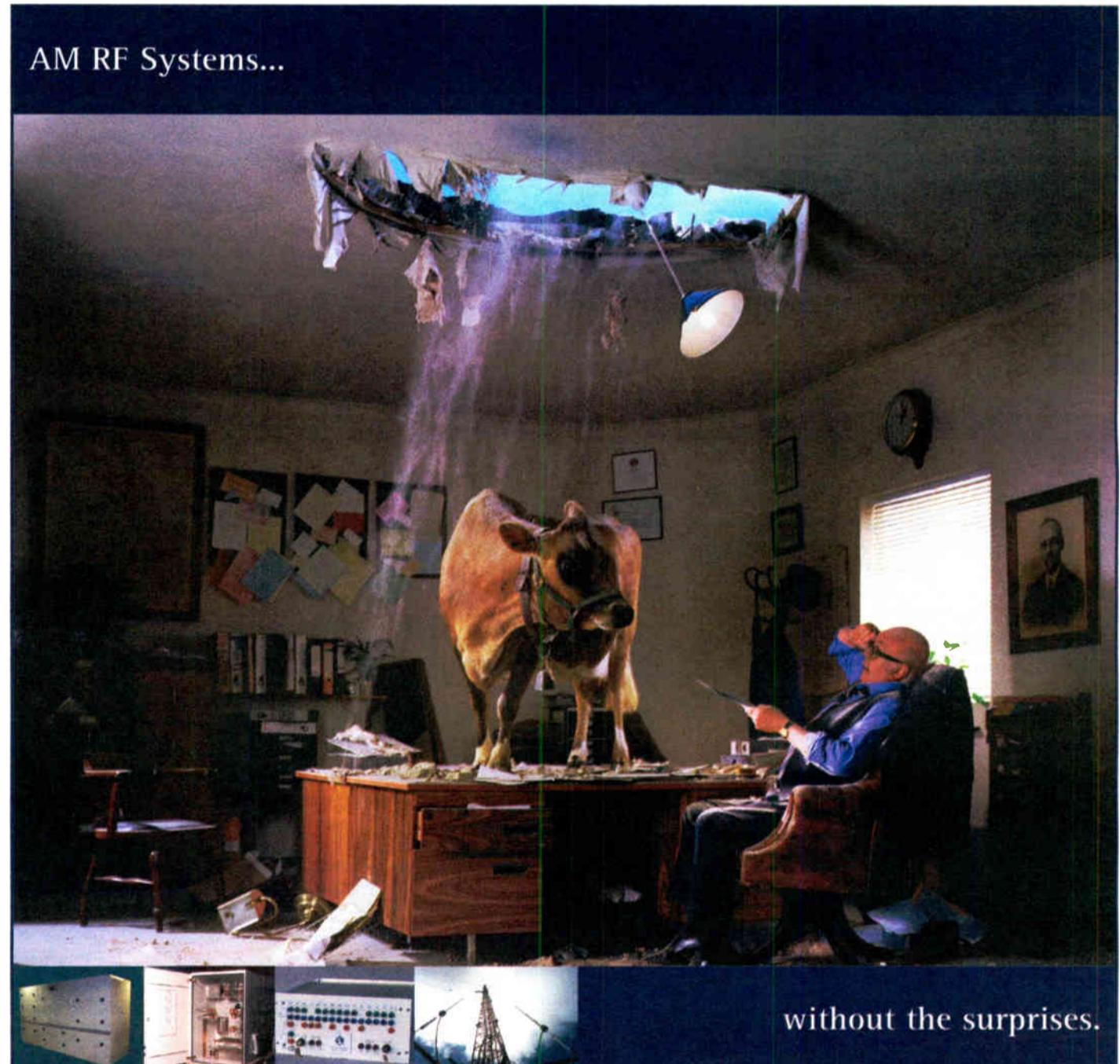
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Web Site: [www.tsb-ag.com](http://www.tsb-ag.com)

**Triangle Software LLC**

**C9313**

*Intro:* Online Mapping, zoomable maps showing traffic flow and up-to-the-minute traffic incidents with interactive mouseovers provides real-time traffic speed and incident data; BeatTheTraffic technology allows users to personalize information for their own travel routes.

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TSL	SU1433	Warning Radio System, branded dual-tuner clock radios with large text display that respond to RDS weather, emergency and community-service messages.	tems; Terrain-3D, uses OpenGL graphics technology to model RF signals from 20 MHz to 20 GHz over a 3-D terrain graphic.	screen displays; EnCompass II workstation for desktop LCDs or CRTs with full wire and cable management; Slim-line console with Corian worksurface and modular tube monitor wall with open or closed architecture and wire raceway management, adjustable worksurface, multiple chase widths and TruForm decorative side panels.
TWR Lighting Inc.	N1511	Intro: Online yellow pages and local search engine for searching in English, Spanish, Chinese or a mixture of languages through a database of 15 million U.S., Chinese and Canadian businesses. Japanese, German and French support to be added.		
Tyloon Inc.	SU853	Also: RD10, RDS receiver in serial and USB versions for data applications such as road signs and billboards.		
UK/US Partners Pavilion	N4208	<b>Bill Marriott, President</b> 760 North Drive Suite B Melbourne, FL 32934 (321) 242-0001, ext. 111 E-mail: info@viaradio.com Web Site: www.viaradio.com		
Unimar Inc.	N2134	Videoquip Research Ltd. C6736		
On Display: Obstruction lighting products for towers and hazardous areas; strobes, incandescent, LED, dual lighting and custom-design solutions		Intro: AVD-2, video and audio silence detection with a 2-x-1 video and stereo audio switching network for main and standby video and stereo audio signals, switching decisions based on a variety of signal-loss conditions; AVU-8H, high-resolution meter for digital AES/EBU audio signals with four digital inputs and an optional ADAT connection and eight 52-segment multi-color displays with scales superimposed within the display.		
Unlimi-Tech Software	SL5407	Also: Phase 3.		
Intro: FileCatalyst, file acceleration software for sending large digital files over slow or congested networks; Files2U, Web-based file sharing solution.		Vinpower Digital Inc. SL4585		
Utility Tower Co.	N2522	Intro: Titan Pro, large-capacity robotic CD/DVD autoloader duplicator can duplicate up to 1,000 CDs or DVDs overnight; Titan Lite, 100-disc-capacity robotic CD/DVD autoloader duplicator; and SharkCopier, standalone DVD/CD duplicator.		
Valcom Limited	N419	Visual Radio N2725		
VCom Inc.	SU547	Voice Technologies c/o Redding Audio N3038		
Intro: VistaMax wireless broadband products based on the WiMax standard, including coverage options suitable for densely populated urban environments.		V-Soft Communications N3922		
VDB Audio	N3917	Intro: Probe 3, mapping and signal propagation prediction program for the 20 MHz to 20 GHz frequency range with polygon mapping graphics and precise coordinate information and map projections; FMCommander, FM allocations program for standard minimum separations studies and contour-to-contour frequency searches with a new antenna pattern editor; AM-Pro, AM standard band broadcast coverage and allocation study program plots both ground- and sky-wave signal contours as well as performs RSS studies with an interactive pattern editor for constructing and editing directional antenna sys-		
viaRadio Corp.	N1431	Wegener Communications SU1376		
Intro: VA20, rackmounted DSP-based RDS decoder with screen and jogwheel can monitor up to eight stations with different alarms for each, including signal measurements such as low modulation and RF and reporting of alarms via e-mail or SNMP; an on-board MP3 engine can skim and record audio to compare sound, spots, etc.; VC02, DSP-based RDS/RBDS encoder with screen and jogwheel to support all RDS/RBDS features, including scrolling text, can also act as a backup remote control with 11 relays and inputs and reporting of alarms via e-mail and SNMP; Emergency		Intro: Audio iPump 6420 media server, designed for regionalizing affiliate radio broadcasts with file-based program distribution mixing seamlessly with live programming, incorporates an integrated digital satellite receiver, IP router and multimedia server with digital and analog audio output, as well as streaming functionality, handles customized playlists, network control commands and audio programs transmitted over satellite to targeted iPump Media Servers for storage or output for live broadcast, onboard AM/FM tuners digitize the bookkeeping of advertisement plays.		
Whitstone Corp.	N1815	Also: Satellite IRDs and COMPEL network control.		
Easy Ordering in Nanoseconds		Raj Babbar, VP of Worldwide Sales 11350 Technology Circle Duluth, GA 30097 (770) 814-4000 E-mail: r.babbar@wegener.com Web Site: www.wegener.com		
		Wheatstone Corp. N1815		
With the ONLY 1,700+ page catalog of the NEWEST information 4 times a year, and daily updates to over half a million products on-line, you can depend on Mouser for easy ordering in nanoseconds!		Intro: Audio over IP automation interface, single-wire direct connection between a Bridge networked audio system and the station automation system, eliminating the need for soundcards; 5200 D utility news mixer with analog or digital program master output and assignable mix-minus bus output; D-7 and D-12 TV consoles for on air and production; Audioarts Engineering AE-Net 8 audio networking system with eight network ports for audio I/O or console interface; Vorsis AP1000, multiband, dual-path FM-plus-HD processor; Vorsis HD P-3, HD Radio multiband processor; and Vorsis M-1 digital microphone processor.		
mouser.com (800) 346-6873		Also: Generation Series control surfaces; SR-9 surround sound control surface; Wheatstone Bridge and Wheatnet 4864 central switch networked audio products; Audioarts R-55 e, D-75 and A-line studio furniture; and Vorsis AP3 digital signal processor.		
<b>MOUSER</b> ELECTRONICS		Whirlwind C6541		
NEW Products NEW Technologies NEW Suppliers		WhisperRoom Inc. SL4387		
The NEWEST Semiconductors   Passives   Interconnects   Power   Electromechanical   Test, Tools & Supplies		On Display: Sound Isolation Enclosures		
Mouser and Mouser Electronics are registered trademarks of Mouser Electronics, Inc. Any other product and company names mentioned herein are trademarks of their respective owners.		White Sands Engineering C739		
		On Display: Mini RG-59 one-piece connectors, BNC, F, RCA and specialty crimp and compression, Mini RG-59 23 AWG coax cable, one-piece RG-59 and RG-6 connectors.		
		Will-Burt Co. The C7543		
		On Display: Telescoping pneumatic and manual vehicle masts and accessories		
		Winsted Corp. SU741		
		Intro: Talon free-standing console with multiple talons for supporting large and small flat-		
		screen displays; EnCompass II workstation for desktop LCDs or CRTs with full wire and cable management; Slim-line console with Corian worksurface and modular tube monitor wall with open or closed architecture and wire raceway management, adjustable worksurface, multiple chase widths and TruForm decorative side panels.		
		WireCAD C9310		
		Intro: WireCAD v. 4 creates .DWG compatible drawings and specialized reports, such as cable labels, run-sheets, bill of materials, without any need for the user to have drafting skills, new functions include AutoRack and AutoScheme layout and drawing tools, WireCAD also maintains conductor level data, creating both pin-out lists and conductor detail drawings.		
		Lisa Holbrook, Sales 1300 S. Secretariat Way Nampa, ID 83686 (661) 253-4370 FAX: (661) 310-9251 E-mail: sales@wirecad.com Web Site: www.wirecad.com		
		WireReady NSI N500		
		Intro: RDSReady expands data delivery on FM, HD Radio and Internet streams beyond automation system capabilities by generating RS-232 based "now playing" data, multiplexing additional time-based announcements, integrating wire-service headlines or EAS alerts, school closings, traffic or weather and other promotions; AlertReady, automatic alert notification and archiving system for EAS Receivers and AMBER Alerts; MpegReady, automatically converts MPEG and WAV files whenever an MPEG or WAV file is saved to a particular folder or location on a LAN; PodcastReady, automatically records, converts, compresses and pastes together playlists of standard WAV or MP3 files and then publishes the podcasts along with RSS feeds to one or more Web sites.		
		Also: ControlReady automation for satellite news/talk and music on HD, NewsReady electronic newsroom, WebReady web content delivery system and SalesReady broadcast telesales and AE contact management software.		
		David Gerstmann, President 56 Hudson St. Northborough, MA 01532 (508) 393-0200 (800) 833-4459 FAX: (508) 393-0255 E-mail: sales@wireready.com Web Site: www.wireready.com		
		Wireworks Corp. C3043		
		WIT Inc. N3039		
		Xytech Systems Corp. C860, C11610-MR		
		Intro: Shift Scheduling; Article Management; and Quality Control.		
		Also: Enterprise v. 8.5.		
		Yamaha Corp. of America N3222		
		Z Technology C2039		
		On Display: R-507 programmable field-strength meter for AM and FM measurements.		
		Zaxcom N4227		
		Intro: TRX900 and TRX990 for boom applications, digital wireless microphone transceivers with built-in IFB receiver, RF remote control and up to six hours of internal recording with time code synchronization; RX4900, combines four stereo receivers in 1 RU of space; Deva Mix-12, mixing surface for Deva IV and Deva V hard disk audio recorders.		
		Also: Deva IV and Deva V hard disk audio recorders; stereo ENG digital wireless systems.		



Radio World, March 29, 2006

Past columns are archived at [www.rwonline.com/reference-room](http://www.rwonline.com/reference-room)

## The King of Shipboard Containers

by John Bisset

Grady Moates of Loud and Clean Consulting in Boston has a contract client who is king of the shipboard storage containers. I'd heard of using these steel containers for transmitter buildings, but never seen the idea implemented in such a grand way.

Langer Broadcasting Group President Alex Langer has chosen 8x20- and 8x40-foot buildings for about

Fig. 3 shows panel-mounted coupling components bolted to the steel wall. Partly visible at the right rear of the picture, electrical boxes and conduit are mounted to a wooden board, also bolted to the wall.

White-painted walls and corner-mounted fluorescent fixtures keep the building bright, helpful for maintenance and troubleshooting. The doors are double-latched, with a rubber gasket, so the inside is clean and dry.

Reach Grady Moates at [grady@loudandclean.com](mailto:grady@loudandclean.com).



Fig. 1: A nice clean interior for a transmitter shack.



Fig. 2: Conduit is used to link storage containers.

\$3,000 new. Compare that to a concrete building running \$25,000 or more.

Used containers may be less expensive, Alex says, but you never know what you're going to get. The extra money for a "new" container is well spent, according to Alex. The new containers are painted inside, as seen in Fig. 1, and the steel shielding is an added benefit, according to Grady.

At one site, three storage containers hold the main transmitter, the phasor, the auxiliary transmitter and the tower coupling network. Inter-container cabling is handled through conduits linking the buildings, seen in Fig. 2.

★ ★ ★

John Stortz is engineering manager for the Moody Broadcasting Group in Central Florida. He writes that he was disturbed to read about the "remote relay reset assembly" in our Feb. 1 column. No wonder the inventor wanted to be anonymous, he said.

John's hope was that this was only installed as a temporary solution. Unfortunately, "temporary" can become "permanent" easily, especially at stations where the owner/manager counts every penny.

He suspects this engineer assumed the breaker was

tripping at the proper current. Ask any electrician and they will tell you circuit breakers can fail. John was tempted to install a similar design to reset a plate breaker on a CCA transmitter. It too had the annoying habit of tripping in the middle of the night, about once every two weeks. John, also, had assumed the breaker was doing its job, but found he was wrong.

He tested the 175A, three-phase breaker and discovered the middle section would only hold 115A for about 30 seconds. The normal input current for the plate transformer was 112A per phase in the daytime. No more calls after they replaced the breaker.

In case readers are wondering how they tested a 175-



Fig. 3: Securing copper ground strap

amp breaker, John and his staff used 175 amps, of course. They built an adjustable high-current power supply from the "Junque Box," which cost almost nothing.

The first item is a good chunk of iron for a transformer. They had an old plate transformer sitting around from an HT-20 transmitter with one shorted secondary. It was too heavy to move, so John had been cutting the copper off, before attempting to tear apart the iron, to reduce the weight to manageable pieces for disposal.

John's assistant, Don Jeerings, pressed him to save the iron, with the primaries intact. This became the start for

See NUBS, page 46 ►

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Fig. 4: Slip a plastic nub over that long bolt to save yourself a headache.

## Nubs

► Continued from page 45  
their high-current breaker tester. Now the transformer needed a low-voltage/high-current secondary. Don had about 25 feet of heavy welding cable that had fallen off some contractor's truck, which he found laying on a highway. It became the three-to five-turn secondary, with enough extra cable to conveniently reach to the breaker.

One more item was needed, which was contributed from another engineer's Junque collection — a 50A variable autotransformer, sometimes known by the brand names Variac or Powerstat. Although the autotransformer was oversized, the price was right. Probably a 10-amp autotransformer would have

done just as well.

The autotransformer allowed the engineers to dial up any voltage between zero and about 130V, which was applied across the 240V primary of the old plate transformer. The secondary, connected to the breaker only, would produce any current from zero to over 300 amps, depending on the autotransformer setting. A clamp-on ammeter that they owned would read a maximum of 300A.

Dealing with 300 amps sounds dangerous, but it's not. At the setting for 300A, the open circuit secondary voltage was about one volt, as John recalls.

After replacing the breaker, no more dropouts. Since this test, John and Don have installed casters to the old transformer to make it easier to move around.

John Stortz is at [ka4flx@aol.com](mailto:ka4flx@aol.com).

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RSI, which offers RF safety training and compliance, is coming to Chicago in April, and other locations are scheduled.

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Fig. 5: RSI has a number of RF safety seminars on the schedule.



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*John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is the northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386, or [jbisset@bdcast.com](mailto:jbisset@bdcast.com). Faxed submissions can be sent to (603) 472-4944. Submissions for this column are encouraged, and qualify for SBE recertification credit.*

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# Surround Compatibility Revisited

## A Face-Off With Frank Over MPEG Surround and Treatment of Surround Broadcasting Compatibility

The Feb. 1 issue of Radio World included an opinion piece on the editorial page titled "Compatibility Begins at Home." It described the dilemma faced by broadcasters as they move toward backward-compatible surround sound broadcasting, but find that much of the 5.1-channel music content available today is produced in a form that may not be compatible to stereo or mono listening.

The column posed the central question of how FM stereo would have fared if much of the stereo music content of the day had not summed well to mono.

### Point

To restate the premise of the opinion piece, this problem stems from practices the music industry has followed since the introduction of DVD-A and SACD release formats for surround content. Unlike the old quad days, or the tradition of the TV and cinematic industries — where an audio encoding system allows a producer to create a single sound mix to

### Counterpoint

A well-known industry veteran took some issue with the opinion, however.

Frank Foti of Omnia/Telos fame — and a host of earlier, high-profile station chief-engineering credits — has been among those broadcast audio professionals actively involved with development of workable surround broadcasting for digital radio. Frank sent RW the following comment, from which I excerpt:

"I mostly agree with 'Compatibility

Begins at Home,' but it leaves the impression that all surround systems are affected by the downmix problem.

"Downmix is only a problem for the matrix schemes. The MPEG Surround technology can transmit the 'artistic' stereo mix as the producer intended it. Listeners receive exactly the familiar stereo/mono version with no modification of any kind. Fidelity might be a bit better, though, since both SACD and DVD-Audio disks have better resolution than 16-bit CDs.

"In some cases," Foti wrote, "the SACD or DVD-A stereo version might be re-mixed from the multi-track master to improve quality and motivate purchase

## The Big Picture



Photo: Gary Hayes, BBC

**by Skip Pizzi**

of new disks. This happened in the transition from vinyl to CDs as well, and was seen as a benefit rather than a problem.

See SURROUND, page 48 ►

I mostly agree with 'Compatibility Begins at Home,' but it leaves the impression that all surround systems are affected by the downmix problem.

— Frank Foti

address all listening arrangements — the large storage capacity of these new formats allows the inclusion of separate stereo and surround versions of a release's content.

This allows surround music mixes to be optimized for surround listening only, without regard for how they might sound when "downmixed" to stereo or mono. While this approach provides content creators with considerable creative freedom, it does not mesh well with the spectral efficiency requirements of broadcasting, which call for a singular, compatible solution.

Given this context, the RW opinion concluded that all the effort underway to develop a compatible mono/stereo/surround broadcasting system for HD Radio might be in vain if there was not a large and reliable source of content that could take advantage of it. If surround audio is produced in a non-compatible manner to begin with, no transmission system, however ingenious its design, can make the content compatible downstream.

Therefore the opinion called for the broadcast and music industries to come to a mutually beneficial compromise, allowing radio stations to broadcast a single music mix that was compatible to all known listening formats.



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# Surround

► Continued from page 47

"Occasionally, the stereo version is completely different from the surround. For example, on the 'Tommy' SACD there are a couple of songs where the 5.1 versions are longer than the stereo versions. Pete Townshend used a different take for the 5.1. In cases like this, where the stereo mix is not useful, the simple ITU-775, 5.1-to-2.0 downmix method usually results in an acceptable compromise that is stereo/mono compatible and pleasing to listen to, though it may differ from the familiar stereo original."

"Matrix systems force stereo/mono listeners to a downmix because there is no way to transmit the original stereo ver-

sion. But then the matrix systems go on to phase-shift the channels as well — an even bigger problem. Even if music producers were able to somehow constrain their surround mixes for better downmixed stereo/mono compatibility, you'd have the phase-shifting to contend with."

"I say, let producers mix as they wish. Let them go creatively wild to make the most impressive aural experience they can. Then let's broadcast that faithfully to wow our listeners," Foti concluded.

## Rebuttal

I also agree with Frank on much of his rebuttal, but have to take issue with a few points. (I know he won't mind if in the interest of full disclosure we also mention that his company has historical business alignments with Fraunhofer IIS, one of the developers of the MPEG

Surround format.)

Yes, MPEG Surround attempts an elegant solution, and addresses some of the difficulties inherent to "matrix" (or what I prefer to call "composite") surround systems — i.e., those that encode surround information directly into the stereo audio mix, rather than extracting the steering data and transmitting it as a separate signal, as the "component" approach used by the MPEG Surround format does.

But it is not a panacea, nor does it provide its solution without some additional cost over composite systems.

First, if the MPEG Surround system is used in the way Frank suggests, such that the "artistic stereo" audio is broadcast along with steering data gleaned from the same song's surround mix, the stereo may come through as intended, but now

the *surround* reproduction may be compromised. Let's call this process *substitution*. It simply shifts the problem from the stereo to the surround listener, and although this may lessen the impact since that latter audience is smaller for now (and may always be), it's only a displacement of the issue, not a true solution.

Further, while this substitution approach is indeed unique to MPEG Surround today, it only works when the song's stereo and surround mixes are released in synchronized forms — which, as Frank mentions, is not always the case.

The MPEG Surround developers refer to these conditions (where the two mixes are actually different songs) as "pathological cases." I imagine some musicians would resemble that remark <rimshot>, but it doesn't allow MPEG Surround to work its substitution trick, and such cases may be on the increase.

So when the two mixes aren't synchronous, an incompatible surround mix will suffer from the same problem in MPEG Surround as it does with composite systems, since all the formats then rely on a downmix for the stereo audio. (And Frank's reference to such downmixing by an official ITU recommendation's algorithm may look impressive, but it doesn't make an incompatible surround mix sound any better.)

By the way, the music industry isn't fond of either the downmix or the substitution approach, since in each case they

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**Although MPEG Surround offers some unique help, it also presents some unique costs.**

feel the broadcast may be violating the intent of the artist — either for the stereo or the surround output, respectively. The industry hasn't waded into the fray yet officially, but they have made informal public comment that they don't want radio messing with either mix. (One could counter that radio has always taken some liberties in this respect, given its tradition of audio processing, but that's another argument.)

### Cost concerns

The substitution approach also would require the maintenance of a double music inventory by broadcasters.

This is not as big a technical problem as it sounds, since it's fairly easy to store all eight channels ( $5.1+2 = 8$ ) together in a single audio file, for which there are already standard uncompressed audio file formats proposed. The ingest process might be a bit trickier and slightly more time-consuming, but potentially more problematic here is audio routing, especially since not *all* content would be stored this way, and the main channel's digital and analog services would require separate feeds. Audio storage capacity also would be affected (such uncompressed surround + stereo files are 4x bigger than stereo-only equivalents).

I know Frank's colleagues at Axia have a good answer for this in moving to See SURROUND, page 49 ►

## NEWS WATCH

## KGZO Suffers A Mighty Wind

One radio station and 15 various paging and communications companies with facilities on McKittrick Summit found themselves without power — or much in the way of buildings — after a powerful storm blew through the transmitting site just west of Bakersfield, Calif., in January, a story originally reported by the CGC Communicator newsletter.

Chris Compton, director of engineering at Radio Nuevavida told Radio World that forecasters had predicted

fairly strong winds as part of a typical Pacific winter storm. His local affiliate, KGZO(FM), then was knocked off the air. When the generator didn't power it back up, he went to investigate; what followed was a white-knuckled ride in his Jeep Cherokee up McKittrick in the dark.

When he arrived at the site he couldn't manage at first to get out of his vehicle due to the force of the winds. When he could finally investigate, "I had all I could do to stay upright." He said he could see cattle rolling down the side of the hill. Fearing for his safety, he returned down the summit, breaking a drive shaft on his Jeep. With the help of a farmer, he managed to get it off the mountain.

When he returned the next day he saw what he had driven through. "Power poles were on the ground like Pick-Up-Stix," he said. Dawn at the summit revealed devastated buildings,



KGZO's Transmitter Building

10-ton HVAC units hurled 20 feet from their moorings and broken drive shafts on Compton's Jeep.

However, KGZO's Ku dish remained, and when the generator was started, the station came on the air. The Crown transmitter, Shively antenna and satellite dish all survived.

The next off-air emergency seemed minor in comparison; another strong wind a week later blew a piece of debris into the dish, knocking out the LNB. That situation was rectified quickly, and KGZO continued broadcasting from the facility, thanks to a quick rebuild and restoration of power in difficult conditions.

— by Timothy Kimble

# Surround

► Continued from page 48  
an IP-routed system, but some broadcasters may find this a bigger adjustment than they are willing to make just to add surround sound. Ultimately, that kind of system could be a wise choice when a facility move or rebuild is involved, but it's likely that more justification than surround conversion alone will be required for such a shift.

Finally, for its optimal operation the MPEG Surround system also levies an opportunity cost to the broadcaster by requiring the full-time dedication of ~5 kbps of a station's IBOC payload bandwidth to deliver the "steering data" component. While this may seem negligible today, it may not be considered so if a robust IBOC datacasting business evolves in the future.

Note also that neither the original opinion nor my response here takes any position on the relative aural fidelity or imaging quality of the various surround systems proposed for IBOC use. While those attributes should certainly figure into the holistic assessment that broadcasters undertake when considering any surround solution, the sole issue under discussion here is the compatibility question.

So although the MPEG Surround system offers some unique help on the compatibility problem, it also presents some unique costs to broadcasters in doing so. It also doesn't truly solve the problem. The sole, complete solution to this issue — as presented in the RW opinion column — remains downmix-compatibility in the original content. Let's hope the music and broadcast industries can work together and successfully resolve this matter in the near future, as they have done many times in the past.

Skip Pizzi is contributing editor of Radio World. RW welcomes other points of view; e-mail [radioworld@imaspub.com](mailto:radioworld@imaspub.com).

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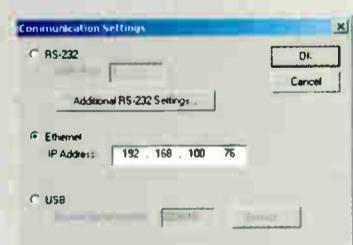
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# What's in It for New Engineers?

*Tech Managers Comment on Why They Continue To Find a Crazy Business So Rewarding*

by Allen J. Singer

Radio engineering has come a long way in a decade.

In years past, engineers were the fix-it guys, the equipment installers, the light-bulb changers. They could be station heroes or just the grumpy guys in the back room. They made the mast in the van go up and down, could turn off the transmitter with a single phone call and installed computers.

Ah, computers. No more mainframes, no more reel-to-reel machines, no more IVRs, and inevitably, fewer jocks.

Without question, computers have changed the direction of broadcast engineering. Anecdotal evidence suggests

didn't push this button.") They have to stay up to date on trends. They often are given projects by managers who may not have the station's — or engineer's — best interests in mind.

It takes a certain kind of person to want to do all this as a career.

Max Turner, regional engineering manager for Susquehanna, loves his job. To be a good broadcast engineer, he feels, "you must have a passion for the business." And many engineers do.

"We're like Disney Imagineers," says Turner. "In radio, an engineer does magic on a daily basis."

Engineers enjoy the satisfaction of solving unique and important problems. Without the expertise of the engineer, a station may go off the air and stay off for days at a time. No station can afford that.

Education is important, though a degree in electronics is not necessarily required. Like many other engineers, Surgeon fixed studio equipment during a shift in his first on-air gig. Seeing his work, the station owner urged him to attend a two-year trade school.

After contract engineering for a couple of years, Surgeon became a chief in Missouri, then Columbus, Ohio, before moving on to Cincinnati.

## Field know-how

Turner attended Memphis State and Arkansas State universities and holds a degree in electronics. He says students should learn basic electronics, from any kind of institution. And because computers are "such an integral part of what we do," he recommends building those skills — especially because networks continue to expand, often farther than might have been imagined just a few years ago.

"Today our WANs extend to the transmitter site," he said.

Fundamental courses in IT are important. See ENGINEERING, page 52 ►

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FlashMic shown actual size



## Engineering

► Continued from page 51  
 tant for the aspiring engineer. On-the-job training, though, is more than helpful; it's required.

"Young people aren't given RF theory in school," says Turner. A student can learn basic electronics and computers in school, yet there's only one way to learn how to fix and maintain a temperamental radio transmitter. Internships and co-op programs allow the student to get his hands dirty and learn about RF by working in the middle of it.

A transmitter manual or book about RF theory can touch the surface. A dead CSI or old Rust probably could be rejuvenated with a RadioShack transformer and a pair of clip leads. Not so with today's transmitters. Manufacturers offer training classes for today's high-tech digital transmitters.

Beyond classes, though, most engineers are happy to teach transmitter maintenance skills to a green assistant who might be able to help make the job easier.

Technical managers look for a good work ethic and the willingness to take on new challenges when they hire job candidates. Aside from equipment expertise, upcoming engineers must learn to be "people-friendly" and interface with other members of the staff, responding to their problems and needs quickly.

Broadcast engineering can be rewarding personally. But if a college graduate seeks a financially lucrative technology career, he or she might be persuaded to look somewhere else. Depending on the market, the company and a station's size, an entry-level engineering position might start in the upper \$20,000 range to the low \$30,000s.

Certainly chiefs can do better. In 2003, an NAB survey found the average compensation nationally for radio station chief engineers was \$71,000, with a high of \$141,000 and a low of \$27,000 among respondents.

But by comparison, a technical or IT position in another field can start in the \$30s or \$40s, offer a great deal of salary

upsides and involve no weed-whacking at RF sites or evening/weekend labor at movie premieres and car dealerships.

### In the blood

A college graduate with a computer degree interested in radio might be more inclined to join the ranks of full-time IT people who maintain the station's computer networks. In the 1980s and early '90s, chief engineers juggled their technical duties with network maintenance. Now that computers run the show, it often makes more sense for a broadcaster to hire full-time IT people and leave engineering to the engineer.

While other industries might pay better for such specialized talent, radio does offer its own particular benefits to IT people, who might relish a chance to work in entertainment and interact with a variety of personalities including air talent.

Jason Powell, IT manager for the Cincinnati cluster where Surgeon is chief, enjoys the autonomy and laid-back atmosphere of radio compared to that of companies like Procter & Gamble and Microsoft.

"Most of the pluses for me don't have anything to do in particular with IT," says Powell, "but rather that I work in radio." He also gets the opportunity to work with cutting-edge equipment and software.

Radio engineering offers a unique atmosphere: high-powered broadcasting equipment, computer networks, radio towers, remote vans and an environment filled with people with high-powered egos. There's a lot to the job and it's not for everybody. However, those who work in it often love it.

Turner describes the job as mental cocaine: "Once you've had it, it's in your blood." Engineering is also all about change. "A good engineer needs to embrace change," he says, "and things change in radio constantly. Our current hot list item is HD2; and who knows what's next?"

*Why are you still in radio engineering? Or why not? Write to ratioworld@imaspub.com.*

*Allen J. Singer is a freelance writer and a former engineer for Susquehanna Radio.*

### MARKET PLACE

## V-Soft Training Set For Vegas

V-Soft Communications will hold its annual engineering training seminar on the weekend of April 22–23 at the Circus Circus Hotel in Las Vegas. The event is timed to coincide with the arrival of attendees for the NAB.

"The seminar will focus on specific broadcast engineering projects such as station upgrading, translators, single frequency networks and boosters, interference analysis and move-ins," the software company stated.

"The seminar will spotlight numerous features in the Probe 3 propagation prediction program, FM Commander frequency search software, AM-Pro AM allocation program and many others."

Breakfast and lunch are provided both days.

For information, contact the company via e-mail to [kmichler@vsoft.com](mailto:kmichler@vsoft.com) or call (800) 743-3684.



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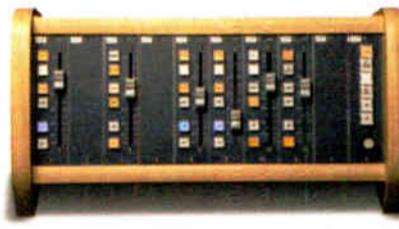


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## ROOTS OF RADIO

# A Spectrum Marker for 500 Kilocycles

**Radio Enthusiasts Lobby to Make Historic 500 kHz an 'International Memorial Frequency'**

by James Careless

For almost a century, 500 kHz was a lifeline for ships worldwide. Better known as 500 kilocycles, it was the spectrum reserved for ships and the shore stations that communicated with them in Morse Code (sometimes referred to as CW, for continuous wave).

If you're a real radio old-timer, you might refer to the frequency as 600 meters.

"To ensure that SOS calls were always heard, all ship and shore stations were required to monitor 500 kHz at all times," said Richard Dillman, secretary and chief CW operator of the Maritime Radio

said. As well, "Recently coast station KLB in Seattle restored operation on 500 kc."

Amateur radio operators are interested in the spectrum. But given the frequency's august history, Dillman, Horsfall and other society members are lobbying to have 500 kHz designated as a "memorial frequency." This, they say, would prevent the spectrum being reallocated by the International Telecommunication Union and keep 500 kHz open for future Morse events such as the Night of Nights, which attract listeners around the world.

Dillman is not aware of any similar designation. "The concept of an

Gads! This is gross!"

(Made aware of this comment, Dillman replied, "Of course the fact that old-timers are old has nothing to do with our proposal.")

Another ham wrote, "I think they should just reallocate 500 kHz for amateur use and then these historical coastal stations can share it as secondary users under that same proposal. I do not agree that 500 kHz should be specifically allocated for historical station use only."

Other hams defend the society's idea. Wrote one ham, "These folks and their organizations are part of commercial maritime radio. They use 5-20 kW transmitters. None of their frequency allocations are in the Amateur Radio Service. In fact, in their proposal for the International Memorial Frequency they

state: 'It is important to note that this proposal is not intended to establish a new frequency in the amateur radio service. In fact the aim is quite the opposite.'"

"We don't want anything to change," Horsfall emphasized to Radio World. "We would like all authorizations to stay the same, with the addition that each ITU signatory country could license legitimate historic marine radio projects to use 500 kc."

A decision whether to "memorialize" 500 kc would be made by the ITU. To this end, the MRHS is lobbying contacts within the international body, hoping that they will help turn the MRHS' dream into reality. Dillman said the concept of an International Memorial Frequency has been presented informally to the ITU by a supporter of the idea who attends its meetings.

"At the moment the ITU has not expressed an opinion on the concept," he said. 



PHOTO COURTESY RICHARD DILLMAN/MARITIME RADIO HISTORICAL SOCIETY

The KPH receive site on the Pt. Reyes peninsula north of San Francisco was built in 1929 for reception of RCA's point-to-point service. The KPH marine service moved in to share the building after World War II. The primary KPH medium frequency position is shown; it also operates on HF. The clock above the door is marked with silent periods at 15 and 45 minutes.

Historical Society. "At 15 and 45 minutes past the hour, all users were required to go silent, so that any weak SOS calls could make it through."

Over the years, countless distress calls were transmitted and heard on 500 kHz, including those from the Titanic. In fact, it was Titanic's loss that inspired the 500 kHz monitoring rules.

But even in recent times, 500 kHz has been a lifesaver. For instance, when the Holland America passenger ship Prinsendam caught fire and sank in the Gulf of Alaska on Oct. 4, 1980, it was Morse via 500 kHz that brought help. As for the Prinsendam's high-tech satellite radio system? It failed. Without Morse and 500 kHz, help would have arrived too late.

With the demise of commercial Morse traffic, 500 kHz — "we still call it 500 kc," said society President Tom Horsfall — has fallen mostly silent around the world. Exceptions are events such as the annual MRHS' "Night of Nights" Morse broadcasts from restored RCA shore station KPH near San Francisco, which is maintained by society volunteers and the National Parks Service.

"At least two — and soon three — historic ships that have valid ship station licenses use 500 kc to communicate with each other and KPH and KSM," he

International Memorial Frequency ... originated with the MRHS," he said. "While we can't speak for the ITU, I think we can say without fear of contradiction that no other frequency has been so designated."

## Sacrilege'

At first, the notion of preserving a piece of radio spectrum as a historic "site" might seem strange. After all, spectrum is not tangible, like a building or artifact, so how can one "preserve" it?

Dillman and Horsfall become passionate about the topic. Arguing that the actual amount of bandwidth removed from use would be "a tiny slice," they say reallocating 500 kHz to other uses would be "sacrilege."

"We've spoken to ship and shore radio operators around the world, and they generally agree that 500 kc is 'hallowed ground,'" said Dillman. "That's why they are hoping that the ITU will agree to setting 500 kc aside as a memorial frequency."

Some ham radio operators seem none too keen about setting 500 kHz off-limits. "This is going too far!" wrote one ham at [www.eham.net](http://www.eham.net). "History is important, granted, but the fact that many very talented old-timers are growing older and older does not justify turning the radio waves into a memorial."



This Chelsea eight-day spring-wound clock is a recent replacement of the original. Note markings for the silent period, and the four-second bands around the periphery. These guided the radio officer at sea in sending four-second dashes that triggered auto alarm receivers monitoring 500 kc when the radio officer was off-duty. If triggered, the alarm rang bells and lit lights in the radio room, on the bridge and in the radio officer's quarters.



Photo shows an antenna selector switch for Receiver 3 at Position 1. Receiver 1 below is a Watkins-Johnson tuned to 500 kc.



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WIRED FOR SOUND

# Do You Need Bigger Conductors?

by Steve Lampen

If you've recently walked into a hi-fi store —

Oh, I'm sorry, they're not hi-fi stores anymore. They're "Home Theater Specialists" or "Entertainment Centers." Anyway, if you've spent more than five minutes in one, you probably had an argument about speaker cable.

Their philosophy is, "If you paid \$50,000 for your 5.1 surround and plasma, how dare you run everything in cable that costs less than \$10 a foot?"

Now I realize we broadcasters are a practical lot. If 18/2 zip cord works fine

on your air monitors, why would you need anything else? The difference between you and the average consumer is, of course, that you actually know something.

You know that the resistance on 18/2 is very low, especially for a 10-foot piece. And if you wanted to go farther, or carry higher power, you might go to 14/2 or even 10/2.

Be aware that there is only one 10/2 that actually carries a UL approval, and it says "audio only" on the cable so you don't "accidentally" use it for power cable or lighting cable.

I believe that moving your speaker a

half-inch, or hanging a rug on a wall, will have a more dramatic effect on the reproduced audio than all the speaker cable ever made put together. So why even consider bigger conductors?

## Options

Well, there is this effect called slew rate. It's the ability of your power amp to follow high-frequency waveforms accurately and to drive the speaker cones in a similar fashion. The slew rate is determined by dividing the load on the amp by the actual output impedance of the power amp.

Most modern amplifiers have an output impedance of only a tiny fraction of

an ohm, sometimes hundredths of an ohm. Compared to the speaker, that could be a ratio of 100 or even 1000. The load on the output of the amp is the sum of the speaker impedance and the *resistance of the wire* that is attached. The smaller the wire, or longer the run, the higher the resistance.

The impedance of a speaker, as you might know, isn't 4 ohms or 8 ohms but a varying value over frequency. In fact, it can be a real problem if a speaker drops to a very low impedance, like below 1 ohm at a specific frequency, because the current from the amplifier will peak with that small load. It's not at all uncommon that certain amp-speaker combinations blow output fuses or activate output protection circuits when a certain musical frequency is played. The problem is the speaker, not the amp.

## Wire Gage

AWG Ohms Per Foot (68°F)

18	.00692
16	.00435
14	.00273
12	.00171
10	.00108

In that instance, some 16/2 might actually save you, because the added resistance of the cable keeps you above that speaker impedance dip. Remember, the load on the amp is the speaker plus the resistance of the cable. If that resistance is a significant percentage of the load, it means that the speaker will not respond to the fastest waveforms very well.

One solution can be to move the amp close to the speaker. This was the original basis for amplified speakers. If you put the power amp in the speaker, then speaker cable is a non-issue. You just have to get line-level audio (and AC power) to the speaker, which are both easy to do. And line-level audio cable is a heck of a lot cheaper than 10 AWG speaker cable.

The other alternative is bigger wire. Shown here is a table of wire gage sizes and their resistance per foot. If you're calculating the added load on an amp, remember that you have two wires' worth of resistance at the given length, sometimes called the "loop resistance."

## Sure, if you can find it

If you deal with high-power amps, that's another story altogether. There are now 5 kW, even 10 kW power amps.

This brings up an interesting question. Unless these are wired up to 480V three-phase, I must assume they run in 120V single-phase, with a 20-amp breaker like everything else. And  $120 \times 20 = 2400\text{VA}$ . So how do you get 5,000 or 10,000? Surely this is not RMS watts, more like peak power.

Some of these amps suggest 8 AWG or 6 AWG cable, when going longer distances. That stuff is hard to find. (Check the "lighting cable" or "industrial cable" section of the catalog.) These super-power amps also have an interesting sticker on the back that says "Class 1 Wiring Shall Be Used" or words to that effect. Do you know what that means? I wonder if that rock band roadie does either.

What it means simply is that the speaker outputs of these amps can now kill you. So they need the same kind of wiring for your AC power.

Ask any manufacturer of speaker

See WIRED, page 62 ▶



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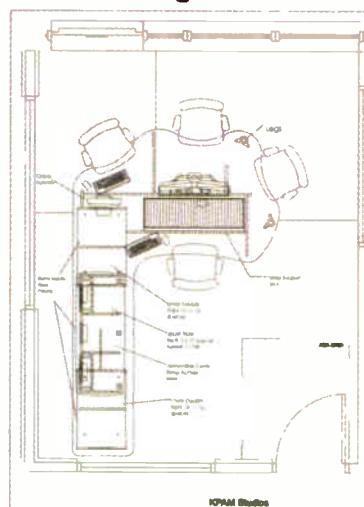
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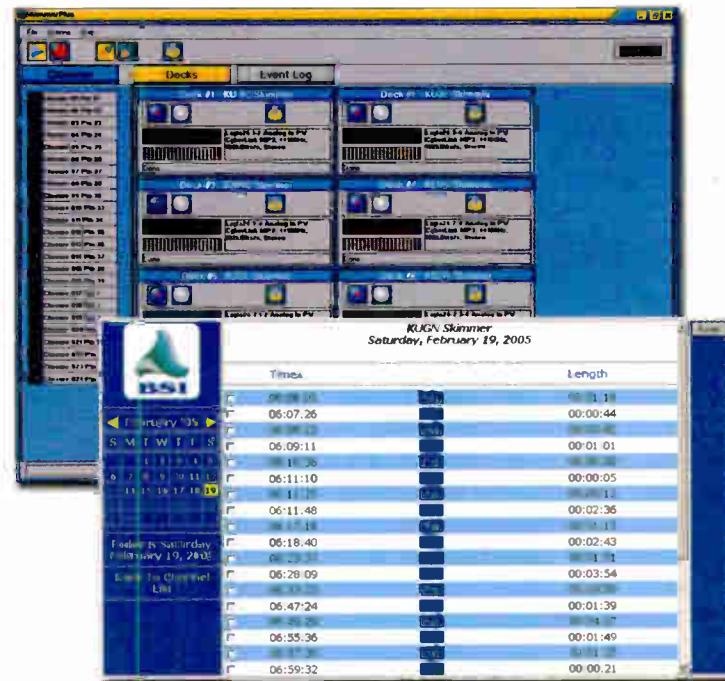
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FIRST PERSON

# A View From the Back of the Room

*Breaking Events Turned a Staid Tech Gig Into a Hurried, Nationally Covered Event*

by Gary Palamara

It was a cold February morning in 1986. I arrived at the small corporate TV studio in New Brunswick, N.J., for what was to be an easy day of work. The weather and the latest happenings constituted most of our chatter as the crew unpacked our equipment and began to set up for a small videotaping later that morning.

Although everything at this point was relaxed and calm, we all felt there was something strange going on. You couldn't quite put a finger on it. Then somebody noticed that it was a little quieter than normal around the building.

Just before 10 a.m., things began to change.

At first, word filtered down that our videotaping might be a delayed. Several minutes later, the company told us that the job was cancelled; but for some reason they didn't want us to leave. Something was definitely going on, but we had no way of knowing what it might be.

Around 11 a.m. the guy who ran the studio came in. You could tell by his face something was wrong. He came over to me.

"How soon can you set up a press conference in the auditorium?" he asked.

"Well, when do you need it?"

"They wanted to do it at noon, but I got

that I had a pile of cases sitting on the floor, everything had yet to be connected and checked out and minutes were passing by too quickly.

Soon the room was full of people. Besides the electronic press, photographers and print reporters took almost every available seat. Everyone was jockeying for positions and staking out their turf around the room.

Once the equipment was up and running, I told everyone who had already plugged into the press mics to test and then re-test the audio feeds. All was ready to go, with about 20 minutes to spare.

But as I viewed the room from behind my audio board, reporters and news crews were still coming in the door. One by one, they'd plug into my equipment and I would test their feed to make sure everything was clean. I left the podium mics open so the crews would always have a live signal coming from the hall.

At first, I thought that I would probably have to give out about 25 audio feeds to the press. By the time the conference actually started, closer to 50 electronic media had plugged into my equipment. In truth, some of those last connections had to be improvised, once the press mult box was completely full.

soring, another death. It recalled the events of four years earlier when six people in the Chicago area had died. Back then, cyanide-filled capsules of Tylenol had been found on grocery store shelves.

its small corporate TV studio into a damage control center. The company bought satellite time and fed edited clips of the press conference over and over again to the nation, and the world.

Less than a week after the initial event, a second press conference announced the total recall of all Tylenol products nationwide. Then, several weeks later, the com-

## Johnson & Johnson Calls Tylenol Case Isolated Incident

By MICHAEL WALDHOLZ  
Staff Reporter of THE WALL STREET JOURNAL

NEW BRUNSWICK, N.J.—Johnson & Johnson, moving quickly to protect its prized product, Tylenol, said that it was convinced the recent poisoning death involving the painkiller was an isolated incident and that it will keep the product on the market.

At the same time, a local official in Westchester County, N.Y., where the death occurred, said it was being investigated as a murder, according to a wire service report.

At a news conference at company headquarters here, James E. Burke, chairman, said, "It is our collective opinion, ourselves, the FBI, the FDA and the local New York police, that this is a local event."

### Mute Public Alarm

Mr. Burke's statements were an apparent effort to swiftly mute public alarm about Tylenol. Although he conceded he had no evidence absolutely confirming the cyanide poisoning was an isolated incident, information about the bottle involved

makes that assumption a strong likelihood.

The bottle, he said, was part of a batch of 200,000 packages shipped to retailers last August, 95% of which have been already sold to consumers. Johnson & Johnson believes other people would have reported problems months ago. If the batch had been tainted either at the manufacturing plant or at distribution sites. Moreover, cyanide would have destroyed the gelatin capsules within 10 days of being placed inside of them.

Mr. Burke said that while he was concerned about loss of Tylenol business, he said, "Our primary concern is for the public," which relies on the product for health reasons.

### Chicago Deaths 3 Years Ago

Mr. Burke's statements come one day after it was reported that Diane Eisroth, a Peekskill, N.Y., woman, died after apparently ingesting an Extra-Strength Tylenol capsule laced with cyanide. Her death follows by over three years the deaths in the Chicago area of seven people who took Tylenol capsules that were contaminated with the same poison.

At a news conference, Andrew P. O'Rourke, Westchester, N.Y., county executive, said Ms. Eisroth was given two Extra-Strength Tylenol capsules Friday evening by her boyfriend in his home. Mr. O'Rourke said the boyfriend, who was identified by United Press International as Michael Notaricola, "opened the brand

Wall Street Journal coverage of the story.

That appeared to be the case again.

Burke went on to say that McNeil was suspending all sales of the over-the-counter medication and the FBI and police officials in New York State were looking into the crime. He ended his prepared remarks and opened the floor for questions.

### Snap

Suddenly there was a loud roar from every corner of the room. Like a coiled spring that had snapped, the reporters shouted their questions, with the loudest, most persistent ones getting to go first. The microphones that I had set up around the room so that reporters could "politely" ask their questions were ignored. It was a media free-for-all, and the loudest won.

After about 45 minutes, the formal press conference ended and the reporters descended on Burke as he tried to make his way out of the room by the same side aisle from which he had entered. From what I could hear, most of the in-person questioning was similar to the questions asked during the conference.

Even before the event ended, some reporters began doing stand-ups again from the back of the room. Those stand-up reports and other live feeds continued through the afternoon and long into the evening. J&J left the facility open and invited the press to stay as long as they needed.

The Tylenol crisis was the lead story for news broadcasts across the country and perhaps around the world. I could hear my audio echoing from the news crew monitor feeds around the room.

With everything that was going on, rather than tear down the audio setup, J&J asked me to leave the gear in place and ready to go at a moment's notice. Long into the night, Johnson & Johnson turned

company re-introduced the Tylenol brand with new tamper-resistant packaging. Naturally it called a third press conference to get the word out.

Although several people were arrested and later convicted of trying to cash in on the mass hysteria that surrounded the Tylenol crisis, 20 years after the event, no one had been charged with any of the murders. To this day, speculation abounds as to the actual motive for the crime.

Now few people pause to think about tamper-proof packaging, but it was the Tylenol murders and several copycat crimes in the early 1980s that forced manufacturers to adopt these measures.

In the years that followed the '86 case, the managing of information by Johnson & Johnson during the Tylenol murders would be touted as a nearly perfect example of how to handle a crisis situation with integrity and corporate responsibility. Even now, the Tylenol case is used as the gold standard by which other corporations are measured.

But as with most major news stories, few people give a thought to the many technicians who work behind the scenes and who make media events like that happen.

In the 20 years and several thousand press conferences that have followed the Tylenol crisis, I've come to learn a few things about engineering a successful media event. Be prepared for the unexpected and have backups for all system critical components. In the end, no matter what happens, everything has to work. When it does, everyone wins.

From 1968-'72, the author worked with the Armed Forces Radio & Television Service while serving with the United States Air Force. He is a freelance broadcast engineer and owner of Morningstar Sound. E-mail him at [www.garypalamara.com](http://www.garypalamara.com).

them to push it back to 2 p.m."

"It'll be close, but I can do that ... how big a conference is this going to be?"

"Big."

### Here comes the zoo

There was no point in asking the topic, because it didn't matter anyway.

The actual structure of a press conference is about the same whether it's for the president of the United States or your average rap artist. Besides, I didn't have time to think about that. What I needed was more audio gear, and I needed it right away.

I called the shop and dictated a complete list of equipment that I needed and asked them to bring it to my location, ASAP. I stayed on site and helped prepare the auditorium as best as I could.

An hour or so later, when my equipment arrived, several news trucks were already set up on the front lawn of the building; more were arriving by the minute. Back in the auditorium, a couple of technicians had already staked out their camera positions near the back of the room. One guy asked me, "Where can we plug in the audio?" It was still about an hour and a half before the conference was to start, but he seemed annoyed when I told him I hadn't yet set up my gear.

Right from the start, this event seemed to have all the ear markings of becoming a media zoo. By the time I began to lay out the equipment, it was almost 12:45. I still didn't know or care about the purpose of the press conference. All I knew was

### At the mic

The press conference finally began, about 45 minutes late. Right before it started, you could feel the tension rising in the room. The reporters were tired of waiting around, they all had questions, they wanted answers and they had deadlines to meet. Antsy reporters with time on their hands make for a volatile situation. You could tell there was blood in the water and the sharks were beginning to circle.

Jim Burke entered the room unannounced, and for the first time the reporters quieted down. Burke was corporate head of the Johnson & Johnson Company, parent company of McNeil Pharmaceuticals. He walked down the side aisle, opposite from where I had my audio setup, then on to the stage and approached the microphone. My microphone.

This is the moment when the audio engineer in charge wonders. "Did I set up everything correctly? Are all the levels right ... is it all going to work?" The last thing you want to have happen is for the press conference to start and have someone say, "My audio is distorted, 'I'm not getting a feed'" or "We're not hearing you in the back of the room!"

As Burke neared the stage, I remember thinking that I still didn't know what he was going to say. All morning things were happening too quickly and I didn't have time to ask.

When he reached the podium, Burke took a moment to collect his thoughts, looked up and began to speak.

There had been another Tylenol poi-

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## MILE STONES

# The Demise of the First Phone

by Charles S. Fitch

Have you noticed a trend in how qualification problems are addressed inside the Beltway over the last 50 years or so? In Washington, it seems, when enough people can't reach the qualification bar, they just lower the bar. Do away with the problem by the stroke of a pen; eliminate the requirement.

Ohhhh, if only we were so all-powerful! We would do away with taxes, reruns on TV and marriage (I must be crazy), among other things.

In our industry, the notable instance of this phenomenon was the disappearance of the Radio Telephone Operator License First Class, the possession of which was a long-standing requirement if you hoped to find meaningful and gainful employment in radio engineering.

Let's be clear. The FCC only licenses operators; it never licensed engineers engaged in intrastate commerce, professional or stationary. The commission never intended that one would have to operate high-pressure boilers or a power plant or design the foundations under your towers. Licensing of professional and stationary engineers is a power held only by the states.

Boilers aside, that still leaves us ordinary mortals who build and maintain broadcast systems in a profession of profound scope and need. Every station has



Radio Telephone Operator License First Class

a lot of meaningful technical matters at hand, routine and otherwise.

#### Push to talk

The FCC licensing structure through the early 1960s was simple. In general terms, if you wanted to speak on a two-way radio, you needed a Radio Telephone Third Class Operator Permit. A classic example was the police radio dispatcher. He could push a transmit button on his big base station. Because he

theoretically was supervising the system, his unlicensed police officers in their patrol cars could push the buttons on their mobile mics and speak back.

The holder of a "Third" couldn't service or install any transmitter equipment. If you wanted to service and install communications-level transmitters or certain safety devices, you had to hold at least a Radio Telephone Operator License Second Class. One had to pass the Third exam before you could attempt the Second.

Broadcast was considered the highest level of importance (oh, how the mighty have fallen) and the most complex; you needed a First to operate and maintain broadcast transmitters. Again, you had to have passed the Third and Second exams to attempt the First.

Prior to 1963, all broadcast stations were to be maintained and operated only by First holders.

From 1963 through 1973, as a sop to owners, FM and 10 kW or less non-directional AM stations were allowed to be operated by a First, a Second or the holder of a hybrid sort of license, a broadcast-endorsed Third.

**Prior to 1963, all broadcast stations were to be maintained and operated only by First holders.**

With that in hand, you could turn the transmitter on and off, take and sign the operating log and adjust power to stay within limits, but you could not maintain the transmitter with a Third.

After 1973, all classes of broadcast stations were allowed to be operated by an "Endorsed Third."

In the 1980s, the commission sailed through a sea change of regulation. A basic premise was that the holder of the station license ultimately was responsible for the proper operation of the station.

On Jan. 5, 1979, the FCC eliminated the Third requirement, as well as the license grade, and allowed holders of

Restricted Radiotelephone Permits (just fill out a form and mail it in) to operate broadcast transmitters of nearly all classes and powers.

This requirement ultimately was dropped; now no operating license at all is needed for local or remote controlled stations. Responsibility for proper operation at this time falls completely to the station owner.

#### Equity trap

In my rear-view mirror, I think the major reason the "First" disappeared was a basic flaw: The test process used a set question base that could be co-opted. This left industry with an exam that could be passed by memorization, detracting from the value of the license as a proof that a person knew something about what they were doing.

In other professions, comparable licensing also is done through exams with a set syllabus of concepts addressed; however, the tests do not ask the same questions each time. This "equity" trap — dumbing up the exam — is a flaw that the SBE certification process, the industry's own replacement for the First's proof of knowledge, has so far been able to avoid, in my estimation.

All numbered classes of radiotelephone licenses were eliminated on Aug.



Radio Telephone Third Class Operator Permit.

7, 1981, when the FCC established the General Radiotelephone Operator License (its internal reference is "PG," for Phone General) and ceased to issue First and Second Class Operator Licenses. A single omnibus grade of license, the "General," remains, required mainly for the repair of non-broadcast communications equipment.



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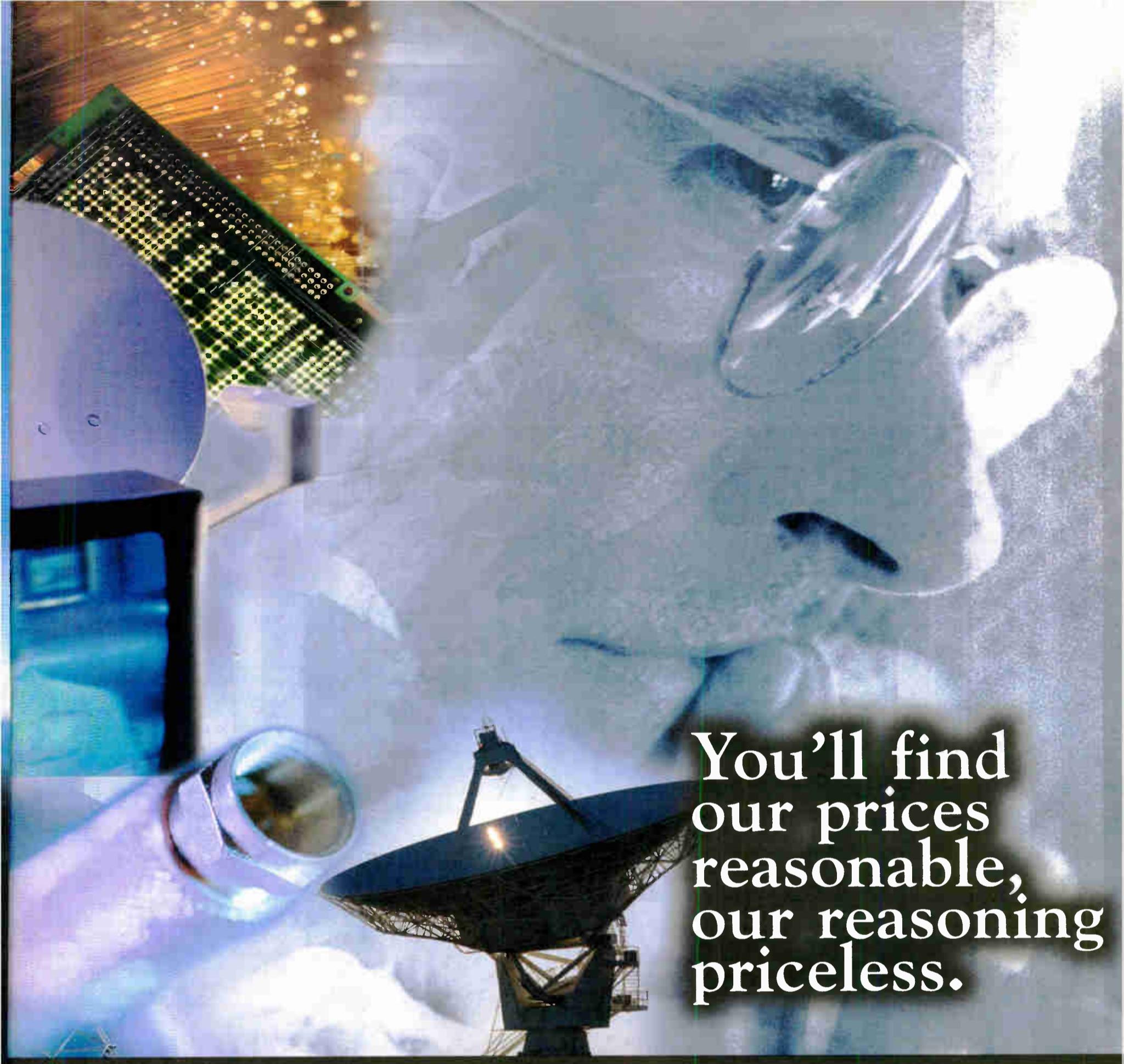
Even if you are a Radio World subscriber, you must sign up to receive RW-EE.

In the dim long ago, the "license wall" at a radio station's transmitter site was a special place, reserved for FCC licenses. As a youngster I visited one large station where all the soft blue-colored First licenses were arranged in seniority, like steps on a pyramid, leading to the large white primary station license at the top.

License walls are long gone. Hopefully the pride in our profession remains.

*Share your memories of your FCC licenses. E-mail [radioworld@imaspublishing.com](mailto:radioworld@imaspublishing.com).*

*Information on the FCC's present operator permits and licensing can be found at <http://wireless.fcc.gov/comoperators/lpe.html>.*



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## FEATURES



*Who's Buying What?* information is provided by suppliers and users. E-mail to [radio@imaspublishing.com](mailto:radio@imaspublishing.com).

Broadcast Electronics said NPR affiliate Temple University Public Radio added more stations to its list of HD Radio conversions. The classical and jazz broadcaster received funding from the Corporation for Public Broadcasting, ultimately to convert its six full-powered stations to HD Radio.

The flagship is WRTI(FM). Tobias

Poole is operating director for the broadcaster; Jeff DePolo is director of engineering. . . .

Logitek announced the sale of a large console router system to Salem Communications in Honolulu. A system including 11 Audio Engines, 10 Remora consoles, vMix and various router controllers will be installed.

Separately, Logitek made sales of console router systems to Niagara Independent Media (WHLD in Buffalo, N.Y.), which purchased two Remora consoles; WUTC in Chattanooga, Tenn., a Mosaic console; and WJIS, Sarasota, Fla., a Remora. . . .

Omnia said WSM(AM), home of "The Grand Ole Opry," tried and kept an Omnia-5EX HD+AM audio processor. Watt Hairston is chief engineer. Separately, Omnia said Clear Channel

station WTEM(AM) in Washington is using the Omnia-5EX+AM. The senior engineer of new technology there is Shaun Sandoval. Omnia said the station did a shootout of four models from three manufacturers before making the choice. . . .

Wegener Corp. reported a \$3.6 million job order from the BBC, which specified an iPump System Solution for its international radio distribution network. "The system will allow the BBC to distribute audio to over 900 partners globally through advanced digital file store-forward technology, as well as traditional linear broadcasting," Wegener stated.

Nigel Fry is head of transmission and distribution for the BBC World Service. The supplier said its approach offers bandwidth efficiencies and low latency of DVB transmissions, while supporting



Tobias Poole prepares to install HD Radio at Temple.

delivery of audio over IP for applications such as IBOC and DRM. . . .

FM Cumulus properties in Toledo WRWK and WTWR converted to HD Radio using the Harris Flexstar transmission system. According to Gary Kline, Cumulus vice president of engineering, the company is converting all seven of its FMs in the market. . . .

APT said the link-up between Sirius Satellite Radio and the BBC's music channel Radio 1 was made possible by audio codecs it supplied. The Enhanced apt-X algorithm was used as the coding method for the transfer of audio between London and New York. WorldNet Ohio codecs provided an X.21/V.35 link operating at 256 kbps, enabling a stereo feed and mono back-up over ISDN. Jake Glanz is Sirius director of broadcast maintenance. . . .

Metro Radio Group of Nova Scotia, Canada purchased additional Wheatstone G-5 12 fader control surfaces and upgraded to a Wheatstone networked audio system. The system consists of two Generation 5 control surfaces and a Bridge Digital Audio Network. The station purchased its first G-5 in early 2005. There are five stations housed in the facility, which is outfitted with four production studios, five main control rooms, two newsroom studios and two voice-tracking booths. ☀

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## Wired

► Continued from page 56  
cable (especially in the "Entertainment Center") if they have Class 1 speaker cable. Huh? No, of course, they don't. And if you find yourself in this predicament, you will probably end up with someone who makes industrial cable, for wiring up factories. Tray Cable, a specific kind of factory power cable, is all Class 1. And you'd better get an electrician who does power wiring to do the speaker runs as well.

Hey, I can't wait to see a 10,000-watt, 70-volt transformer. I'm sure that's \$1.59.

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](mailto:shlampen@aol.com). ☀

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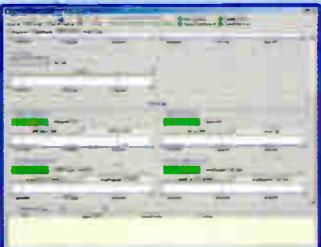
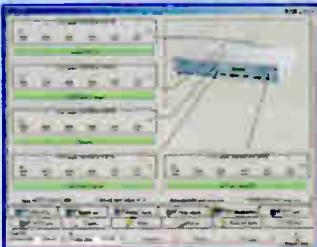
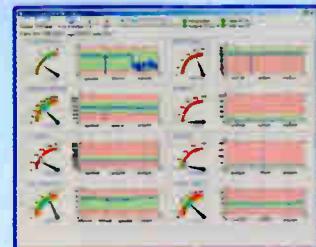
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GUEST COMMENTARY

# How DX Transmitters Began

*Evolution of Digital Medium-Wave and Long-Wave Transmitter Product Line at Harris Broadcast*

by T.E. Yingst

It was my pleasure to be involved when a major solid-state program started at a high-technology company and as it became a major factor in the worldwide marketplace in just a few years. I'd like to share that story.

The history — which is posted in full online — demonstrates that a good idea can prevail, but that it must be coupled with knowledge of the market and the

technical background to bring the idea to fruition. It also must be adapted to the available marketplace, in this case a global one.

#### Growing share

The new product was the Harris line of DX Radio Transmitters. Here's a brief overview, seen through my personal involvement. Readers who are interested in the details of this product history can find it posted at [www.rwonline.com](http://www.rwonline.com).

As an engineer since 1950 and later as a manager of high-tech electronics companies, I've spent my working lifetime in high-power radio frequency systems.

We developed the team to execute the program and develop the medium-wave (MW) and long-wave (LW) marketplace, moving Harris Broadcast to become a major factor in the market, growing from a 10 percent market share to approximately 35 percent.

The project got moving in 1988 after a noncompetitive low-power start in 1987. The basic concept was developed by Hilmer Swanson, a senior engineer at Harris Broadcast; and a 10 kilowatt model was

demonstrated at the NAB show in 1987.

I recognized the following year that Swanson's concepts could be cost-reduced while holding the design integrity and that we could move it from 10 kW to very high power of 100 kW, to beyond 500 kW and finally 2000 kW. We saw that about 80 percent of the installed power was at levels above 50 kW and that the key players at the time had capabilities up to megawatts, using primarily vacuum tubes in the final stages and series solid-state modulators.

We also noted that many countries had very high-power transmitters, in addition to 10–50 kW units, to communicate with their populations; and many units were above 1000 kW.

Aiming to be dominant at high power (above 50 kW) and become a major factor in the international market for MW and LW, we developed concepts to move the DX solid-state concept to 100 kW, then 200 kW, then on to 500/600 kW and finally to 2000 kW, knowing also that this

**I recognized the following year that Swanson's concepts could be cost-reduced while holding the design integrity. We were able to move it, ultimately, up to 2000 kW.**

would lead the way for the 10 to 50 kW market globally and help serve the U.S. market, which has a maximum power rating of 50 kW.

Thus we had the background to introduce a superior product at competitive prices. My paper discusses how a dynamic team was developed to execute the project.

SS

One major success was to overcome skeptics within Harris and other suppliers and users as we gradually replaced older vacuum tubes transmitters with a superior solid-state unit and move the market for all suppliers to be essentially 100 percent solid-state by 1995. Other designs existed prior to DX but were limited in production to about 50 kW at the time.

Most of the story takes place in 1988–1996. I worked well into retirement to help to continue the success of the DX program; and I feel that the paper demonstrates how a company can move from being a minor contributor to becoming a major factor in the worldwide market with a good idea, proper execution and dedicated and knowledgeable people within the framework of the supporting company.

The amount of installed LW and MW power from 1988 to 2004 exceeded 200 megawatts. The Harris DX enjoys market share of approximately 35 percent including tube and solid-state types, and approximately 50 percent of the solid-state portion alone. The division between low power and high power (above 50 kW) is about 40 percent and 60 percent respectively at present.

The author's paper is posted online at [www.rwonline.com](http://www.rwonline.com). RW welcomes other points of view. 

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## FEATURES

# Tichenors, Fries and Case Are 'Pioneers'

The Broadcasters' Foundation named its recipients of the Broadcast Pioneer Awards, to be presented during the NAB convention. Honorees whose careers are in radio are shown. Also honored were John Conomikos, Hearst Corp. director and former president and CEO of Hearst Argyle Television, and K. James Yager, president/CEO of Barrington Broadcasting and former joint board chair of NAB.

## Dwight Case

Case began his career in 1948 doing "Midnight Dance" remotes in Stockton, Calif., for KJOY(AM). He worked at KFIV Modesto as a board op, copywriter and DJ, then took up sales and marketing. He became GM of KRAK, Sacramento, and later KOBY San Francisco.

"His first group management position began with Gordon Broadcasting, where he oversaw five markets from a base of operations at KSDO, San Diego," the foundation said. Case then ran the Richard H. Ullman syndication and jingle firm, then returned to management at KROY Sacramento. In the 1970s he became president of RKO Radio, with 13 major-market stations and a rep company; it built three new news networks, including the first to use satellites as the distribution platform.

He co-founded Transtar the Radio Network and was publisher of Radio&Records. He launched the first all-Asian station, KAZN, in Los Angeles, followed by Spanish stations in Fresno, Sacramento and Bakersfield. In the 1990s he was part of senior management at Western International Media.

Case is CEO of Team Asia, a management consulting company active in ethnic media in Los Angeles.

## Gary Fries

Fries is departing president/CEO of the Radio Advertising Bureau, a position he took in 1991. Membership under his tenure has doubled to more than 6,000 stations and 1,000 associate, network, representative firm and international organizations.

"He has raised the profile of radio within the advertising and buying communities; introduced or advanced numerous training, NTR and certification programs; and established the RAB as a full-service resource center for member stations, agencies, advertisers, the press and financial institutions," the foundation stated.

Fries held positions as president of Unistar Radio Networks and Transtar Radio Networks; president and COO of Sunbelt Communications' Radio Division; and vice president at ITC Communications and Multimedia Broadcasting Inc. He began his career in Lincoln, Neb., where he was a part-time salesperson at Stuart Broadcasting's KFOR while in college. His first management job was at KRGI, Grand Island, Neb.

## The Tichenor Family

The foundation honored their "work, determination and a vision of the future" over three generations.



Dwight Case

went to work after the first World War as a newspaper salesman and became national sales manager. In 1932, he moved to the Rio Grande Valley in Texas. He purchased and sold a newspaper; in 1949, he put KGBS(AM), later KGBT, on the air in Harlingen, Texas.

"In 1952, McHenry took a huge risk and switched to a half-English, half-Spanish format," the foundation stated. It was the beginning of a media empire.

Son Mac served in the Navy during the Korean conflict and earned a law degree. He moved to Harlingen, beginning a career in retail sales. "In 1962, Mac convinced his father that all-Spanish was the way to go. A series of media purchases in both English and Spanish radio led to the formation of Tichenor Media System." Mac became president in 1962.



Clockwise from left front: David, Warren, Mac Jr., Bill, Jean and Mac Sr. Founder McHenry Tichenor is in the middle in this 1988 photo.

Mac married Carolyn White, and they had four children; he remarried after her death and had another son. "All of Mac's children were raised in the business," the foundation stated.

In 1982, eldest son Mac Jr. became president of TMS, and they created a strategy to own stations in the top 10 Hispanic markets; Warren became vice president of TMS in 1986 and served as GM for several stations; Jean started a business in health care; Bill worked in national sales and headed a division of Katz, and worked at one of the TMS stations. David attends Regis University in Denver.

In 1997, TMS merged its 17 stations in a \$900 million deal with Heftel Broadcasting to become the nation's largest Hispanic radio group. Mac Jr. remained chairman and president/CEO of the public company, later named Hispanic Broadcasting Corp. In 2002, HBC merged with Univision Communications in a deal worth \$3.1 billion.

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## 'The Way Music Was Meant to Be'

*Ohio Retirement-Home Radio Station  
Plays Big-Band Hits and Then Some*

by James Careless

The format of Cincinnati's WMKV (FM), understandably, is grounded in big-band hits. The station, after all, believes itself to be the first educational public radio station licensed to a retirement home.

However, there's more to the Maple Knoll Village on-campus station than mere nostalgia. Whether on-air or online at [wmkfm.org](http://wmkfm.org), WMKV aims to be a genuine voice for a demographic "whose

average age is around 75," said Alan Bayowski, the station's general manager.

WMKV — a Class A station licensed to Reading, Ohio, and operating at 89.3 MHz — as well as Maple Knoll Village are operated by Lifesphere, an Ohio non-profit seniors support group, the roots of which go back more than 150 years.

### What's on

The Society for the Relief of Aged Indigent Women, Lifesphere's predecessor, was founded in 1848 by Lydia



GM Alan Bayowski, left, on the air with volunteers Annie Wagner and her husband/engineer 'Wags' Wagner.

Beecher, stepmother of Harriet Beecher Stowe, who wrote the influential anti-slavery novel "Uncle Tom's Cabin."

The station was established in 1995 to serve as "a friend and companion for seniors in the community," Bayowski said.

"This means much more than just playing music dating back to the 1920s,



WMKV has put together a 12,000-song music library from more than 100,000 donated records.

although we do have an extensive 12,000-song music library that includes 450 songs by Glenn Miller and 300 by Frank Sinatra. We're there for our listeners covering topics ranging from family caregiving to senior computer use and grandparenting issues. We also encourage interaction from our listeners, who we hear from by mail, phone and now e-mail."

With a \$300,000 annual budget drawn from listener pledges and corporate grants, WMKV is run by a handful of professionals such as Bayowski.

"We are aided by about 125 volun-

teers; many of whom have broadcasting experience," he said. WMKV is home to a number of veterans such as Bill Nimmo, who worked with Johnny Carson on the TV game show "Who Do You Trust?" and longtime WLW(AM)/WLWT(TV) weatherman Bill Myers.

Collectively, WMKV's staff and volunteers produce shows such as "Song Shop With Annie Wagner" (big band and Great American Songbook music), "America's First On-the-Air Support

Group for Caregivers" and "A Bit of a Twist From the Mist of History." Music is WMKV's mainstay, with the station sponsoring a 15-piece WMKV Big Band that plays three dances a month.

"About of half of the band's musicians are retired professionals, while the rest are amateurs who love to play," said Bayowski.

### Who's listening

According to Bayowski, about 30,000 people tune into WMKV over the air in

See WMKV, page 71 ▶

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World Radio History

# Station Vehicles: Tips & Tricks

by Paul Kaminski

This article is meant to share observations I've made producing more than 625 episodes of the program "Radio-Road-Test." It raises questions and ideas that managers as well as engineers (to whom vehicle duty is assigned, more often than not) should ask about vehicles and their care and feeding.

One might expect that stations with certain formats would have certain kinds of vehicles. There's truth to that.

An oldies station might wish to project one image — perhaps with a PT Cruiser or classic older car — while a smooth jazz station or public radio station might say something different — perhaps with a Lexus or Subarus? You'd more likely find an H2 Hummer in the parking lot of a rocker or sports station. The "Music of Your Life" station might have a Buick LeSabre in its garage, and while an all-news outlet might go with utility vehicles like the Dodge Durango or Nissan Pathfinder, or even big sedans like the Ford Crown Vic.

In an ideal world, anyway, that's what happens. But we live in the real world, and your vehicle may or may not be "right" for the job. And the factors that go into making a good "fit" go beyond station formatics.

When negotiating a trade, lease or purchase, define the vehicle's intended use. Will this car, van or truck be used primarily for the engineer's transmitter visits in hip-deep snow? The general manager's ride taking important clients to lunch? A traffic reporter's heavy, twice-daily commutes? The promotions department remote appearances? A combination of all of these?

How will the vehicle be marked? Choices range from detailed graphic vehicle wraps to classic custom car hand painting, decals or a simple magnetic sign.

Decals need not go on the body. On a van, for instance, you might consider decals on side windows. In situations where formats are in a lot of flux, it'll be easier to scrape letters off glass rather than the painted body of the vehicle.

One thing station vehicles should *not* be marked with is grime. Keep the dirt off.

How big will your vehicle be? If it has a combined gross weight of 26,000



It's hard to miss the station branding on this vehicle of Greater Media's WBEN(FM) in Philadelphia.

pounds or more, operators must, by federal law, hold commercial drivers licenses and be subject to "hours of service" rules and other regulations. The Department of Transportation Web site has answers about hours of service, gross weight threshold and related questions about commercial vehicles. Visit [www.fmcsa.dot.gov](http://www.fmcsa.dot.gov).

#### Driver ed

**Who will drive this station vehicle?**  
If you are responsible for operation and management of vehicles, you should — in consultation with your risk manager or insurance agent — check the driving records of any drivers and check to see if those drivers do in fact have valid licenses for the class/classes of vehicle your station owns or controls.

If the operators have good records, ask your insurer about discounts. In some states, including New York, some points against the driving record can be erased by taking the National Safety Council's Defensive Driver Course. The course also can earn the driver a discount on personal insurance.

If a driver's record is not so good — multiple and serious violations within a short time, for example — you need to know that and consider the implications of granting access to vehicles. The time to prevent a person with a suspended license from driving your station vehicle is before it happens.

One piece of advice to anyone who drives a station vehicle that bears a logo: Drive as though you are being followed by a state trooper. If you cut people off, tailgate or drive well over the speed limit, you could in fact get you a face-to-face meeting with "Smokey Bear" — they still call 'em Smokey on the CB — but there's another reason to be extra cautious: Bad driving can hurt the station's image. You need every one of your listeners. Why make them mad in traffic?

Where the vehicle will be driven matters. If your intended use includes lots of in-town, stop-and-go traffic, consider hybrid electric and gas vehicles. Honda and Toyota/Lexus are the biggest players in this market, with Ford and GM offering hybrid versions of certain models. Your real-world mileage won't likely match EPA economy numbers, but you can save on fuel.

In a recent test of the Toyota Highlander all-wheel-drive hybrid, I averaged 26.4 miles per gallon on the highway with the V-6, and went from 0 to 60 in 8.5 seconds. With a full-size Chevy Silverado Hybrid V8 pickup, I averaged 17.6 mpg around town and went from 0-60 in 9.2 seconds.

Hybrids generate their own electricity to charge on-board batteries, which then drive a set or sets of wheels. The more time you spend on battery power, the better your miles per gallon will be.

#### In the Trunk

Equipment every station vehicle should carry:

- Jumper cables or a 12V power source for jumpstarting the vehicle
- Flashlight with alkaline batteries and a spare pack of batteries
- Flares
- External cell phone antenna and power adapter (the range of an external antenna can bring help sooner in some circumstances, and if you have to do an ad hoc broadcast over cell phone, the antenna will help to reduce dropped calls)
- First-aid kit
- Blanket for cold-weather protection
- Properly inflated spare tire
- Jack, wrenches and pair of work gloves to change that tire
- Windshield wiper fluid, oil and other extras that might run out at the wrong time

You probably have other suggestions, including ones particular to your station or environment.

If you do a lot of country and highway driving, add a couple of energy bars and a couple bottles of water to the list.

Carry detailed maps of the area in the vehicle. If the station has printed promotional information or sales one-sheets, add some of those in a 9-by-12 envelope. One never knows where your next listener or advertiser will appear.

Be prepared to wait for a hybrid, though. The manufacturers and dealers report waiting lists for the most popular models.

Some vehicles advertised as all-wheel-drive might not be appropriate for off-road excursions like those necessary to measure directional AM antenna performance, for example. Ground clearance is the key here; traditional "sport utes" have higher ground clearance than crossover models, those using a car platform rather than a truck platform to build on, like the Ford Escape, Chevy Uplander, Toyota Highlander, etc.

#### Gas-smart

Thrift and radio broadcasting are mutually inclusive terms. How can you save money on fuel?

See VEHICLES, page 76 ▶

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World Radio History

# Deloitte: Tuning In to Radio 2.0

*How are financial observers seeing the outlook for radio?*

*Here's the view of one. The following is an excerpt from "TMT Trends: Predictions 2006," Deloitte Touche Tohmatsu's look at trends in technology, media and telecommunications.*

"The business model for radio will likely be on the cusp of significant change in 2006. Historically radio has been funded by advertising, and to a lesser extent, public subsidy. Although this funding will continue, radio stations will likely start to generate an increasingly diverse mix of revenue streams, satisfying an increasingly varied and geographically dispersed demand for radio content (see figure)."

"Radio listeners — who may soon be referred to as customers — will likely enjoy increasing control over: what they listen to, when they listen to it (live broadcast or time-shifted playback), and on what device. They may also get to choose the amount of advertising they are exposed to and there should be increasing opportunities to purchase content."

"This suggests that radio stations should enjoy a growing range of opportunities to charge for content and advertis-

ing. Customers who miss a broadcast can buy a replay; classic archive broadcasts can be sold as downloads; the best con-

tent could be reserved for subscribers only; high-definition audio could garner a premium."

global audience. As foreign listeners will often be accessing via the Internet, far more accurate audience tracking than is undertaken of conventional radio listeners is possible, implying better service for advertisers. Furthermore there is scope for delivering localized, and even

Figure 6: The status of Radio 2.0

	Availability in 2006	Advertising revenue potential	Consumer payment potential
Analog radio	High	High	Low
Digital radio	Medium	High	Low
Mobile radio	Low	Low	Medium
Satellite radio	Medium	High	High
High definition radio	Low	High	Medium
Free streaming	High	Low	Low
Subscription services	High	Low	High
Podcasts	Medium	Low	High
Archive services	Low	Low	High
Aggregation services	Low	Low	High

Source: Deloitte Touche Tohmatsu, 2005.

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"Furthermore the growing digitization of radio archives could be opened up and licensed to content aggregators. Listeners accessing broadcasts via Internet Protocol (IP) networks can be monitored more accurately than those listening via traditional radios, enabling new approaches to charging for advertising. As new forms of consuming radio emerge, traditional radio will likely remain a genuinely mass medium — with an installed base of 1.8 billion radio sets

customized, advertising.

- The digitization of the radio archive. Particularly where content is proprietary (such as drama, comedy, news and sports) radio stations now have significant opportunities to repackage and resell content commissioned over the last few decades. Digitization also enables revenue generating replay services for listeners who missed the original broadcasts.

- The emergence of subscription radio on a global scale. The radio sector should

**'Making radio functionally more complex serves no one. Radio 2.0 must be as intuitive and easy to consume — if not more so — than the current version.'**

worldwide. Regular AM/FM radio will continue to attract a healthy share of global advertising spending.

### Bottom line

"The days of radio as a single, broadcast product are coming to an end," Deloitte continued in its report.

"Through offering consumers a widening scope of ways in which to consume radio content, the radio industry has the potential to boost its revenues significantly. Preparation will be key: what is happening is far more than just an explosion of distribution options."

"Rather, the business model for radio is being rewritten. The implications of Radio 2.0 that require consideration include:

- The globalization of local radio. Radio stations should no longer regard their broadcasts as regional or national: every radio station can now appeal to a

learn from the experience of television, which in some key markets evolved from advertising-dominated to subscription-dominated in just a few decades.

- Delivering choice, not complexity, to customers. Digital radio platforms offer enormous technical flexibility, from time shifting to digital recording. These features, along with electronic programming guides, reminders, recommendations and other conveniences, should be used to ensure that the next generation radio experience is noticeably better than its predecessor. At the same time, however, simplicity must be central to all players' strategies. Radio is a very simple, easy-to-use medium, and consumers have had many decades of experience with AM/FM radio sets. Making radio functionally more complex serves no one. Radio 2.0 must be as intuitive and easy to consume — if not more so — than the current version."

# WMKV

► Continued from page 66

Cincinnati. "About 60,000 listen into our streaming audio online, based on the number of hits we get each month," he said. "They come from all over: the U.S., Canada, Japan, England, Russia, Germany and even Vietnam."

Although WMKV's target demographic is definitely 65 and up, the station does have listeners from all age groups.

For instance, 16-year-old Peyton McCormick, Miss Ohio Teen USA 2006, recently e-mailed to say, "I absolutely love listening to WMKV!" Hearing the station asking for support, she offered to help fundraise.

Meanwhile, 21-year-old Michael Collins e-mailed that "I absolutely love your station," while 28-year-old Dan Bowman wrote to tell the station to "keep

## Mondays at WMKV

*A one-day sampler from the WMKV Program Guide. Daily programs also include features such as "Poet's Corner," "Blurbs From the Suburbs" and "Meals on Wheels Hour."*

*When the White House Conference on Aging was held in Washington recently, General Manager Alan Bayowski and "Washington Report" host Bill Benson covered the event and filed live reports four times daily.*

### 5 a.m.

"Everybody's Planning Hour" — A weekly one-hour call-in program that "focuses on a broad range of subjects important to us all if we are to age successfully." Features Lew and John Gatch as hosts, supported by a grant from The Bahmann Foundation.

### 9:30 a.m.

"Your Old Economics Professor" — Dr. Martin Gerhard Giesbrecht "makes economics accessible and intellectually enlightening." A real former university economics professor, he also performed with jazz bands and plays the clarinet on the air to open and close his announcements.

### 10 a.m.

"Music and Memories: With Attitude" — Journalist, broadcaster and author Alice Hornbaker brings listeners music from the big-band era and commentary with "attitude, humor and news for mature adults."

### 1 p.m.

"The Family Caregiver Hour" — Liz Tassone and "America's First On-the-Air Support Group for Caregivers."

### 2 p.m.

"Charlie Murdock's Editorials" — Commentaries from the former president and general manager of WLW.

### 5 p.m.

"Music and Memories: With Attitude" (see 10 a.m.)

### 7 p.m.

"The Link Pavey Show" — Music for big-band lovers. One hour on Saturdays at 5 p.m. and Mondays at 7 p.m.

playing that great music and blessing so many of us throughout the country (and the world)."

And 45-year-old U.S. Coast Guard officer Jim Seeman — who listens when he

does when he's in town is to tune in. He enjoys the selection of big-band music, as well as the "excellent DJs who explain the song as well as the history of the singer." Seeman likes to hear recordings of old-

ing — makes you feel as if you are at home in a comfortable chair with a great friend who knows lots of music and is sharing that with you," he wrote.

As an educational broadcaster, WMKV doesn't sell commercials. However, Bayowski bristles at the idea that the audience he serves has little to offer advertisers and is not worth being served by commercial broadcasters.

"So many advertisers are working with the stereotype that seniors are complacent, that they don't get around and that they don't spend any money," he said.

"In fact, many of them are in very good physical condition, maintain two cars and keep working, and like to spend money on their children and grandchildren. Frankly, there are a lot of products that can be sold to seniors beyond pharmaceuticals."

**The programming is inviting — makes you feel as if you are at home in a comfortable chair with a great friend who knows lots of music and is sharing that with you.**

— Jim Seeman

visits his spouse Kristen Kohler and their dog Colonel Grady — told Radio World via e-mail that one of the first things he

time radio shows, and enjoys the station's focus on the local area.

"In general, the programming is invit-



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# How Vulnerable Are You?

Disaster planning makes headlines year after year, as broadcasters continue to discover that operation of their facilities can be undone or hindered by weather or man-made attack.

The charts shown here constitute a "Local Radio Station Model Vulnerability Assessment Checklist." It was developed by a working group of the Media Security and Reliability Council in late 2004, and is also part of a larger "Local Radio Station Model Disaster Recovery Plan & Incident Response manual," released last November and available online at [www.fcc.gov/msrc](http://www.fcc.gov/msrc). With emergency planning yet again on the agenda during the approaching NAB convention, Radio World reprints it now.

The purpose of these charts is to provide guidelines to assist local stations in assessing vulnerabilities. The organizers took pains to point out that the list is not intended to be comprehensive; stations were encouraged to adapt to accommodate their unique requirements.

The group also issued a list of best practice recommendations, noting that radio broadcasters should:

- have appropriate physical security, augmented by security personnel and/or video surveillance at their key facilities, including studios/newsrooms, satellite transmit and receive sites and antenna/transmitter sites;
- employ diverse power grid sources wherever feasible;
- take appropriate measures to provide backup power capabilities for their key facilities, including studios/newsrooms, satellite communications and transmitters;
- if they have local news origination, ensure that they have robust and redundant ways to communicate with external news services and remote

news teams, such as the use of mobile radio and Internet to augment cell phones;

- have backup signal feeds to their primary satellite transmit and receive sites;
- have redundant signal paths to their primary and backup transmission facilities;
- if they have local news origination, plan to have emergency origination capability at a separate location from their primary studio (e.g., backup studio, transmitter site, remote van, another station, etc.);
- if they have local news origination, have a remote vehicle, or some means of delivering live news and information from a remote site;
- have the capability of receiving a remote feed at an additional site from their primary studio (e.g., directly at their tower site, at a backup studio, etc.);
- have a backup satellite transmitter and receiver, or an alternate means (e.g., a satellite radio receiver, a dedicated phone line or a streaming audio Internet connection) to send and receive signals from and to national news services in emergency situations;
- have a backup transmitter, and should attempt to make practical arrangements for geographic diversity where possible (e.g., provisions for emergency use of other backup transmitter/antenna facilities in the community or other means);
- The group also said radio broadcasters in a market should, with the cooperation of federal and local policy makers, collaborate to increase collective site diversity and redundancy, including their collective news studios, operations, satellite transmit and receive facilities and transmitter and antenna sites.

## Studio Planning

<b>Backup Origination Facilities</b>	Does a backup studio exist at an offsite location?	Yes	No
<b>Backup Power</b>	Does the Studio facility have backup power?	Yes	No
	Does the primary transmission facility have backup power?	Yes	No
	Does the backup studio facility have backup power?	Yes	No
	Does the backup transmission facility have backup power?	Yes	No
	Can backup power operate long enough to implement the recovery plan?	Yes	No
	Where backup power is available is it automatically activated?	Yes	No
	Are the backup power systems routinely tested under load?	Yes	No
	At least once a year is the backup power tested while the facility is disconnected from the power grid?	Yes	No
<b>Security</b>	Are security protocols sufficient to prevent unauthorized access to the studio facilities?	Yes	No
<b>Emergency News &amp; Information</b>	If national network news agreements do not exist, is there an agreement to carry emergency news from alternate sources?	Yes	No
	In the event of a failure of the newsroom computer system is there an alternate plan to get news on the air?	Yes	No
	Can Emergency Alert System (EAS) alerts be received and rebroadcast from backup facilities, if such facilities exist?	Yes	No

## Disaster Recovery Plan

Does a Disaster Recovery Plan exist which details how to effectively assess impact to the facilities and recovery operations in the event of an emergency?	Yes	No
Does the Disaster Recovery Plan address timely activation of any backup origination facility in time of emergency?	Yes	No
Does the Disaster Recovery Plan include backup delivery methods for network or other programming?	Yes	No
Does the Disaster Recovery Plan include reception and delivery of emergency news?	Yes	No
Does the Disaster Recovery Plan identify essential personnel necessary to carry out restoration efforts?	Yes	No
Does the Disaster Recovery Plan include agreements to gain assistance from other broadcast, cable and production operations?	Yes	No
Does the Disaster Recovery Plan identify essential equipment and service suppliers, including contract engineers, construction and installation companies, fuel, and external telecommunications providers, to ensure availability of critical resources?	Yes	No
Does the Disaster Recovery Plan include alternative methods to communicate with key field personnel in the event that radio, cell systems or other primary methods are inoperable?	Yes	No
Does the Disaster Recovery Plan include data restoration and offsite backup of program and playback software (restoration of data includes servers, remote control systems, telephones, and routers)?	Yes	No
Is the Disaster Recovery Plan periodically reviewed and updated?	Yes	No
Is the Disaster Recovery Plan periodically tested and rehearsed?	Yes	No

## Terrestrial Transmission

<b>Backup Transmission Facilities</b>	Is there a backup transmitter and antenna available?	Yes	No
	If there is a backup transmitter and antenna site, is it geographically diverse from the primary location?	Yes	No
	Does the backup transmitter and antenna provide service to the metro area?	Yes	No
<b>Backup Power</b>	Does the primary transmission facility have backup power?	Yes	No
	Does the backup transmission facility have backup power?	Yes	No
	Can backup power operate long enough to implement the recovery plan?	Yes	No
	Where backup power is available is it automatically activated?	Yes	No
	Are the backup power systems routinely tested under load?	Yes	No
	At least once a year is the backup power tested while the facility is disconnected from the power grid?	Yes	No
<b>Security</b>	Are the security protocols sufficient to prevent unauthorized access to the transmission facilities?	Yes	No
<b>Redundant Signal Routes</b>	Is there a backup signal path to the primary transmitter facility?	Yes	No
	Do these redundant paths include diverse technologies, (i.e., wired and wireless)?	Yes	No
	Is there a backup signal path to the backup transmitter facility?	Yes	No
	Do these redundant paths include diverse technologies, (i.e., wired and wireless)?	Yes	No
	Are there auxiliary TV or radio tuners at the transmitter site that can be used as an alternate source of news and information?	Yes	No
	Is a RPU system available for remote broadcasts?	Yes	No
	Can the RPU signal be received at the transmitter site?	Yes	No
	If so, can the RPU signal be switched into the transmitter by remote control?	Yes	No
<b>Transmission remote control</b>	Can the transmitter site(s) be remotely controlled from locations other than the main studio?	Yes	No
	Can the transmitter site(s) be controlled with diverse technologies, (i.e., wired and wireless)?	Yes	No

## More Info

Charts on this page are reproduced from the "Local Radio Station Model Vulnerability Assessment Checklist," developed by the Toolkit Working Group for the Media Security and Reliability Council, Nov. 16, 2004.

This information is also part of a larger "Local Radio Station Model Disaster Recovery Plan & Incident Response Manual," released November 2005.

Both are available online at [www.fcc.gov/msrc](http://www.fcc.gov/msrc).

# JUST ENOUGH TEST



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With the addition of the optional MiniSPL measurement microphone, the ML1 also functions as a Sound Pressure Level Meter and 1/3 octave room and system analyzer. Add the optional MiniLINK USB computer interface and Windows-based software and you may store measurements, including sweeps, on the instrument for download to your PC, as well as send commands and display real time results to and from the analyzer.

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- VU + PPM meter/monitor
- 1/3 octave spectrum analyzer
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- Scope mode
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### DL1 Digilyzer Digital Audio Analyzer

With all the power and digital audio measurement functions of more expensive instruments, the DL1 analyzes and measures both the digital carrier signal (AES/EBU, SPDIF or ADAT) as well as the embedded audio. In addition, the DL1 functions as a smart monitor and meter for tracking down signals around the studio. Plugged into either an analog or digital signal line, it automatically detects and measures digital signals or informs if you are on an analog line. In addition to customary audio, carrier and status bit measurements, the DL1 also includes a sophisticated event logging capability.

- AES/EBU, SPDIF, ADAT signals
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- Status/User bits
- Event logging
- Bit statistics
- VU + PPM level meter for the embedded audio
- Monitor DA converter and headphone/speaker amp

### NEW! AL1 Acoustilyzer Acoustics & Intelligibility analyzer

The AL1 Acoustilyzer is the newest member of the Minstruments family, featuring extensive acoustical measurement capabilities as well as core analog audio electrical measurements such as level, frequency and THD+N. With both true RTA and high resolution FFT capability, the AL1 also measures delay and reverberation times. With the optional STI-PA Speech Intelligibility function, rapid and convenient standardized 'one-number' intelligibility measurements may be made on all types of sound systems, from venue sound reinforcement to regulated "life and safety" audio systems.

- Real Time Analyzer
- Reverb Time (RT60)
- High resolution FFT with zoom
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- THD+N, RMS Level, Polarity

### MR1 Minirator Analog Audio Generator

The MR1 Minirator is the popular behind-the-scenes star of hundreds of live performances, remotes and broadcast feeds. The pocket-sized analog generator includes a comprehensive set of audio test signals, including sweep and polarity signals which work in conjunction with the ML1 Minilyzer.

- Sine and square waves
- Pink & white noise
- Polarity test signal
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- Balanced and unbalanced outputs

### MiniSPL Measurement Microphone

The precision MiniSPL measurement microphone (required for the AL1 Acoustilyzer and optional for the ML1 Minilyzer) is a precision reference mic for acoustical measurements, allowing dB SPL, spectrum and other acoustical measurements to be made directly.

- 1/2" precision measurement microphone
- Self powered with automatic on/off
- Omni-directional reference microphone for acoustical measurements
- Required for the Acoustilyzer; optional for the Minilyzer

### MiniLink USB interface and PC software

Add the MiniLINK USB interface and Windows software to any ML1 or DL1 analyzer to add both display and storage of measurement results to the PC and control from the PC. Individual measurements and sweeps are captured and stored on the instrument and may be uploaded to the PC. When connected to the PC the analyzer is powered via the USB interface to conserve battery power. Another feature of MiniLINK is instant online firmware updates and feature additions from the NTI web site via the USB interface and your internet-connected PC.

- USB interface fits any ML1 or DL1
- Powers analyzer via USB when connected
- Enables data storage in analyzer for later upload to PC
- Display real time measurements and plots on the PC
- Control the analyzer from the PC
- Firmware updates via PC
- MiniLINK USB interface is standard



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GUEST COMMENTARY

# What Is the Real Future of HD Radio?

*New Channels Will Be a Wasted If They Don't Carry Truly Better Creative Programming*

by Bob Raleigh

The author is a programmer/consultant for Jones Radio Networks/Seattle.

The other day I was having a conversation with a market manager about HD Radio. He was going on about how wonderful the audio quality was going to be — much better than what we get now with our main terrestrial signals and certainly better audio quality than what satellite radio has to offer. And here is the best part: It's free! Yippee!

OK. I agreed with him on the audio quality part. It does sound better. The free part, not so much.



Bob Raleigh

Nothing is free. You will have to buy new receivers. Your current ones won't pick up anything in HD. But at least you don't have to pay a subscription for it. Time will tell how willing consumers will be to fork over more money for a new radio.

#### Waste of time?

Wait; I'm getting to the point behind that last statement.

I then asked the manager how he was going to program his new channels in his four-station cluster. After all, he will now have four more new stations to supply content to.

He immediately answered with "all this great music we can't put on our existing stations. It will be wall-to-wall music for at least a year. No commercials. And we'll stream it online until the receivers get into the marketplace."

So basically, I said, "You're going to be a giant iPod that either I have to leave in my car, or leave in my house. I won't be able to take it with me wherever I go outside of those two places, like I can my iPod."

He suddenly got that blank stare, as if I just told him his daughter was going to marry the station mascot (nothing against those wearing mascot suits, I did it in a previous life).

I said, "If that is all you are going to do, don't waste your time or the bandwidth. I can get that now without investing in an HD Radio. And quite honestly, while music is extremely important and is the first thing music radio listeners

tune in for, it's not the only thing."

Here is my point on whether consumers will fork over money for new radios or not. It's content that is going to drive receiver sales, not better audio quality of the same stuff we've been giving them.

And has always been the case, it will be content that ultimately wins the battle for the listeners' ears.

I've read and listened to all the radio group heads, most of them fairly smart people, and even some of the folks who work for Jones Radio, all really smart

people, talk about how HD Radio will be the thing that saves radio from satellite, iPods, Internet radio and all the other things eroding radio listening.

I've not read or heard one person talk about how we are going to train new radio talent to be compelling on-air talent, how we are going to better serve our community with localism, teach our PDs to be more than a music director on steroids, build a stronger news staff, offer better weather coverage, get involved with community events, or how to simply be better at being entertaining and informative.

It appears we are all going down the same road we've already been down.

We're relying on content we neither own nor have total control over — the music — to get us where we need to go.

#### Do it now

Most of the big companies and broadcasters are very excited and passionate about the dawn of HD Radio. Fine. Let's be just as excited and passionate about the signals we already have and can actually be heard now by all listeners.

Let's work now to start providing better content between the songs. Let's let our PDs actually program and be creative now. Let's get our talent focused and let them be creative now. Let's start getting back to being community oriented and being creative now.

Because if we don't, and we bring the same type of programming to our HD

See FUTURE, page 75 ▶

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# Tips for Dealing With the Media

I once had a client who owned a restaurant.

While I'd like to say I'm a food industry expert, I'd be lying. (I do make mean spaghetti and meatballs, but that's another story). The client hired me to help with the launch of a new eatery.

We worked on the look of the menu, the logo, advertising and public relations. He already knew that the restaurant critic for the biggest newspaper in town was game to write a major story about the place. When I inquired about their relationship, he told me they were good friends and that I shouldn't worry about it.

I said that I was a bit concerned with

that attitude, but my client continued: "It's cool. I asked her not to come until a few weeks after we're open and she was fine with that." A few weeks passed and I asked about the critic again. The response: "Oh, I asked her to wait a few more weeks. We're just not ready yet."

My client was shocked when the critic showed up anyway. Worse, the critic hammered the owner in print for asking her to wait. The critic reasoned that if the owner was asking customers to pay full price, he was ready to be reviewed.

#### No appetite for bad news

I'm sure you won't be surprised to know that the critic delivered a poor

review, which in turn, was damaging for business.

I soon lost the client. It took me a bit to figure out why. I had given him poor advice about his "friend"—or better put, I hadn't expressed how strongly I felt about the minefield he was entering.

Perhaps I can make amends by giving you more pointed advice for times when you are on the other end of the media relationship, dealing with press people when you are the news source rather than the employer or manager.

Don't kid yourself into believing that a reporter is your friend. This is especially true for print journalists, who pride themselves on being non-biased and outside

## Promo Power



**by Mark Lapidus**

the realm of influence. You may have many lunches, dinners and outings with your reporter friend(s), but this only grants you one thing — though a very important thing — which is access.

The fact that a reporter will return your phone call or respond right away to your e-mail is useful. When you have a good relationship, the reporter likely will also listen to your opinion or that of your corporate honchos. If you're lucky and the reporter knows his craft, he will also call you to confirm, deny or defend things when others attack you or your company.

If you build up trust, reporters may even come to use you as a resource to suggest stories or steer them to other sources who can help them in their pursuit of the truth.

But don't expect your "friend" to protect you or comply with what you assume to be reasonable assumptions or limitations on information. That's not his job. You'll do yours better if you understand the professional nature of that relationship. Be truthful with reporters if you decide to share information. But remember that you and the reporter have different professional objectives. Do not be surprised when they see their goals in a different light

See MEDIA, page 76 ►

## Future

► Continued from page 74  
channels that we have now, it's going to be AM stereo and Quad FM all over again.

Television has had HD for a while. Let's learn from them. Quality programming is what wins, not whether it's in HD or not. Bad programming is still bad programming. Except that it's bad programming in high definition.

Remember the recent ABC-TV show "Emily's Reasons Why Not?" Don't feel badly if you don't. It was a bad show. "But it was in HD!" Still a bad show. It lasted one episode in spite of major marketing and a high-profile star. Let's make sure our new HD channels have truly better creative programming that relies on more than just the music.

Otherwise you just might end up like the above-mentioned TV show, which is not a good thing. Just ask Heather Graham.

This article originally appeared in the Jones Radio Networks Sharepoints client newsletter. RW welcomes other points of view.

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# Media

► Continued from page 75  
than you do.

How important is good press for a radio station?

## Goodwill

While difficult to measure, beneficial press can create goodwill among listeners and advertisers. I have witnessed firsthand that goodwill can make a difference in the mind of an advertiser choosing to buy between stations. Perhaps even more important, I have heard listeners in focus groups remark about remembering a station specifically because they read about it in a local paper or saw it on a television

news story.

Our entire Arbitron game is one of recall. Don't discount what goodwill can do for you.

Not all media coverage is of equal value (as you know well, if you work at a news station that sits at the top of the ratings, or if you looking up at another one).

In major markets, it's common for one newspaper to have market-wide reach and to influence other media with the stories they cover. This doesn't mean you should ignore other newspapers or TV stations, but it can dictate your priority level on who gets the story first and with whom you should have the deepest relationship.

A word about press releases: It's not 1990 anymore, but that doesn't seem to prevent stations from ignoring the fact

that e-mail and Web sites exist.

If more than three people know a secret, it's likely to get out through the Internet very quickly. If you spend a day or longer working on a press release that then has to be approved by five people before it's sent out, while others are already talking about it online, you are no longer in control of the message. Someone else will tell your story for you — and they will put their spin on it.

Also, don't underestimate how important it is to send out releases about station events and stunts to TV stations. It only takes a few minutes to do and can get you on TV during a slow news day. You should fax and e-mail all releases.

Send the interesting ones to our own industry trade press as well. Good ideas find a place in publications like this one,

and it can help with your own professional advancement and that of your employer.

Can just anybody handle press relations? No. And the bigger the market, the more there is to lose.

If your media relations person doesn't know how to "go on background," or doesn't clearly know how your station or company wishes to be represented on certain issues, you could be in trouble. I've seen careers ruined when the wrong things were said at the wrong time. Contrary to the common dictum, there is such a thing as bad press.

If you don't believe me, ask my former client.

*The author is president of Lapidus Media. Contact him at marklapidus@yahoo.com.*

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and it can help with your own professional advancement and that of your employer.

Can just anybody handle press relations? No. And the bigger the market, the more there is to lose.

If your media relations person doesn't know how to "go on background," or doesn't clearly know how your station or company wishes to be represented on certain issues, you could be in trouble. I've seen careers ruined when the wrong things were said at the wrong time. Contrary to the common dictum, there is such a thing as bad press.

If you don't believe me, ask my former client.

*The author is president of Lapidus Media. Contact him at marklapidus@yahoo.com.*

# Vehicles

► Continued from page 68

If your station serves a large area, consider having your drivers carry cards for "frequent fueler" and rewards programs from the national truck-stop chains like Pilot, T/A and Flying J, for example.

It's worth the time to ask for a membership application; and in most instances these cost nothing. From our experience nationwide at Flying Js, you save at least a penny over the posted price each time you fuel, and can save up to 2-1/2 cents per gallon per month, depending on how much you spend on non-gas purchases. Doesn't sound like much, does it? But remember the business aphorism: If you watch the pennies, the dollars will take care of themselves.

That advice also applies to oil changes, lubrication, vehicle inspection, etc. The cheapest insurance you can buy for a vehicle that is expected to give day in and day out service is an oil and filter change every 3,000-4,000 miles. This is one instance where you should not follow the owner's manual recommendation.

Tires need to be rotated every 6,000 miles in order to equalize wear between the back and front.

If you lubricate and inspect the car every 12,000 miles, you can catch little problems before they become major expenses. If you follow the fleet or severe service recommendations in the owner's manual, you can keep the vehicle running like new for a long while.

Of course, a vehicle should never leave station property without the registration and insurance card in the glove compartment. It also is sound practice to make a legible photocopy of both documents and keep them on file, away from the vehicle. Believe me, it will save time if the separate documents should get misplaced.

If you have further tips for operating a station vehicle or fleet more efficiently, send them to [radioworld@imaspub.com](mailto:radioworld@imaspub.com) for possible inclusion in a future article.

*Paul Kaminski is news director for the Motor Sports Radio Network and host of its "Radio-Road-Test" program, on the air since 1993. He contributes reports to CBS News Radio. E-mail him at [motorsportsradio@msrpk.com](mailto:motorsportsradio@msrpk.com).*

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IN THE NEWS

# Minot: Davis 'Sets Record Straight'

*Steve Davis, senior vice president of engineering for Clear Channel Radio, spoke at the National Alliance of State Broadcasters Associations' 2006 National Summit on EAS and Emergency Communications in Alexandria, Va., last month. The broadcaster previewed his remarks as its "first public comments" after "four years of misinformation" about the Minot incident, which Clear Channel critics and others have used in describing problems with EAS and broadcasters' involvement in it.*

**Excerpts:**

I have the challenge of directing Clear Channel's preparation for, and response to, natural disasters and accidents with dangerous implications.

I personally worked on Clear Channel's response to Hurricane Katrina, which had an impact on Clear Channel's radio operations in a number of our radio markets, besides New Orleans. Damage to our infrastructure resulted in downed towers, loss of electrical power, loss of transmitting facilities and satellite reception capability.

Clear Channel's long tenure in the broadcast industry has enabled us to amass a considerable stockpile of resources that proved invaluable in helping our stations, and our fellow broadcasters, before, during and after the storm. Our staff proved courageous, resourceful and generous as we guided communities through that difficult time.

But as we all know, hurricanes are unlike other disasters such as earthquakes, terrorist strikes and other unforeseeable accidents because there is some advance warning.

This is where the Emergency Alert System is the most critical.

Clear Channel has been working with the EAS since its inception in 1994, as

well as its predecessor the Emergency Broadcast System. Over the years, there have been countless examples of the systems working well, both in situations involving adverse weather and unforeseen, dangerous events.

#### Core element

There is no debating that EAS equipment is a core element of the country's first response effort. Our responsibility as a broadcaster is twofold: to deliver the

it became clear that local authorities were not successful in activating the EAS system to alert citizens of the dangerous conditions.

For those who aren't familiar with radio engineering jargon, "activated" refers to when a third-party automatically interrupts a radio station's signal remotely. It's a hallmark of the Emergency Alert System. The National Weather Service is the most frequent user of this feature, for things like tornado warnings. But all local

**The truth of the matter is that local law enforcement [was] unable to execute EAS procedures that night — they did not and could not activate the EAS ... because, tragically, local law enforcement had not installed their equipment.**

— Steve Davis

equipment to local authorities (in many cases, we subsidize the equipment also), and to ensure that the EAS equipment at each of our stations is fully operational so that local or Federal authorities can automatically interrupt our broadcasts with public-safety messages.

But Clear Channel does not stop there. The company's commitment to public safety was evidenced last year when a train derailed in Graniteville, S.C., spilling harmful chemicals causing deaths and endangering citizens. Clear Channel employees in Georgia and South Carolina went above and beyond the call of duty that day to step in when

and Federal authorities have the ability to do this as well.

In the case of Graniteville, Clear Channel collaborated with the National Weather Service in Columbia, S.C., and the local emergency management office in Augusta, Ga., to determine that no station was activated properly.

It is unclear exactly how the local authorities attempted to activate the EAS, but the South Carolina primary station, WCOS(FM), and the secondary station, WLJK(TV), were not activated by the local authorities, even though the EAS equipment at those stations were working properly at the time of the acci-



Steve Davis

dent. We receive test results monthly from both stations, so we know the stations' systems were fully operational.

It was determined later that the local authorities did not properly operate the EAS equipment in their possession, nor did they verify that the attempt to send alerts was received by the public.

#### Fatal incident

Herein lies the problem. That day, Clear Channel's local engineers manually activated their own stations, helping to avert possible public contact with the dangerous chemicals. But that safety net will not always be there.

Local authorities must have adequate training on the equipment and procedures to ensure the safety of our communities. Yet, sadly they often don't. And the problem is too often hidden from view because EAS equipment at radio stations, the National Weather Service and other federal agencies is fully operational — and the professionals tasked with operating it are well-trained.

But not always.

See RECORD, page 80 ▶

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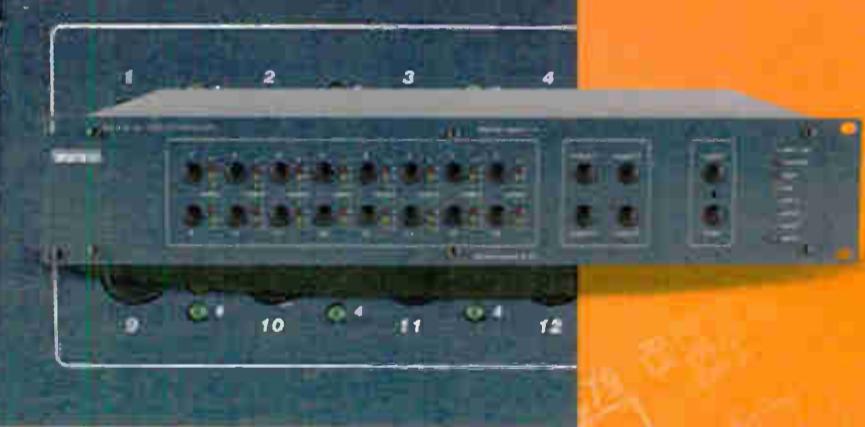
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## SS 16.16

The SS 16.16 provides audio routing of 16 stereo inputs to 16 stereo outputs. This type of routing allows any one stereo input to be assigned to any/or all stereo outputs. The SS 16.16 may be controlled via front panel encoder controls and/or a multi-drop RS-232 serial port. A 40 x 4 LCD back lit display provides for input descriptions and macro setup. Additional features: headphone amplifier with front panel jack and level control, front panel monitor speaker with mute switch and level control, internal audio activity/silence sensor with a front panel ACT indicator and rear panel open collector, and a 16 GPIO port. FREE Windows NetSwitch remote control software, which supports Serial, USB and Ethernet with the optional ESS-1 Ethernet to serial converter, is available for download. Installation is simplified with plug-in euroblock screw terminals.

STEREO SWITCHER



## SS 16.4

The 16.4 provides matrix audio switching of 16 stereo inputs to 4 stereo plus 4 monaural outputs. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The SS 16.4 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 or RS-485 serial port along with 24 GPIO's and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

AUDIO CONTROL SWITCHER



## ACS 8.2

The ACS 8.2 provides matrix audio switching of 8 stereo inputs to 2 stereo plus 2 mono outputs. Any input assigned to output one has fading capabilities. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The ACS 8.2 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 serial port along with 16 GPI's, eight relays, eight open collector outputs, and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

STEREO SWITCHER



## SS 4.2

The SS 4.2 provides matrix audio switching of 4 stereo inputs to 2 stereo plus 2 mono outputs. Matrix switching allows any/or all inputs to be assigned to any/or all outputs. The SS 4.2 may be controlled via front panel switches, contact closures, 5-volt TTL/CMOS logic and/or the multi-drop RS-232 serial port along with 16 GPI's, eight GPO's, and input expansion port. Installation is simplified with plug-in euroblock screw terminals.

DUAL STEREO AUDIO SWITCHER



## SS 8.2

The SS 8.2 provides crosspoint switching/routing with 8 stereo inputs, 2 stereo plus 2 mono outputs. 3 switching modes, I/O trimmers, internal silence sensor, selectable headphone and powered speaker level controls and outputs. LED VU meters, 16 GPI's, eight relays and eight open collector outputs. Multi-drop RS-232 and RS-485 serial ports, plug-in euroblock screw terminals and input expansion port.

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STATION SERVICES

## Bluegrass Show Expands

The Bluegrass Radio Network has expanded its syndicated program "Into the Blue" to three hours.

The network says the program is the largest syndicated bluegrass radio show in the nation. Founder and host Terry Herd noted "explosive growth" in the popularity of music genre.

The program has approximately 180 weekly affiliate stations. It is described as "a tight, upbeat production with commercial appeal."

"There are so many fans who thirst for the music," Herd said. "Into the Blue" is available to commercial radio stations on a barter basis.

*For information contact the company in Kentucky at (859) 881-9155 or e-mail alradio@aol.com.*

## Play 'Would You Rather'

The website BitXchange said it obtained radio rights to "Would You Rather," which offers participants the option of two potential situations and has them pick the one they would rather choose.

The site offers affiliates the opportunity to get 10 new questions each week and uses the game options as discussion and debate starters for morning shows and talk radio programs.

BitXchange is a show prep service. The site also has news clips and information, guest booking opportunities and "bit sharing" with other shows in the same format. L.A. programmer and consultant Mike Marino is chief editor. The site offers barter deals; it is offered through Envision Radio Networks.

*For information call (216) 378-5101 in Ohio or visit [www.thebitxchange.com](http://www.thebitxchange.com).*

## GreenStone Introduces Format For Women

GreenStone Media LLC is pitching its "mass-appeal talk format for FM radio, expressly for women, by women." The effort is headed by Executive Vice President/Chief Operating Officer Edie Hilliard.



Edie Hilliard

The target demo is women 25-54, skewed 35-44. Hilliard described its programming as a "foreground talk format to engage today's woman ... contemporary and relevant, talking about the issues and events that real women talk about every day."

The company will have three daypart shows plus weekend programming. Mornings feature Maureen Langan, Cory Kahaney and Nelsie Spencer; middays are anchored by Lisa Birnbach; afternoon drive hosts are Kathy Najimy and Mo Gaffney.

*For information contact the company in Seattle at (206) 778-3808 or e-mail [jimlamarca@greenstonemedia.net](mailto:jimlamarca@greenstonemedia.net).*

## Sean and Richie Salute Cops

WGNA(FM) in Schenectady, N.Y., held its second annual Blue Friday and raised \$11,700 for the group Concerns of Police Officers, C.O.P.S., which helps families of law enforcement officers killed in the line of duty.



Listeners to the Regent Communications station were encouraged to wear blue that day, and they were invited to stop by two locations — a local car dealer and a mall — to purchase blue carnations, Blue Friday T-shirts and C.O.P.S. shirts. The "Sean and Richie" morning show did a remote and representatives from numerous police agencies took part.

The morning show began Blue Friday last year to commemorate the anniversary of the deaths of Albany Police Lt. John Finn and Schenectady Police Officer Eric Verteramo and the sacrifices made by other police officers.

corrected.

It is not enough to subsidize the cost of EAS equipment and deliver it to local law enforcement. Local law enforcement must be properly trained in EAS procedures and equipment — and the equipment must be properly installed. This is especially critical in the nation's smallest communities, which are at the highest risk.

It bears repeating that success depends on three things:

- That the federal agencies overseeing the nation's Emergency Alert System ensure that EAS equipment at local law enforcement facilities is operational and that local law enforcement and emergency personnel are properly trained in its use and EAS procedures.

• That local broadcasters ensure that their equipment is operational and that their staff is properly trained.

• That there is a healthy dialogue and collaboration among local authorities and broadcasters ... And that means that if there are individuals that cannot perform in this manner, those individuals are replaced with individuals who can.

We must all accept our collective and interwoven responsibility as first responders.

And so we implore those with the authority to correct the problem to do so in a timely fashion. The EAS system can, and has, worked. We need 100 percent cooperation to ensure it will work 100 percent of the time.

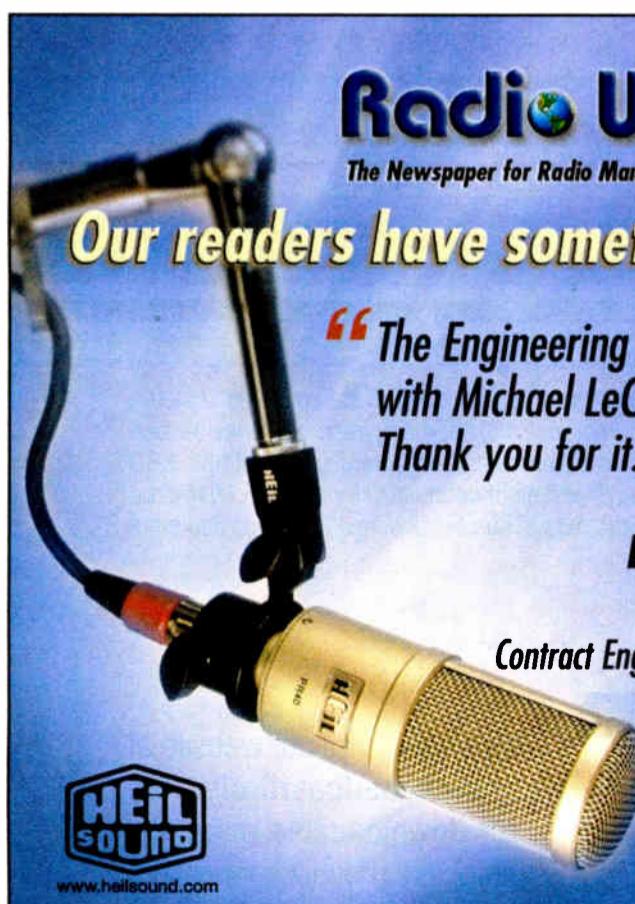
So, with the goal of moving forward and working towards a safe 2006, I thank you for your time today and I look forward to the collaboration between the public and private sector in ensuring public safety is a number one priority.

**Radio World.**  
*The Newspaper for Radio Managers and Engineers*

**Our readers have something to say**

**"The Engineering Extra with Michael LeClair is super. Thank you for it."**

**Lyle Henry, CPBE**  
*"The Radio Doctor"*  
Contract Engineer/SCA Consultant  
Los Angeles



**HEIL SOUND**  
[www.heilsound.com](http://www.heilsound.com)

Shown: Heil PR40 Large-Diameter Dynamic Studio Microphone.

# BROADCAST

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and Repair

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**Antennas:** one bay of ERI roto tiller, power input to 30KW, 3 1/8" and ready from At. GA to shipping about 60 lbs \$350. ask for Allen @ [alleo21@yahoo.com](mailto:alleo21@yahoo.com) or call (770)-300-9287 8-6pm est

New unused 6 bay omnidirectional, center-fed, side mounted "Penetrator" style FM antenna. Can be tuned from 102.7 to 106.7. With Radomes. Only \$18,500 plus shipping. For more information call 707 786-5104 or e-mail patrick@khum.com.

### AUDIO PRODUCTION

#### WANT TO SELL

Telos Zephyr 9202 Digital Audio Unit Layer II & III, Factory Restored - \$1800 - contact Allan at [allan@radioresultsnetwork.com](mailto:allan@radioresultsnetwork.com)

**Radio World.**  
Equipment Exchange

### AUTOMATION EQUIPMENT

#### WANT TO SELL

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**Macromedia Airport-** A pair of airport workstations with Crown audio cards music on hard drive, live assist or sat network. Very reliable \$4000 obo-Call Jason Cave 540-801-1057

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#### WANT TO SELL

ITC/Dynamax - 6 cart machines in good working order with a box of various carts. \$125 takes them all! Call Greg Myers at 928-341-9730

### CODECS

#### WANT TO SELL

Musicam Roadrunner ISDN Codec - used in studio, v. lightly for 3 months and resealed into orig carton, as new - \$1900 obo (Two available) plus ship. Please call Mathew at 225-229-3453 or email at [mathew@1stco.com](mailto:mathew@1stco.com)

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RENTALS-  
  
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#### WANT TO BUY

Ampex AM-10 mixer in operating condition. Bill Cook, 719-687-6357.

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#### 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.

### MICROPHONES

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25 KW	1980	CSI-T-25-FA (Amp Only)
25 KW	1982	Harris FM25K
30 KW	1986	BE FM30A
35 KW	1990	Continental 816R-5B
50 KW	1982	Harris Combiner w/auto exciter-transmitter switcher

#### Used AM Transmitters

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- 55 KW UHF RCA TTU-55B, CH 25

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Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations only. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only.

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Please be aware that it takes one month for listings to appear.

The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

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Brief Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
Make: \_\_\_\_\_ Model: \_\_\_\_\_

Brief Description: \_\_\_\_\_  
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\_\_\_\_\_

\*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

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Station/Studio Services	\$200			
Classified Line Ad	\$2/word			
Blind Box Ad	\$16 additional			

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To advertise, call 703-998-7600 ext. 154  
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74	AEV SpA	www.aev.net
77	Air Corp	www.aircorp.biz
24	Altronic Research	www.altronic.com
63	Antenna Nord Telecomunicazioni S.r.l.	www.antgroup.it
51	Aphex Systems	www.aphex.com
25	APT	www.aptx.com
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17	Axia - A Telos Company	www.axiaaudio.com
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71	dMarc/Scott Studios	www.dmarc.net
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50	Gorman Redlich Mfg	www.gorman-redlich.com
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70	Grace Broadcast Sales	www.gracebroadcast.com
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18	Kintronics Labs Inc	www.kintronics.com
36	Klotz Digital Audio Systems Inc	www.klotzdigital.com
43	LBA Technology, Inc.	www.lbagroup.com
10	Logitek	www.logitekaudio.com
47	Moseley Associates	www.moseleysb.com
44	Mouser Electronics	www.mouser.com
21	Nautel Ltd.	www.nautel.com
29	NPR Satellite Services	www.nprss.org/rworld
73	NTI Americas, Inc.	www.nt-instruments.com
9	Omnia - A Telos Company	www.omniaaudio.com
56	Omnirax	www.omnirax.com
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59	Orban/CRL	www.orban.com
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## ◆ READER'S FORUM ◆

### The RW Crystal Ball

A few weeks ago, I got to chatting with a radio bud about Radio World. I mentioned to him the great articles you folks publish; I especially like the historical ones. RW needs more pictures and stories in that category.

I also enjoy looking into the Radio World crystal ball to see what will happen in the future. Sad to see many of us radio folks are no longer working full-time in the business, but as the crystal ball opens to the future, maybe with HD2 we can all get back on the air.

**Keep up the great  
work, Radio World. It  
keeps us thinking,  
puts us in tears and  
even sometimes  
makes our blood boil.**

— Al Ogrizovich

Keep up the great work, Radio World. It keeps us thinking, puts us in tears and even sometimes makes our blood boil.

The paper also needs more articles on DXing. Some radio folk think of us DXers as something out of "The X Files."

Al Ogrizovich  
Jacksonville, Fla.

### IBOC Should Not Be Embraced

I disagree with your opinion that "broadcasters should embrace IBOC" (*Reader's Forum*, Feb. 15).

Originally we were told that IBOC would improve audio quality and signal coverage. While an improvement to audio quality may be likely, it comes at a tremendous cost. Not only a major initial and ongoing financial cost, but IBOC has been shown to cause significant interference to other stations.

In addition, IBOC often provides less coverage than analog in real-world tests. It amazes me that the FCC is allowing co-channel and adjacent-channel interference from IBOC that it would never allow with analog.

Until IBOC can broadcast a clean signal that doesn't interfere with other stations, IBOC should not be embraced.

Richard Van Zandt  
Broadcast Engineer  
Edgewater, Fla.

### Internet an Alternative to LPFM

I have read with great interest over the past few years about community LPFM radio stations. Many articles stress what great media representation they make in their communities.

Unfortunately in the urban areas, LPFM radio stations cannot be done due to the already crowded radio dial. Perhaps urban community broadcasters looking to get their message out should look into the possibility of a community Internet radio station.

With the technology of today's computers being wireless as well as the possibility of future options for automobiles being able to get Internet access and most cell phones being able to access the web, Internet radio can be an alternate and viable solution.

LPFM radio stations cannot sell time for commercials. Internet stations can, thus offsetting the costs for the station.

Our radio station offers to our community free air time for meetings, church services and concerts, which can be done either live or on tape delay. WHPW.com also offers local musicians a chance to air their music in FM stereo quality audio on our radio station.

Our costs for running the station are much less than those of an LPFM station; streaming, telephone and electric are our major charges. WHPW.com has two professionally built studios and broadcasts 24 hours a day.

For the urban areas, community internet radio can work and works well for the community.

Michael R. Newell  
WHPW.com  
Staten Island, N.Y.

### PMD660 Settings

The reviewer says the Marantz PMD660 will only record MP3 at 64 kbps ("PMD660: Versatility at Half the Size," Feb. 15). This is untrue.

In the menu there are several MP3 settings. I have been using the 128 kbps stereo mode for months to record our church's three Sunday services, which are later podcasted (<http://homepage.mac.com/pryzm/podcast.xml>) with no modification needed since they are already in a good format. I use MP3 Trimmer to join and slice off heads and tails of each service. Uncompressed on a 2 GB card still was not enough unattended recording time.

One thing not mentioned in the article is the line input is -10 consumer level. When I first hooked this up to record Christmas Eve services, the +4 coming out of the board was way too hot for the input stage and I had to run home and get a pad. Other than that, this unit has been great.

The one thing to look out for is to not shut off the AC power externally with the unit in record. The last clip recorded would be lost. I found that out after someone had turned off the system but did not stop the recorder. I have since wired it to an always-on AC and let the silence sense stop the unit.

Also, if you like to take out dead spots, it has a 10-second buffer so when it does start recording again it never upcuts the recording. But you have to make sure you have the 10-second buffer turned on for that to work correctly.

Charlie Wilson  
Communications Director  
St. Marks Lutheran Church  
Springfield, Va.

GUEST COMMENTARY

# EAS: Bypassing Blame for Solutions

by Richard Rudman

I commend Radio World for printing "Reconsidering Minot and EAS" by Dr. M. Marion Mustoe (Jan. 18). There is over 60 years of research into public warnings. For readers interested in this topic, much of this body of knowledge is housed at the Natural Hazards Center of the University of Colorado ([www.colorado.edu/hazards](http://www.colorado.edu/hazards)). Dr. Mustoe's study certainly adds to this body of knowledge.

The cut line under the title says that both emergency managers as well as corporate radio are to blame for EAS failures. I would submit that before you can blame, you have to assign responsibility. This was never really done for EAS by the FCC in a meaningful way.

As the author points out, EAS has been labeled as an "unfunded mandate." More accurately EAS, at least at the local and state levels, is an unfunded voluntary mandate without specifically assigned responsibilities for all participants.

In short, I would submit that EAS is really a transmission line with a broken input connector.

## Question of partnership

Nothing in the FCC's EAS Rules now formally brings emergency management to the party. To prove my thesis, local civil EAS successes have almost always occurred where a public/private partnership of dedicated emergency managers and broadcasters have voluntarily come together despite lack of a clear FCC mandate.

Such partnerships recognize that warnings must be uttered and distributed to EAS entry points that reach the public by those with the legal duty to warn. Broadcasters are more likely to volunteer eagerly to run local and state EAS events once they meet, get to know and learn to trust those who issue EAS warnings.

**If we are going to have an effective public warning system, the FCC must bring emergency management warning originators into the EAS family in clear and unequivocal Part 11 language.**

The converse proof: When there is an EAS failure of tests or real civil alerts, it is almost guaranteed that no such partnership exists, or if it does exist on paper, it has become a dysfunctional reality. EAS is nothing more than a Part 11-compliant version of the old EBS in jurisdictions without functional public/private warning partnerships.

In perfect hindsight, Part 11 almost guaranteed that EAS would become a derivative of EBS, complete with poten-

## Correction

In the March 1 issue, Ms. Aliah Git of CBS Radio News was incorrectly referred to as a "he" on the People News page.

tial for failure. The LP assignments called for in the Part 11 EAS model were supposed to be reliable multipoint distribution systems to bridge the gap between warning originators and all broadcast stations. Dr. Mustoe documents accurately many of the factors in the current broadcasting business environment that explain why such a model did not work.

If we are going to have an effective public warning system, the first thing the FCC has to do is bring emergency management warning originators into the EAS family in clear and unequivocal Part 11 language.

Next, the FCC has to mandate that local and state warning centers provide their own multipoint distribution system (MDS) and no longer rely on privately controlled LP stations for these vital links to all stations.

Third, distribution channels from all civil warning originators to the National Weather Service National Weather Radio entry points already experimentally tested must be built. There are other details that must be put in place, but those are the basics needed to move us forward to better warnings in a changed and changing broadcasting world.

## CAP-enabled warnings

The radio channels in the spectrum for civil nationwide basic warning MDS already are in place. They can be commandeered from existing public works radio spectrum that can be interrupted by brief EAS tests and alerts. All it would take would be for the FCC to put specific language in Part 11 that such overrides for life safety EAS are permitted.

Washington state, California and some other states and local jurisdictions have, on their own, already created various other MDS warning models. What Washington state calls Local Relay Networks are really MDS systems for

who have not only the responsibility, but the legal duty to deliver them reliably, accurately and timely.

All stations will get warnings at the same time from either warning originators and/or NWS. The level of EAS (PEP) can be adjusted to fit this model. Net result: If one or more stations

are off the air, the public is covered when they tune to any station still on the air.

I did not mention the part of my suggestion that virtually assures voluntary compliance in the future. CAP-aware receivers and cable and satellite set-top converters could convey all EAS events without interrupting main program channels. CAP also is the path to Digital EAS. CAP-enabled devices also can store warnings for people not tuned in, allow receivers and converters to turn on auto-

Comments on the current EAS Further Notice of Proposed Rulemaking have been filed with the FCC by the Society of Broadcast Engineers, and should be available to everyone on the SBE Web site, [www.sbe.org](http://www.sbe.org). When you read it, I think you'll agree that SBE has outlined many solutions, and not placed blame.

*Richard Rudman is a member of the SBE EAS Committee, and vice chair of California SECC.*

*See related story, page 78.*

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## ◆ READER'S FORUM ◆

### Up for a Challenge

You might remember me as the maker of the lamp from the ITC Cart Machine (*Reader's Forum*, June 16, 2004). It is amazing how many places the article that was printed in Radio World shows up on a search on the Internet.

I thought the following might be of interest.

We were challenged to make good on our statement that "We can make a lamp out of anything" by the radio DJ team of Bandy & Bailey on Lexington, Ky., station WLXX(FM) 92.9 The Bear, to make a lamp from a guitar that had been autographed by Clint Black. The lamp was to be auctioned off as a charity fundraiser.



The finished lamp looked better than the radio guys or our staff at Shannon Lamp Service could have ever imagined. The autographed Epiphone guitar was presented to the radio station as a promotion for USA Networks, Nashville Star. With the quality results of the finished lamp and because we wanted to help with the charity auction, we purchased the lamp with the high bid. We now have the lamp available for purchase on our Web site. The lamp production can be seen at [www.shannonlamp.com/guitarlamp.htm](http://www.shannonlamp.com/guitarlamp.htm).

I guess it's true. We can make a lamp out of anything.

*David Shannon  
Shannon Lamp Service Inc.  
Lexington, Ky.*

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**OPINION****♦ READER'S FORUM ♦****Take It From Ed**

Thanks for the story and interview with Edward De La Hunt ("De La Hunt Troubled by HD Radio," Feb. 1). He's right on the money and I salute his core set of values.

What we need now is a scientist who can clone him.

*Harvey Twite  
General Manager  
KEDU(LP)  
Ruidoso, N.M.*

I appreciated Paul McLane's interview with Ed De La Hunt.

Maybe the industry and the commission could take a breath and listen to what a guy like Ed has to say. After all, not many people on the commission — or executives/engineers of big radio groups — have ever owned a radio station. If they had to pay the bills every month while striving to keep the technical facility, employment unit and tower "legal" they might not be so quick to shove HD down everyone else's throats.

Ed speaks volumes when he says he doesn't need or want HD AM service inflicted on his stations because he's plenty busy broadcasting local sports, news, etc. without having to decide where to spend the "extra" money he makes from his operation. My guess is that Ed would rather invest in his existing stations vs. having six to eight new HD streams to manage; that's assuming his existing AMs don't get squashed by all the hash coming out of neighboring stations from larger markets.

The AM band is no picnic now. Just wait until they throw the switch on all those HD signals.

*Jack Taddeo  
President  
WLKN(FM)/Radio K-T Inc.  
Park Ridge, Ill.*

Thank you for your current and informative articles. I want to especially thank you for your interview with Ed De La Hunt.

De La Hunt's comments are very technically correct and important for continued optimum radio service to the greater public. I hope all AM broadcast station owners, and FM owners too, read this interview and seriously evaluate the consequences of their technical decisions and the impact it will have on their listeners.



I have continued in AM and FM radio engineering since I started work with Westinghouse Broadcasting Co. in 1956. Digital radio has a future potential for AM as De La Hunt mentioned with his support of Cam-D. Unfortunately, radio service in the "public's interest, convenience and necessity," as formerly required by the FCC, seems to be past history.

*Robert A. McClanahan, P.E.  
Portland, Ore.*

Paul, I want to express my appreciation for your interview with Mr. Ed De La Hunt. It is so heartwarming to read about a broadcast owner of small market station(s) who has years of experience, and knows and understands full well what he is talking about and is willing to express it.

His family and the way he talks about his experiences go a long way in telling us about his knowledge of broadcasting and his integrity. I know many broadcast owners who would echo his views and experiences.

I am a registered professional broadcast engineer, licensed in January 1955 and practicing broadcast engineering for small broadcaster stations for 50 years continuously since that time, and fully active today. In the above time period, I have worked for thousands of broadcast stations. I know them, and have understanding and affection for broadcast owners, managers and engineers.

I am a long-time member of AFCCE and SBE. Over 60 years ago I got my first broadcast job as chief engineer of a 5,000-watt broadcast station. My radio ham license dates back to 1935, having had three call signs: W7FMI, D4AJD and AA&H.

I am a longtime subscriber to Radio World, and have been most impressed with the quality of reporting, even though my views as to where we are headed are

**Growing the Radio Channel Family**

Our industry has witnessed a baby boom. No longer does a radio station consist of only one on-channel signal. Facilities all over the country have given birth to additional offspring, "radio" channels that are delivered over other platforms.

First-born fledglings appeared in the form of webstreams with commercial replacement content. Those online stations provide audio, video and other content. Then came HD main channels on the air, soon to pass 1,000 signals. Podcasting was born. Now HD-2 channels have appeared, along with associated web streams. A few stations have even spawned HD-3 siblings.

If you work for a multi-station cluster, this may mean that each station has multiplied by three or four, or even five. A six-station group could soon be the family home to almost 30 "signals," if it isn't already — signals that ownership and staff must support if they expect these babies to grow up and become mature, successful adults.

As recently as a year ago, we suspect, many owners and managers did not anticipate that they'd be new parents. Managers now must confront these hungry little mouths, expense line items that, for the time being, return little added income to pay for their upkeep.

It has always been thus with babies.

Web streams at some stations now have reached the toddler stage. But many still are viewed as expensive, "value-added" offspring enjoyed by only a limited number of admiring fans. Few stations have found a way to make real profit with their streams in the face of bandwidth costs.

But streaming is getting better all the time as the Internet grows. More folks are finding and liking radio on the Web. Wireless delivery of Web resources to portable and mobile devices, including cell phones, promises to open opportunities to reach new audiences.

The HD rollout will gain slow but steady momentum as more stations come online. But until consumers actually start buying receivers and use the new HD offerings in significant numbers, the investment in HD will not begin to pay off.

As new parents, we find ourselves at the start of a long development period that will no doubt be paved with some red ink. Those of us who envision a brighter future for our families and our new additions will need to be patient.

Creativity, hard work and perseverance — to make the content and listening experience of all these new signals the best they can be — are the only path that will lead to a happy graduation someday. Let's hope most of us will be there for our kids, as proud parents or even grandparents, in the not-too-distant future.

— RW

sometimes vastly different from many of the articles. I like your style of interviewing. Your questions allow the person being interviewed to say what is on his mind. You covered a lot of ground in a short article, and I wish I could comment on all of it.

The fiasco of AM stereo didn't just happen. Most any AM knowledgeable engineer could see that one coming. The using of a phase modulated carrier to develop the left minus right channel robbed sideband power from the mono channel, and with that a stereo station could not hope to compete with a pure mono station.

Now we are about to repeat a similar situation with IBOC, only this time the results will end not in a fiasco but in a

disaster for the AM broadcast band, as expressed by De La Hunt in paragraph three. Here the clue is the attempt to add a digital audio system on an already existing AM double sideband base. CAM-D doesn't do that, and there are other single sideband systems that could be developed. AM radio will only be further damaged by narrowing the analog bandwidth, raising the noise floor and broader-banding the noise. It may fit within the NRSC Mask, making it legal, but that doesn't make it right.

One more thing — there are a lot of people who like nighttime radio, and my wife and I are two of them. She uses it to put her to sleep.

*George M. Frese, P.E.  
East Wenatchee, Wash.*

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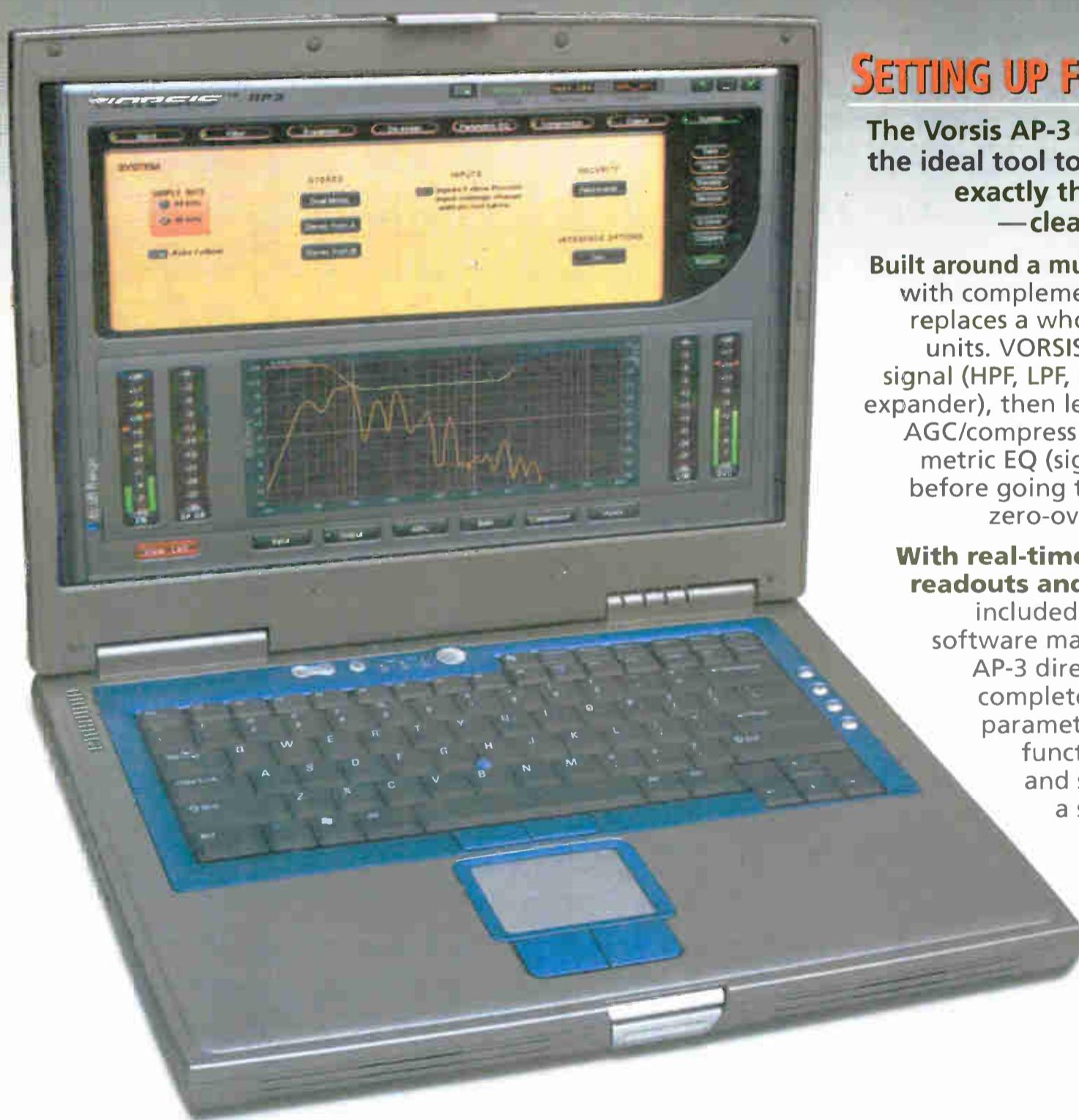
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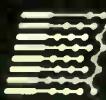
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