



◆ NEWS WATCH ◆

**Rehr Assails Satcasters, Hails Digital Future**

**WASHINGTON** NAB President/CEO David Rehr says radio and television “have a compelling story to tell.” Addressing the National Press Club, he outlined his vision for the future of broadcasting.

He conceded that local stations have “inadvertently relinquished some of the excitement occurring in broadcasting to our competitors,” but said, “by any

measure, broadcasting remains the undisputed leader in news and entertainment.”

Rehr referenced “misperceptions” about satellite radio, which he said has done a good job at hyping a still-unprofitable product. Rehr said satellite radio’s reported 12 million subscribers compares to 260 million local radio listeners per week. He also alleged that Sirius counts on its customer list some 500,000 subscribers derived from “empty cars that sit in dealer parking lots.”

Rehr said both radio and TV broadcasters are “seizing the digital future” through the transition to HD Radio andDTV.

**Congress Dilutes ‘WARN’**

On his blog ([www.incident.com/blog](http://www.incident.com/blog)), EAS expert Art Botterell says while Congress passed The WARN Act before lawmakers left town in late September to campaign, the bill was changed drastically.

Tacked onto the port security bill, what had been the “Warning, Alert and Response Network Act” now reads “Commercial Mobile Service Alerts.”

Gone is a proposed National Alert Office and its standards-based, multi-

mode National Alert System; this bill is about using cell phones for alerts, Botterell said. The role of public TV stations is merely “to enable the distribution of geographically targeted alerts by commercial mobile service providers.” Other warning technologies and their integration aren’t addressed, Botterell reports.

Also gone is the provision that would have allowed the federal government to apply federal resources to the restoration of “essential services” like telecommunications, power or water supply.

President Bush signed the bill into law in October.

**NHPR Plans Expansion**

**CONCORD, N.H.** New Hampshire Public Radio planned to mark its 25th anniversary with an event on Oct. 11 at the future site of a new 20,000-square-foot studio, at 2 Pillsbury Street in Concord.

“NHPR has grown from serving the Concord Region to being a source of news and information for all of New Hampshire,” said President/CEO Betsy Gardella. The station said it would announce an effort “to bring a statewide digital signal to New Hampshire, along with a new studio that will allow the station to bring its listeners the best use of new technologies.”

The organization, she said, is investing a half-million dollars to upgrade its broadcasting technology and facility. It plans a “Campaign for New Hampshire Public Radio; 21st Century Radio for the Granite State.”

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# BBC Develops Studios for Future

By Lawrie Hallett

**LONDON** Like many other major broadcasters, the BBC is thinking hard about how it will produce and deliver the radio programs of the future.

With an increasing number of delivery methods available, new production facilities have to be designed to deliver more than traditional "linear" radio; they also must create "non-linear" content, such as podcasts, in as cost-effective and flexible a way as possible.

Such thinking comes at a time when Broadcasting House facilities are about to undergo reorganization to upgrade domestic national services such as Radio 2 and to accommodate BBC World Service output when it moves from its long-term home at Bush House by the end of the decade.

## Best place

Preparations for such changes have been under way since 2003, when planning started on "The Production House of the Future." Although the BBC has only a few years left in Bush House, it decided to use this location to test ideas for such a facility.

The BBC World Service Broadcast Technology team is running the project. During a visit to the facility, some months into its construction, Technical Project Manager Adam Heath explained that Bush House has limited floor-loading capacity and ceiling heights, not to mention asbestos in parts of the structure.

While the BBC World Service Radio has been based at Bush House for some 60 years, the building was never designed for broadcasting.

Located in the heart of London, it is surrounded by busy roads, resulting in considerable low-frequency rumble throughout the building. If new program production facilities can work well at such a location, the team reasoned, they should be suitable for any future location.

The BBC has maintained a reputation for the production and transmission quality of its output. Critical to ensuring the consistency of program output is acoustic performance.

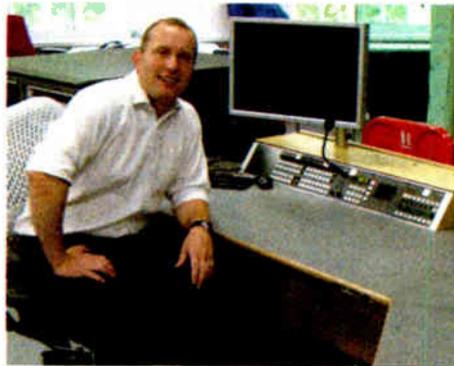
However, in the past, achieving this has often been at the expense of the working environment — studio windows have been small, doors are heavy, lighting is poor and air-conditioning is of limited capability.

## Collective working

In planning for the move to Broadcasting House, World Service management took the opportunity to be radical in the redesign, opting for open-area working with multiple studio resources using a flexible central control area.

Primarily a speech-based network, World Service Radio decided it wanted the new facilities to encourage collective working rather than recreate the more traditional isolated working environments of individual program teams.

Munro Acoustics won the contract to



Technical Project Manager Adam Heath in the central operational area, which links to the six soundproof booths that make up the prototype Production House of the Future at Bush House.

develop the acoustic elements and to make such operational ideals a working reality.

Because of the problems previously mentioned, including the presence of underfloor asbestos, designers decided to site the production facilities directly on the office floor and to use acoustic carpet to achieve impact noise isolation.

Andy Munro calculated it would be possible to satisfy the studio isolation requirement using floor-to-ceiling 17-millimeter laminated glass with a special damping layer to minimize coincidence effects.

The glass was specially commissioned in Italy, together with an extruded aluminum framing system to support an independent roof and acoustic paneling system. As each full-sized pane of glass weighs some 80 kilograms, it was necessary to design load-bearing aluminum stanchions to support these and the roof.

## Traffic rumble

According to Munro, the feasibility stage of the project included an extensive computer-modeling program that calculated the limits of acceptability of background and production-specific noise.

A working prototype was built in Bush House and the key elements were tested and developed in conjunction with BBC staff.

"The final result was very close to our original concept and, acoustically, we achieved a remarkably neutral environment, considering it is a studio with three glass walls," Munro said.

The project layout includes five studio areas, each housing a DHD RM4200D digital mixing desk with either eight or 12 channels, plus a slightly larger acoustic space suitable for discussions or musical performances, and for televised output in a world of increasing convergence.

Each studio "pod" also includes its own air conditioning unit, set in an acoustically isolated internal enclosure and accessible from behind the single non-glass wall. Lighting is provided via a low-voltage LED system to minimize additional heat creation.

Measured audio performance found reverberation times and isolation figures comfortably within specification, with some low-frequency traffic rumble apparent but at manageable levels.

Each studio employs the Jutel RadioMan automation system, which is in use across the BBC World Service, with added support for multilingual

operation.

The flat-screen tube panel count has been kept down to three in each studio: one widescreen panel for RadioMan, a standard screen for The Associated Press ENPS news system and a small TV monitor.

## Legacy equipment

Legacy equipment such as CD players and tape machines is gone from the studio areas but remains available in the central operational area. Desk height is adjustable to provide for both standing and seated operation, with audio monitoring via a Celtic Audio Cabar loudspeaker designed by John Watkinson.

Thum+Mahr managed technical equipment integration for the project, with Siemens and Broadcast Bionics handling audio and data routing across the IP network.

Using the Broadcast Bionics PhoneBox system, PSTN/POTS, ISDN or VoIP voice calls are fed to each desk via a PC equipped with a multichannel digital soundcard.

Audio routing among the DHD systems is sent in MADI format, with control and other data in UDP format, and is routed digitally onwards for distribution.

The new BBC facility is expected to be operational before the end of the year. Its performance and operational flexibility will attract attention from colleagues within the BBC, especially those responsible for planning the new Broadcasting House development at Portland Place, London, over the next few years.

## NEWS WATCH

### FCC Tweaks Ham Rules

**WASHINGTON** The FCC is making changes to the amateur radio service rules that it believes will allow licenses to use the spectrum more efficiently and operate with fewer restrictions.

The commission said it amended Part 97 Amateur Radio Service rules to do the following: revise the operating privileges of operators to allow more spectrum in four authorized amateur service HF bands to be used for voice communications; permit auxiliary stations to transmit on additional amateur bands; allow amateur stations to transmit spread-spectrum communications on the 1.25 meter band; and permit amateur stations to retransmit communications from the International Space Station.

Also it permits amateur service licensees to designate the amateur radio club to receive their call sign "in memoriam."

The commission also now prohibits an applicant from filing more than one application for a specific vanity call sign; eliminates certain restrictions on equipment manufacturers; permit ham stations operating in and around Alaska more flexibility in providing emergency communications; and removes certain restrictions in the license exam system that it said are no longer necessary.

## Attention Programmers!

SYNDICATION NETWORKS

### The TWILIGHT ZONE RADIO DRAMAS

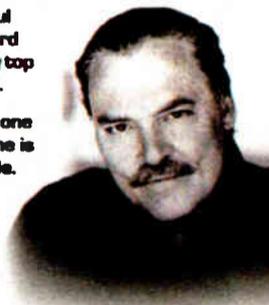
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# A Final Salute to a Delmarva Engineer

Sadly I note the passing of Charlie Slezak, a member of the radio engineering family and a long-time acquaintance from my days working in the Delaware broadcast community.

Charlie, station engineer and a 26-year employee of Delmarva Broadcasting in numerous full- and part-time roles, was 53 when he died of a sudden heart attack. He is survived by his wife Nancy Black as well as a son and daughter, his mother and other family members. Charlie attended Tennessee Technological University; he was an announcer at WPTN(AM) in Cookeville, Tenn., then worked at WNRK(AM) in Newark, Del., before coming to Delmarva stations WDEL(AM)/WSTW(FM).

As Delmarva President/CEO Pete Booker related in the eulogy, Charlie was a part-time jock and studio producer for 18 years while also working in auto retail; he produced University of Delaware football broadcasts at the stations. Eventually he moved into contract engineering and electronics work, which led to a full-time engineering gig at Delmarva seven years ago. "Our co-worker John McClement hit



Charles J. Slezak

the nail on the head," Booker told mourners. "He said, 'Charlie was a good man; he was one of us.' 'One of us' means that Charlie was a real radio guy, head to toe. He knew the history of our business, all of the legendary DJs, the formats, the great stations, the audio processing gimmicks." Charlie, Booker said, also was "the eternal optimist. He didn't know mean."

According to his obituary, Charlie was a lifelong radio and electronics enthusiast; he was president of the Chesapeake Bay Radio Association and the Delaware

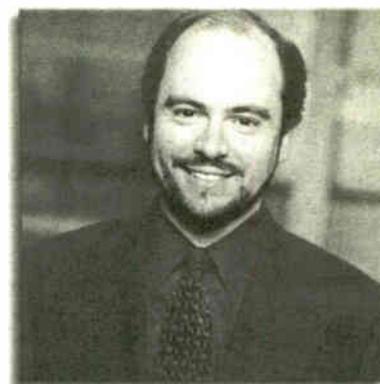
Repeater Association. Listeners knew him as Chris Stevens; fellow hams knew him as N3OUT. I last saw him at the NAB Radio Show a year ago in Philadelphia; as always he had a ready smile and seemed genuinely pleased to see me.

The warmth with which his colleagues held Charlie is evident in the group photo taken on the beautiful fall day he was buried. Trafficwatch Coordinator and Fleet Manager Robin Bryson suggested that Delmarva's traffic and remote vehicles take part in the funeral procession as a



Co-workers pause by a station vehicle at the cemetery. From left: Robin Bryson, Bob Bloom, Andrew Sgroi, Pete Booker, Frank Gerace, Steve Berstler, Edie Berstler, Sean Greene, Dana McDonald, Dave Vallee, Mark Rogers and Jeff Twilley.

## From the Editor



Paul J. McLane

programming," it states. "In addition, a hip tabletop radio and component tuner for home audio systems will be made available, providing broadcasters with the ability to appeal to a range of market segments."

Ibiquity is making the products available to HD Radio stations at \$99 plus shipping. You can order via its Web site at [www.ibiquity.com](http://www.ibiquity.com).

Bob Struble is correct when he says that now, more than ever, is the time to push listeners to retail stores to buy HD Radio products and accelerate consumer adoption. He expects "a proliferation of creative promotions" from stations.

The products include a car adaptor from Directed Electronics (\$199 retail), which lets consumers use an HD Radio without removing their factory-installed receivers; a three-piece tabletop from Directed Electronics (\$249); and an HDT-1 Tuner from Sangean (\$299) "for the music lover who wants to upgrade his home theater system and receive HD2 channels and crystal-clear broadcasting at home."

Marketers pushing the HD Radio rollout have a long, long way to go before they can pat themselves on the back for creating consumer awareness. We need much more aggressive marketing than we've seen to date. Also we need more receivers; we need them faster; and we need portable digital radios. But this is a step in the right direction.

The radios are to ship from manufacturers directly to stations, with delivery at the beginning of December. None too soon for holiday promotions. ●



Delmarva traffic and remote vehicles rode with the Slezak funeral procession.

show of respect and affection, and management readily agreed.

★ ★ ★

It's welcome news from Ibiquity Digital, reported here earlier, that its latest promotional initiative is designed to help give stations an opportunity to incorporate receivers into their ad packages and "drive consumers to retailers."

The company hopes stations will be giving away thousands of radios this winter. "The HD Radio receivers span three product categories, highlighted by a connector that quickly upgrades listeners' current car radios to receive all HD Radio

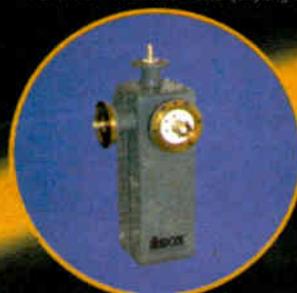
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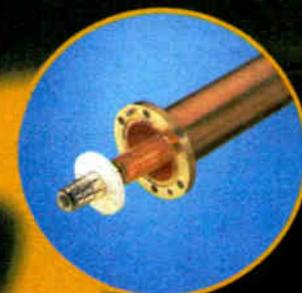
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## GUEST COMMENTARY

# Hams Strive to End Antenna Bans

*Empower Amateur Radio Operators to Help by Moderating Neighborhood Antenna Prohibitions*

by Don Schellhardt

During Hurricane Katrina, the president of the United States wanted to confer with the mayor of New Orleans. However, all centralized communications systems, including military ones, were down.

The solution? Volunteer amateur radio operators, also known as "hams," relayed the messages. Being decentralized, often with independent power supplies, hams initially were the only people who could get messages through.

Hams typically have been the first to report from disaster areas. Then they have remained on the air even after infrastructure collapses have silenced others.

Now, a small but nationwide group of hams has formed Hams For Action. Founded on July 10, the advocacy group strives to assure that hams will retain their historic capacity to provide emergency communications "when all else fails."

HFA's first step was mailing an information package to every board member of the American Radio Relay League, which speaks for the ham community in general. HFA's second step was filing a Petition for Rulemaking with the FCC, seeking partial and conditional overrides of bans on ham antennas by homeowners' associations (HOAs), restrictive covenants and landlords.

Economics Professor Ron Cheung of Florida State University, in an analysis of HOAs, reports that at least 50 percent of all new housing in America is controlled by HOAs. Unfortunately, nearly all of the HOAs ban all ham antennas.

Similar prohibitions by landlords add to the impact.

## Self-imposed disconnections

Most HOAs, covenants and landlords do not regulate external ham antennas — they ban them completely. Even small, unobtrusive antennas are forbidden.

These total antenna bans function as total prohibitions against ham radio. They deny to neighborhoods any coverage by the one emergency communications system that works "when all else fails."

The impact is not geographically uniform. Although HOAs are spreading, they are still most common in the newer suburbs of larger urban areas. Apartments are still most common in more developed portions of urban areas. Because hams generally have found that apartments bar them from installing any outdoor antennas, the combined effect of the two restrictive forces is to impair ham radio most pervasively in and around large urban areas — the same places that are the likeliest targets for terrorism.

## A shortage of new recruits

Ham antenna bans are not demographically uniform, either. Because they most frequently affect newer owner-occupied housing, as well as rental housing, their impact falls with greatest force upon younger Americans.

This makes it difficult for currently licensed hams to "replace themselves." How many potential school age recruits are failing to participate because they cannot erect a ham antenna in the home of their

parent(s)? Indeed, how many middle-aged adults are failing to participate because they cannot practice their craft at home?

The clock is ticking. Most hams, we believe, are over 55, which means an above average percentage of them are likely to "depart the planet" during the next 30 years. Ironically, during this period, we may need even more hams than we have today.

The chances of a man-made disaster, such as a terrorist atomic bomb, are rising. Meanwhile, at least one mega-geological disaster, within the next few decades, is almost certain.

Among other experts, Dr. Mary Lou Zoback of the U.S. Geological Survey in Menlo Park, Calif., warns that the so-called "Big One" in Southern California is overdue and another "Big One" in Northern California is probable in the next 20 years. Dr. Brian Atwater of the USGS in Seattle has joined other experts in research that demonstrates that the offshore Cascadia Subduction Zone in the Pacific Northwest, periodically generates 9.0 earthquakes and tsunamis powerful enough to damage Japan. The latter research has recently been popularized in the John Nance novel "Saving Cascadia."

## History of federal inaction

During the 1990s, ARRL and others sought action by the FCC to override amateur antenna bans. The FCC said "No."

In 2002, with encouragement from ARRL, Rep. Steven Israel, D-N.Y., introduced legislation that required all HOAs and/or covenants to provide "reasonable accommodation" of ham antennas. An identical bill followed in the next session of Congress. For the bill in this session, H.R. 3876, Rep. Mike Ross, D-Ark., joined Rep. Israel as a primary sponsor.

Support peaked at 37 sponsors in 2004. By 2006, this number dropped to 11. A companion bill was not introduced in the Senate.

HFA's board members concluded that ARRL was not advocating the legislation actively enough, and/or the bill itself did not do enough to ease the possible concerns of HOAs and landlords. HFA addressed the first possibility by contacting ARRL. Then HFA presented a new, more moderate approach to antenna bans in its FCC petition.

H.R. 3876 overrides antenna bans on behalf of all hams. It appears to assume, implicitly, that all amateur radio operators have a right to transmit.

The HFA proposal limits overrides to hams who have been trained and certified as emergency communicators. We ask the FCC, or, if necessary, Congress, to embrace a privilege to transmit, one that is earned by gaining a verified capability to provide emergency communications and perhaps, in the future, other services to the public.

H.R. 3876 requires HOAs and/or covenants to provide "reasonable accommodation" of ham antennas. However, it leaves "reasonable accommodation" to be defined through case-by-case litigation.

HFA attempts to establish a middle ground of compromise in advance. For example:

For single-family homes and town homes, HFA's proposal creates a "rebut-

table presumption" in favor of exterior ham antennas whose height is 20 feet or less. Condominium and apartment antennas are limited to 3 feet in height.

The other side of the coin, of course, is a rebuttable presumption against ham antennas that exceed that height. Because such presumptions are "rebuttable," hams and/or HOAs can still go to court by showing special circumstances that challenge the presumption. However, going to court is optional, not inescapable.

H.R. 3876 overrides only bans imposed by HOAs and/or covenants. HFA's proposal adds an override for bans by landlords.

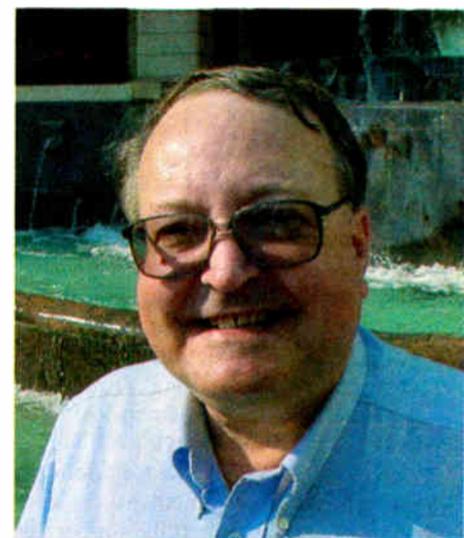
Moderating HOA/covenant bans, while tremendously important, still leaves many areas unprotected. In New York City, for example, increases in ham radio activity will be marginal unless landlord bans are also moderated.

## What next?

Three players will decide what happens next:

- *The FCC.* If it grants HFA's petition, or a reasonable variation, HFA may declare victory and disband.

- *ARRL.* If the FCC does not respond favorably, hams must again turn to Congress. In the next session, will ARRL press for a more moderate and marketable version of H.R. 3876? Will it press for any antenna ban legislation at all? Evasion or inaction by ARRL will invite



Don Schellhardt

lobbying by HFA.

- *Hams themselves.* Are enough amateur radio operators willing to support additional action by HFA? Board members have financed HFA so far, but to do more we will need help. Hams can press ARRL to act more vigorously, or they can join HFA, or they can do both. Those amateur radio operators who don't do either shouldn't complain about antenna bans.

For a copy of HFA's petition, visit our Web site at [www.hamsforaction.net](http://www.hamsforaction.net), e-mail me at [pioneerpath@hotmail.com](mailto:pioneerpath@hotmail.com) or read HFA's July 25 comments in FCC Docket 06-119 concerning Hurricane Katrina.

Don Schellhardt, KI4PMG, is president of Hams For Action. He is a government relations attorney and a writer.

RW welcomes other points of view.

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## DIGITAL NEWS

## XM Loses Board Member; Warned By Nasdaq

XM Satellite Radio lost another board member and received a warning from Nasdaq that its board composition is now out of compliance with the market's rules.

Former Lehman Brothers executive George Haywood resigned from XM's board Oct. 3 citing personal reasons.

In the letter included with XM's SEC filing, Haywood said, "I take pride in the growth and accomplishments of the company and I continue to fully support the current direction of the company and the

company's management."

Nasdaq requires the majority of a company's board to consist of independent directors. With Haywood's resignation, Nasdaq notified XM it was out of compliance. XM has until May to replace Haywood with a sixth independent director; the company plans to fill the vacancy soon and bring its board up to 11 members.

In February, Pierce Roberts left XM's board over concerns about the company's spending levels.

## Sirius Gains on XM for Customers

Sirius Satellite Radio continues to outpace XM in the pace of subscriber sign-

ups, though XM has more total customers. Analysts are curious to see how figures change when OEM subscriber additions soon end their promotional period.

Announcing subscriber numbers in October, Sirius said it ended the third quarter with around 5.1 million. It added about 440,000 net subscribers in Q3, a 23 percent increase over year-ago third quarter net additions.

XM added some 285,000 new net subscribers during the quarter for a total of about 7.19 million subscribers.

Sirius says it added the most net subscriber additions for four consecutive quarters. The satcaster projects ending the year with 6.3 million paying customers. XM projects ending the year with 7.7 million to 8.2 million subscribers. It had lowered subscriber projections twice this year after

pulling off the market and re-designing some FM modulators not in compliance with the FCC's Part 15 rules.

Starting in this quarter, XM stopped including certain rental car fleets in its subscription total, a change of about 20,000 subscriptions. This change is a result of a new marketing program that XM recently implemented with some rental fleet partners for 2007 model year vehicles; the goal of the program is to increase the number of rental cars equipped with XM and expose more potential customers to the service.

## XM Getting Repeater Network 'House' in Order

XM said it is bringing its terrestrial repeater network into compliance, the result of its own internal audit.

No broadcasters or wireless companies had complained about interference from its approximately 800 repeaters, it said.

Wireless companies are licensed to operate in the spectrum adjacent to that held by the satcasters. Reacting to the news, an attorney for the Wireless Communications Association International told the Washington Post, "The revelation by XM certainly supports a full enforcement investigation before the FCC grants any additional STAs."

Both XM and Sirius operate under STAs for their repeaters as the FCC has not finalized the rules governing repeater use.

In an FCC filing, the satcaster says it has reduced power levels for 210 repeaters that were operating up to 2 dB more power than authorized, turned off 15 of 19 repeaters that were not covered by any existing Special Temporary Authority and reduced an additional 9 of 11 repeaters to their authorized power.

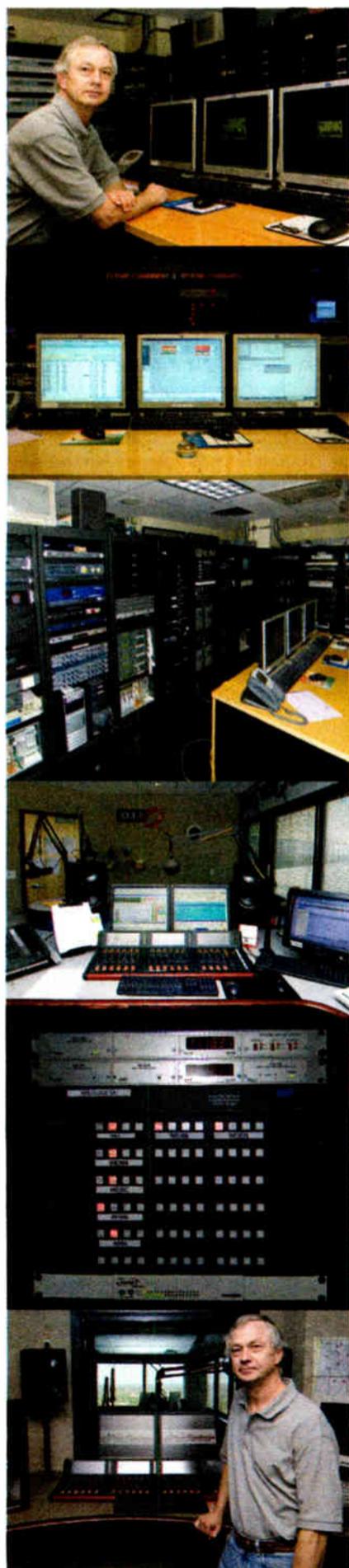
The four repeaters operating "that do not have obviously applicable STAs" serve urban areas in Ann Arbor, Boston, Buffalo, and Providence "where there are large areas dependent on the terrestrial repeater signal for coverage," states XM.

Eight repeaters that were turned off serve major roadways in Birmingham, Cincinnati, Detroit, New York, and St. Louis markets; five repeaters that have been reduced in power are near major traffic routes in the New York, Sacramento, San Francisco and Washington markets, said the company.

XM asked for a 30-day STA to continue operating its repeaters and provide service while it brings the network into compliance. It then planned to file a 180-day STA request for all its repeaters.

## Roundup

**INSURANCE:** XM has received as much as it's going to from its insurance carrier in compensation for defective solar arrays on its Boeing satellites and the total sum insured for XM-1 and XM-2. The company reached agreement for 80 percent of the aggregate sum insured. XM told the SEC the settlement represented a recovery of approximately \$142 million. In 2004, it filed for arbitration to collect the remaining 20 percent of the insured sum. XM says it has been notified that its arbitration was not successful in its claim against the remaining insurers.



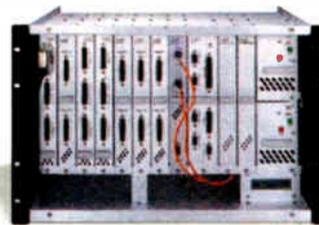
"The South has a lot of 'favorites' including barbeque, football and great hospitality. I'm adding Logitek to my list."

"Logitek was the solution for our consolidation in Birmingham. We wanted a system that was flexible and reliable. The most flexible systems are based on router technology, and after looking at the choices, I picked Logitek. Logitek lets me make changes fast and seamlessly. It manages my satellite feeds, 'talks' extensively to my Prophet system and lets me add sources and outputs without ever changing a wire connection. My operators love the ability to get any source anywhere, too.

"When we built this facility we had four FM's and an AM. Suddenly, I had four additional HD streams to incorporate into the system. Logitek let me add the additional stations with a minimum of frustration.

"Logitek may not be as high on my list as great barbeque, but it gets my vote for a great audio platform."

Bob Newberry  
Market Engineering Manager  
Clear Channel - Birmingham



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... successfully aired his three hour talk show from a commercial airplane [using ACCESS] at 37,000 feet on a regularly scheduled flight between Frankfurt, Germany and New York, US.

*Peter Greenberg—Host of the syndicated radio program Travel Today*

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<http://remotebroadcasts.blogspot.com>

## ➔ Radio Free Asia—Live from the Himalayas



"The results [with ACCESS] were especially reliable considering that Dharamsala has one of most "problematic" Internet infrastructures that we have come across." — David Baden, Chief Technology Officer Radio Free Asia

For the complete story visit  
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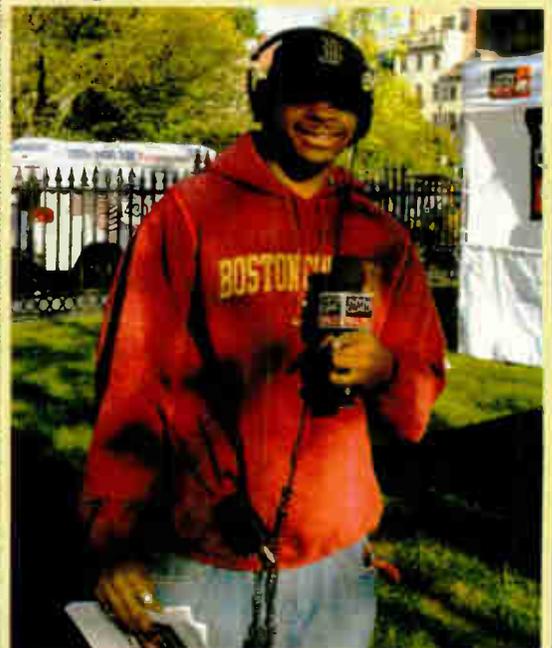
## ➔ Ski Mountain Remote



This picture, really demonstrates what ACCESS is about. This product truly has the ability to cut the wires.

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## ➔ JAMN 94.5—Walk for Hunger



"ACCESS was used on the air exclusively for JAMN945 at this one. It was all over EVDO with a tremendous amount of active cell phones in the area. The ACCESS was connected to the Verizon wireless Broadband...

For the complete story visit  
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**Put Comrex On The Line.**

# FMeXtra

► Continued from page 1

reported on it when the system was first shown a year earlier in Las Vegas.

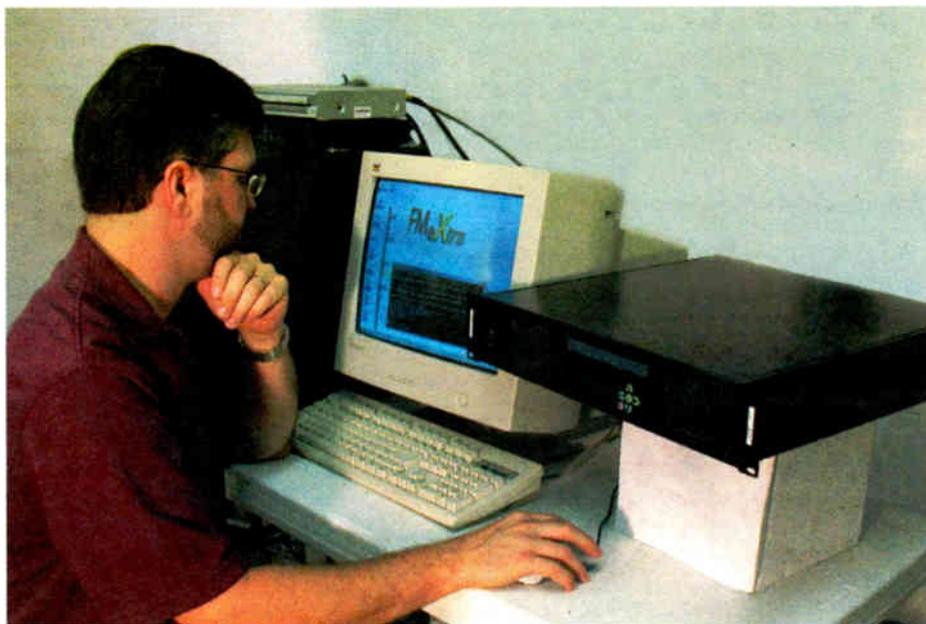
The system, which caught the attention of many attendees, requires the purchase of an \$8,900 encoder that can be installed in less than an hour's time, on average. There are no licensing fees to use the FMeXtra system.

My interest was piqued upon hearing the audio quality of the transmitted signal, which uses the MPEG-4 accPlus version 2 codec. The system provides full 15 kHz audio bandwidth with minimal artifacts and an excellent signal-to-noise ratio that does not deteriorate with distance from the station.

## The concept

The FMeXtra system uses that portion of an FM station's channel where an analog SCA service would normally operate, from 55 kHz to 99 kHz. If a station is transmitting an RDS data signal, FMeXtra occupies from 61 kHz to 98 kHz.

A digital data stream of 56 kilobits per second can be transmitted when using the 55-99 kHz space or 48 kbps if using the 61-98 kHz region. It is possible to transmit one stereo channel at 48 kbps or two different stereo channels, each at a 24 kbps rate. Alternately, it would be possi-



Engineer Aaron Manthei of KNXR(FM) in Rochester, Minn., adjusts FMeXtra Parameters on computer. Black 3-1/2 inch high unit is the FMeXtra encoder.

ble simultaneously to transmit four or five mono channels at 10 kbps per channel.

## The encoder

The FMeXtra F1 encoder is packaged in a compact rack-mount case 3-1/2 inches high. The heart of the encoder is a personal computer running Windows XP. The unit accepts digital audio input signals in either AES or S/PDIF format.

A keyboard, monitor and mouse connect to the rear of the unit. The output of

the encoder connects via a cable with BNC connectors to the SCA input of the station's FM exciter.

The encoder contains an internal hard drive and a CD-ROM drive so that software updates may be installed. Setup of the encoder is straightforward with operating parameters selected from the on-screen setup window. The company advises having a modulation monitor connected to the transmitter's monitor sample port so that the injection level may be adjusted accurately. In our case, we used the Belar FM FMMA-1 Wizard monitor to make the adjustment.

## Testing, goals and setup

With the cooperation of Digital Radio Express, we tested FMeXtra on two stations.

KNXR(FM) is a Class C, 100 kW ERP facility with the antenna at 1,056 feet HAAT; KRPR(FM) is a Class C3 with 3.2 kW ERP at 600 feet HAAT. Both stations are collocated on the same tower.

We prepared nine hours of uncompressed music/talk programming on a computer using our BSI Simian automation software. We connected the computer to the input of the FMeXtra encoder.

The encoder fed both stations simultaneously with a single 48 kbps digital stereo signal. An attenuator was placed in the feed to one exciter so that the injection level on both stations could be adjusted to be identical.

FCC SCA rules allow a 20 percent SCA injection level when combined with the main stereo channel. The main and SCA modulation combined may not exceed +/- 82.5 kHz peak deviation or 110 percent total modulation.

The FCC rules provide for 30 percent injection when transmitting without a stereo subchannel and pilot (mono) or when the main channel is not being modulated, such as overnight. We tested FMeXtra coverage at both 20 percent and 30 percent injection levels.

A 30 percent injection level with no main channel modulation provided an excellent opportunity to listen for crosstalk in the unmodulated main channel. We could not detect any crosstalk or birdies during any of our testing.

The next step was to drive around to hear how the system in a mobile environment.

We selected seven highways extending out from the tower at various azimuths. A magnetic mount 30-inch whip antenna was placed on top of our car with a proto-

type FMeXtra receiver on the front seat powered from the cigarette lighter socket. Audio from the receiver was fed into the car's stereo system.

## Coverage methodology

Our coverage criterion was the reception of a solid, dropout-free signal. An occasional dropout or two was disregarded as we traveled away from the transmitter tower. Once we began to experience many dropouts of the signal and it was obvious we had exceeded the useful coverage range, we turned around and drove back toward the tower until reception became solid and dropout-free again.

We noted the geographic coordinates from the car's GPS system where the signal became solid again. We re-drove some radials on a different date to make certain our data was repeatable.

Once all of the data was collected, we noted each cutoff point and charted its distance and azimuth from the tower and then determined the HAAT to the termination point of solid reception.

Using the tools on the FCC's Web site, we calculated the signal strength at the termination point for each traveled radial and for each station.

## Coverage results

The coverage achieved with the system was impressive. With 20 percent injection, on most radials, solid dropout-free reception was experienced to each station's 51 to 53 dBu contour.

With 30 percent injection, dropout-free reception was received to the station's 46 to 50 dBu contours. In the case of the 100 kW station, 20 percent injection provided solid coverage to distances of 57 to 59 miles. With 30 percent injection those distances increased to 61 to 66 miles.

## With the cooperation of Digital Radio Express, we tested FMeXtra on two stations.

Five of the radials extended out over generally flat but somewhat rolling countryside. Two of the radials extended in an eastward direction crossing the Mississippi River valley 35 to 40 miles away. On those two radials, dropout-free reception ceased once the 600-foot descent into the very wide Mississippi River valley was begun.

Conservatively, from these field tests, it would be safe to say that strong, dropout-free FMeXtra reception can be expected out to a station's 55 to 60 dBu contour with 20 percent injection.

## Radios

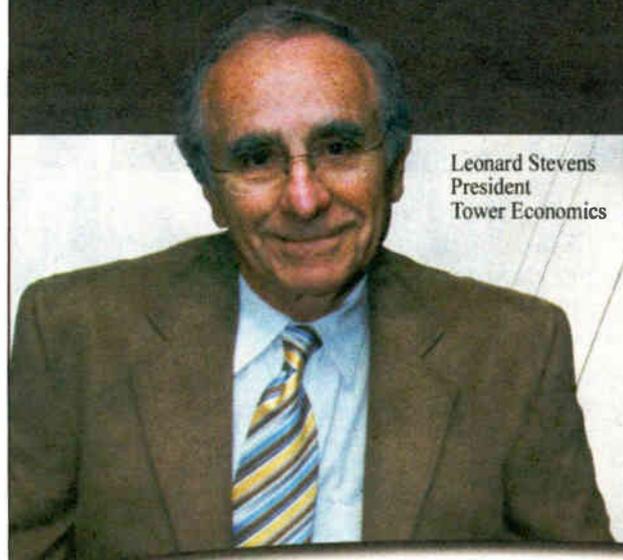
The FMeXtra digital system, however, is of little value unless there are radios to receive the signal. DRE says it would have a tabletop radio with a satellite speaker available called the Aruba priced at \$150 in November ([www.dreinc.com](http://www.dreinc.com)).

In my opinion, two additional radios will be required if broadcasters are to make the most of the FMeXtra system. A compact tabletop radio in a molded plastic case with built-in stereo speakers in the \$79 to \$89 price range would be ideal.

An FMeXtra car radio converter is See FMEXTRA, page 10 ►

## "Accountability is indispensable to us

when putting up a new tower. That's why we deal exclusively with Sabre for our broadcast towers. Their people have been in the industry for years, and have a broad-based knowledge on all types of towers. Their construction department handles turnkey projects with ease, eliminating the need to hire subcontractors and worry about who is taking responsibility. We choose Sabre because we like the people, the product and the pricing."

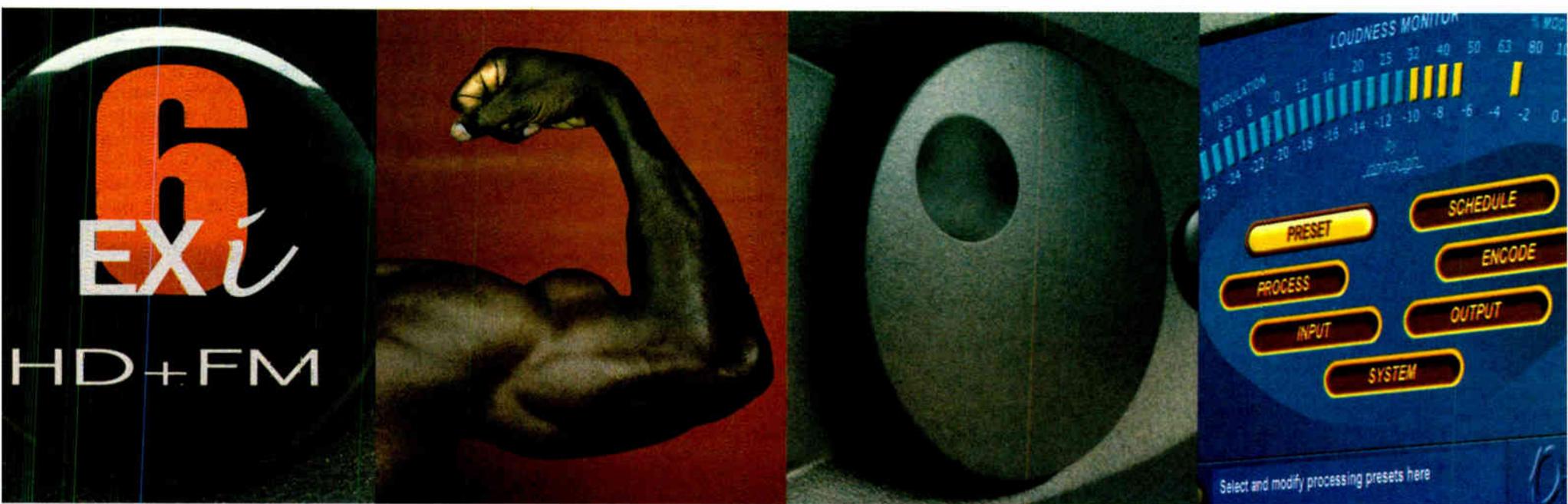


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Features that Omnia pioneered — like dual, simultaneous processing paths for HD Radio™ and conventional FM at no extra cost. The world's first non-aliasing digital clipping system, with composite clipping for the ultimate in competitive loudness. The high-precision Multi-Band Look-Ahead Limiter (invented by Omnia) for perfect HD Radio processing. The six-band limiter for conventional FM, with adjustable crossovers for surgically-precise control over your signature sound. An integrated Dorrough™ Loudness Meter. And of course, the groundbreaking 96 kHz, 24-bit platform that delivers full 20 kHz bandwidth for HD Radio broadcasts. Always innovating.

Which is why the **new Omnia-6-EXi** makes perfect sense. With **integral HD Radio Diversity Delay** that helps digital broadcasters eliminate analog connections to the HD exciter, ensuring independent analog and digital program streams. And the exclusive new **LoIMD Clipper** that actually **suppresses intermodulation distortion** to deliver audio that's cleaner, clearer and more detailed than ever — no matter how aggressive your processing. (If you already own an Omnia-6, don't worry — there's a low-cost upgrade to give your processor full-fledged Omnia-6EXi power.)

A lot of muscle? You bet. No wonder the competition is running scared.



# FMeXtra

► Continued from page 8

essential to gain automobile listenership. Two DAB car converters are sold in England (Revo and Acoustic Solutions) that could be used as models for an FMeXtra car radio converter.

## Potential uses

A radio station could use FMeXtra to multicast one or two additional program channels. The station would have to promote and sell radios and car radio converters to its existing listeners.

Alternately, there are groups, such as religious and ethnic organizations, that would like to have a radio station to program to their specific audience on a full-



FMeXtra 'Aruba' receiver with satellite speaker from Digital Radio Express.



time basis. An FMeXtra channel could be leased to such interests.

An AM radio station could simulcast its programming on an FMeXtra channel with better audio fidelity and, in some cases, better coverage both night and day.

In summary, FMeXtra is an economical and quick way for an FM station to add additional programming channels and

to begin digital broadcasting.

Digital Radio Express claims that FMeXtra can be transmitted simultaneously with an IBOC radio signal without any cross interference. Note, however, that a receiver capable of receiving an IBOC signal will not receive the FMeXtra signal.

Coverage to and beyond a station's 60 dBu contour is attainable easily and the

received audio fidelity is noteworthy. Again, the key to FMeXtra's success and mass acceptance will be the availability of a variety of reasonably priced radios.

Additionally, the FCC rules would need to be updated to accommodate digital SCA and its potential uses. Maximum digital SCA injection levels need examination for possible change from their analog counterparts.

All in all, FMeXtra has much potential.

*RW welcomes readers' experiences with FMeXtra and other broadcast technologies. Comment on this or any article to radioworld@imaspub.com.*

*The author is founder and general manager of KNXR(FM) and general manager of KRPR(FM), both in Rochester, Minn. Reach him via e-mail to tomjonesknxr@charter.net. The Digital Radio Express Web site is www.dreinc.com.*

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## PEOPLE NEWS

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

**Barry Thomas** was appointed vice president of engineering for **Lincoln Financial Media's** radio division. He most recently was vice president of engineering for Westwood One Radio Networks. Thomas replaces **Tom Giglio**, who is retiring after 45 years with Lincoln Financial Media and Jefferson Pilot Communications. Giglio will assist in the transition until the end of the year.

**Westwood One** promoted **Mitch Glider** to director, radio network engineering and technical operations. He was the lead project manager for the company's recent studio reconstruction in Culver City, Calif. Prior to joining Westwood One, Glider owned and managed his own recording studio and production facility.

**Logitek Electronic Systems** named **Frank Grundstein** director of sales. Grundstein had been with Logitek for three years as North American sales manager.

**Wheatstone Corp.** added **Mary Ann Seidler** to its staff as international director of sales for Vorsi and Audioarts Engineering products. Prior to joining the company she held a similar position for Telos/Omnia for 11 years.



Mary Ann Seidler

**Ken Stern** was named chief executive officer of **National Public Radio**. He had served as executive vice president since coming to the organization in 1999. **Kevin Klose**, who joined NPR as president and CEO in 1998, continues as president and as a member of the NPR board of directors.

**Wohler Technologies** named **John Sheridan** as senior applications engineer. He joins the company from Clear-Com, where he was customer service manager and applications engineer. Prior to that he worked for 10 years as a television production audio mixer, specializing in live remote broadcasts.

# NEW!! Audioarts Networkable Digital Consoles

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The NET Digital Router is a high-speed central switch that links multiple studios (via Cat-5 cable) with your technical operations center. Each of its eight links can handle 64 secure bi-directional data paths with embedded control signals, allowing you to centralize shared audio resources and integrate eight separate D-75N digital audio consoles as a working network. An Ethernet link handles administrative tasks, and a Clock port allows synchronization to an external master clock.

The IOC-16 audio input/output center acts as a networked intermediate link between a D-75N digital audio console and the central NET router. THE IOC-16 chassis rear accepts plug-in card modules for a clean and easy wiring installation.

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The Crown D-75A has been serving broadcast professionals since the 1970s. This amplifier is excellent for any kind of critical listening and it's built to last... there's nearly 30 years of proven performance behind this workhorse. The D-75A features 40 watts of power/channel into 8 ohms; level controls; power and distortion indicators; active balanced inputs with XLR-1/4" combination connectors; barrier strip output connectors; and <.001% harmonic distortion at full power.

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BSW now carries Heil broadcast microphones. The PR-40 dynamic mic boast an innovative design along with top-shelf components to deliver a sound that rivals condenser microphones, but without that all-too-common background noise and need for external enhancements. It offers flat response from 28 Hz up through 18 kHz with a lush mid-range rise for crystalline vocal articulation. The double-layered screens protect against breath blasts. It's ideal for vocals and broadcast voice-overs. Includes stand adaptor and box. Call BSW today to order.

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WS140 Foam windshield List \$25.00 **'21<sup>00</sup>**



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### Alesis Monitor1 MKII Passive Monitors

Get a great pair of studio monitors at a low price! The Monitor1MKII is a compact, shielded monitor with wide frequency response and high power capability. It has 6.5" polypropylene woofers for tight, accurate bass response and 1" tweeters. Priced as pair.

MONITOR1MKII List \$299.00 **LowestPrice only \$199 pair!**



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### The MZ-M200: Sony's Latest Hi-MD Mini Recorder

The latest Sony Hi-MD recorder boasts intuitive recording features and easy navigation in a compact design. It's the ideal field recorder for radio journalists and provides hours of audio on a single 1GB Hi-MD Minidisc. The MZ-M200 offers the ability to record from multiple sources (Mic/Line-in) and has a Dynamic Normalizer for uniform volume level. It's PC/Mac compatible via its USB connection and uploading software (included). And it comes with a stereo microphone, earbud headphones, a rechargeable battery, and a 1GB Hi-MD disc. Check it out at www.bswusa.com.

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The K44 is a durable headphone that delivers excellent audio. Sealed ear cushions offer excellent comfort without audio leakage... perfect for on-air and studio applications. Frequency response 18 Hz - 20 kHz. Impedance 32 ohms. 8 ft. single-sided cord with stereo mini-jack and 1/4" plug adaptor. Only \$49 for three!!

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# FAA

► Continued from page 1

band, 87.8–107.9 MHz, is adjacent to the FAA's communications and navigation band of 108–118 MHz.

According to the NPRM: "The revised rules would protect the flying public from signal interference from broadcast sources disrupting vital communications or altering the performance of vital avionics."

The rulemaking request, which amends 14 CFR Part 77 of the FAA's rules, also raises the issue of spectrum management and exactly who has regulatory control over it. Broadcast spectrum is considered the domain of the FCC; some observers believe the NPRM demonstrates the uncooperative nature of the relationship between the regulators of air and airwaves.

The NPRM's initial public comment period ended in early September.

## Structural changes

Under existing rules, communications service providers must notify the FAA of new tower construction or modifications to structures of 200 feet or higher or that lie within five miles of an airport and would interfere with Glideslope, part of the instrument landing system that guides pilots during landing.

The federal agency then conducts an obstruction evaluation, which typically involves computer modeling, to determine

if the proposed tower or modification poses any affect on aeronautical operations.

However, the rule changes would require FM radio broadcasters, VHF TV broadcasters and other spectrum users to notify the FAA of *all* structure changes, regardless of height or location.

## The FAA says it is requesting the changes to get a better handle on EMI from radio broadcasters that can garble ground-to-air transmissions near airports.

The proposed rules have drawn the scorn of the NAB, the Society of Broadcast Engineers and others in the communications industry, who fear the new regulations would duplicate the work of the commission and could delay projects with red tape.

The FAA says it will cost broadcasters \$10 and take approximately 20 minutes to file the necessary paperwork; the cost for a broadcast engineering consulting firm to file a notice would be \$445. The FAA expects the rulemaking will cost private industry approximately \$13.7 million over the next ten years.

"We think the FAA is vastly underestimating the cost associated with the measure. We believe it will likely cost six times

as much for the industry to fully comply," said SBE General Counsel Chris Imlay. "Further, this proposal calls for no coordination with the FCC, who is on the point when it comes to spectrum management."

Not only would the measure add to the cost of tower and antenna projects, it

could make it more difficult for broadcasters to gain FAA approval, Imlay said.

"This is a very loosely worded document. It doesn't call for any level of coordination between the FAA and FCC. We believe there are too many cooks spoiling the broth," said Imlay. "There should be a coordinated effort so that standards apply to broadcasters equally across the board of both agencies."

NAB stated in a comment filing: "If adopted, broadcasters would be required to file a notice with the FAA virtually every time a change is made to one of its structures or antennas, including changes in frequencies, increases in power and changes in antenna mounting location. The modifications would impose significant burdens upon the broadcasting industry."

## Cost burden

The trade association expects most broadcasters would be forced to enlist the help of outside consultants to complete the FAA notification paperwork, thus adding significantly to the cost burden.

At least one telecommunications consultant believes the current course of FAA actions would slow down the level of facility improvements.

"In some cases it might even prevent stations from making improvements, even when no interference exists," said Larry Fuss, a technical consultant and president of Contemporary Communications LLC.

As for any perceived power grab by the FAA, Fuss said, "Spectrum should be the domain of the FCC. It appears that the FAA is playing the public safety card to justify this request."

The FCC itself filed comments illustrating what it feels is the FAA's underestimation of the number of expected notification filings. The FAA estimates that an additional 26,794 forms would be filed on an annual basis. However, the FCC believes the number of filings would be "much larger" than expected.

The FAA rule revisions would also affect other types of FCC-authorized service, such as cellular, PCS, WiFi and WiMax systems.

While electromagnetic interference is a legitimate concern for the FAA, communications experts say its jurisdiction is in regulating tower height, placement and warning lights, not spectrum.

"The FCC has historical precedent toward regulating spectrum. This proposal is certainly a move in the other direction. It would be a duplication of work that appears unnecessary," said Dr. Ken Nagelberg, associate professor of Media Studies at University of Charleston.

In fact, most of the information the FAA seeks in the rules request is already available in FCC databases, Nagelberg added.

"This is an example of a lack of communication between federal agencies that will just add another layer of bureaucracy for broadcasters to deal with," Nagelberg said.

He said the rules modifications are unnecessary because the FAA and FCC participate in the Interdepartment Radio Advisory Committee, or IRAC, along with the National Telecommunications and Information Administration, which regulates radio spectrum use for federal agencies. The groups meet several times a month to discuss technical criteria pertaining to the allocation, management and use of spectrum.

FAA officials said it would be inappropriate to discuss specifics of ongoing proposed rulemaking. "We are currently evaluating the comments, and depending on the concerns expressed, will either amend the proposal, drop it or issue an official rulemaking," said Les Door, FAA spokesman. "We will work to gain a consensus in the industry before we issue official rules."

Door declined to say what happens should the FAA fail to gain a consensus among broadcasters and would not speculate how long the rulemaking process may take. 🌐



## All in One All in Hand

Photo made in Park Hotel Grenoble, France 2006 Link to Digigram



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## NEWS WATCH

### News Roundup

**ARBITRON** sued The Media Audit, alleging infringement on three Arbitron patents for electronic audience measurement technology. It asks a federal court for a permanent injunction and damages.

**SWITCHCRAFT**, which makes connectors and cable assemblies, is celebrating its 60th anniversary. The company was founded in 1946 by three former GIs.

**RCS** and subsidiary Media Monitors, which were purchased earlier this year by Clear Channel, opened the doors at a new location in White Plains, N.Y., moving a half-mile from the Water Street location RCS had occupied for eight years.

**ACCESSIBLE** Digital Radio is the goal of researchers at NPR and WGBH's National Center for Accessible Media. They've received a \$150,000 grant from the Department of Education to help develop accessible radio technology for people who are deaf, hard of hearing, blind or visually impaired.

**RENEWAL RATES:** According to Bridge Ratings, satellite radio buyers whose subscriptions were part of the acquisition of a new vehicle are more likely to let their subscriptions lapse at the end of the term. Some 48 percent of those with subscriptions tied to their cars responded "no" when asked if they intended to renew; 42 percent said yes.

# We're all talk.

## And all action, too.

All talk and no action? That certainly doesn't describe any radio station we've ever seen. With guest interviews, news and traffic feeds, live reports and listener calls to juggle, a talk studio is one of the most active places on the planet. Seconds count, and there's no room for mistakes.

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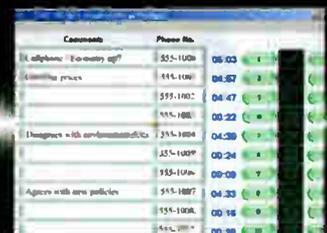
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## Disaster at the AM Transmitter Site

by John Bisset

While traveling by car, Cumulus Youngstown Market Engineer Wes Boyd spotted a peculiar AM site. From the side of the road, pictured in Fig. 1, it looked as though one tower's tuning box was falling over. Wes got out of his car and did a little investigating. Fig. 2 shows the toppled tuning box as he approached.

In the middle of the array, and seen in Fig. 3, Wes noted a small stream that had collected debris that was tangled in the

transmission lines. The combination of the moving water and a "beaver dam" collection of logs, branches and debris had pulled the overhead-fed transmission lines about 25 feet.

It was this tension on the transmission, electric and sample lines shown in Fig. 4 that caused the tuning boxes and portions of the fences around towers on each side of the stream to suffer damage. The tension of these lines connected to the coupling networks actually toppled the tuning boxes!

What's amazing is that in Fig. 5, even with the coupling network toppled, the ATU output tubing, running from the coupling network to the tower, was still intact — and the station remained on the air!

For how long, now that's another question.

Wes' photo essay is another reason you want to visit your transmitter site regularly, hopefully to spot these problems before they develop into disasters.

★★★



Fig. 1: View from the road of the tower and tilted ATU



Fig. 2: A toppled AM tuning box



Fig. 3: The mid-array stream



Fig. 4: Tension on the above-ground lines



Fig. 5: Even with a toppled ATU, the antenna is still being fed!

# Time is Infinite

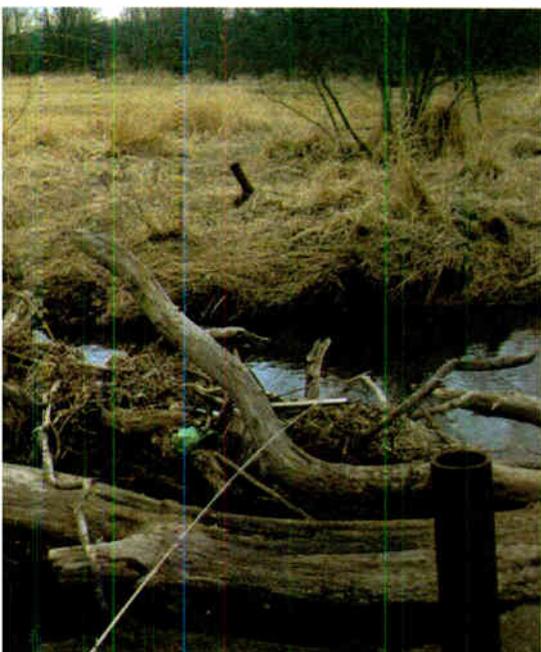
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It's never too early to drop holiday present hints, and John Huntley, engineering manager with Cumulus Rockford, found a neat kit by Ryobi that includes a cordless drill, Sawzall, small Skil saw, hand vacuum and light for a retail price of \$179. The kit uses an 18V battery, which provides plenty of torque.

John suggests that readers watch the advertising fliers, though, as recently there was an offer of two additional batteries (\$40) with a rebate for the cost of the batteries when purchased with the kit. The



where the problem developed



ground lines pulled at the ATU

complement of tools will cover much of the work chiefs or contractors will do.

★★★

While we're on the subject of purchases, Ralph Jones of Radio Lazer saw a reasonably priced security camera online at Wal-Mart. The Moultrie Game Spy series is intended to take candid pictures of wildlife. Housed in a camouflaged weather-resistant case, the camera includes flash, motion sensing, and date and time on each picture. Some models also have a USB port, 12VDC input and a rechargeable battery. You can see the camera online by heading to [www.walmart.com](http://www.walmart.com) and searching for the Moultrie 3.1 MP Game Spy 200 Digital Camera. Position it near the transmitter site gate. You may be surprised who's visiting.

Thanks, Ralph, for the security suggestion.

★★★

Keeping you informed of equipment upgrades is a major function of this column. Broadcast Electronics, my full-time employer, has made some major changes to its RF Service Web site. The new site includes the latest technical bulletin updates, white papers, product manuals and a variety of other technical resources. The site also includes a good deal of HD Radio information. It's at [www.bdcast.com/support/index.php](http://www.bdcast.com/support/index.php).

Visit your equipment manufacturers' Web sites periodically to keep current with important information including factory recommended modifications or tech updates.

★★★

Anytime an engineer has to build a button panel (remote delay dump, machine start, open the front door, etc.) one is almost always obligated to use those little black and red buttons available from the nearest RadioShack. Yes, they work, but they are really tiny, and a fingertip slides off the button surface easily. Another drawback is you are never really sure if contact was made.

QuarterArcade.Com sells parts for arcade video games, including those great big buttons we grew up slapping and whacking while gaming for hours at a time. Alan Peterson, assistant chief engineer for the Radio America Network in Washington and an RW colleague, suggests you build your panel with these pushbuttons.

They're designed to take a pounding. The surface of the switch is big and

concave so fingers don't slip off. Instead of an inexpensive springy piece of metal, these buttons use a dependable and replaceable microswitch to make contact. And because they come in colors, there is no doubt for the operator which is the red Dump Delay button and which is the black Unlock Front Door button.

Considering how many times arcade buttons are slammed each day, Alan's choice is ideal for a long-lasting, reliable switch. You can reach QuarterArcade at (610) 754-6377 or head to [www.quarter-arcade.com](http://www.quarter-arcade.com). Alan Peterson is at [apeterson@radioamerica.org](mailto:apeterson@radioamerica.org).

John Bisset 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.



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# AES Convention Appeals to Radio

*This Year's Show in San Francisco Was Weighted Heavily Toward Broadcast And Surround Sound Issues*

I should have known it was going to be a surprisingly radio-centric AES show when the movie on my flight to San Francisco was "A Prairie Home Companion."

Although the Robert Altman film is a sort of charming cross between "Radio Days" and "A Mighty Wind," and features a typically great Altman ensemble cast, I still managed to fall asleep about halfway through it. But the 121st AES Convention at the Moscone Center in San Francisco was anything but sleepy, especially where radio was concerned.

Although radio topics have been on the rise at recent AES shows, the emphasis on broadcasting at this convention was astounding. There was an entire conference track of a dozen sessions on broadcast technology topics, well put together by veteran radio engineer David Bialik (I was a participant in two of the panels), plus an unprecedented number of other sessions, several of which were also of considerable interest to broadcasters.

## Rites of passage

Of course, not everything at AES 121 was radio-related, but the convention is always fascinating anyway for its dichotomy, which presents a good look at an industry that is heading in seemingly opposite directions simultaneously.

Reminiscent of the two-faced ancient Roman deity Janus — the god of gates and doors, or beginnings and endings — one half of the pro audio industry is pushing toward acceptable quality at ever lower bit rates, while the other half is struggling for perfection in reproduction

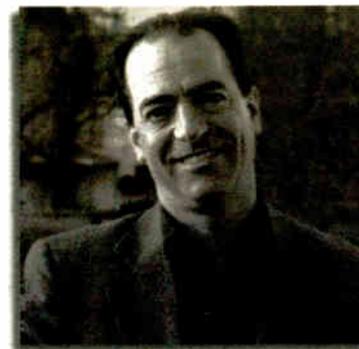
with continually increasing resolutions.

This isn't an illogical divergence, of course. On one hand, the perennially increasing speed of digital processors and decreasing cost of digital storage invite the extension of quality with continually higher sampling rates and quantization levels. Meanwhile, radio spectrum is a fixed and scarce resource, and even Internet bandwidth is generally gobbled up faster than it can be provid-



Among those speaking about Innovation in Digital Radio were, from left, moderator David Bialik of DKB Broadcast Associates, Dave Wilson of CEA, Eric Hoehn of XM and Geir Skaaden of Neural Audio.

## The Big Picture



by Skip Pizzi

national and worldwide attendance.

AES also puts equal emphasis on theoretical and practical elements of the audio business. Extremely deep technical paper presentations square off against hands-on or practical workshops and tours of local facilities, often requiring agonized decisions over how to divide your time at the show.

This structure coupled with a refreshingly ethical balance of academic and commercial attitudes provides each AES convention with something for everyone to like. It also makes the show stand apart from others — it's not NAMM, NAB or SMPTE, but something all its own. It's also reflective of the multifaceted industry that it serves, which has always juxtaposed long hair and leather with patch cords and pocket protectors. Thus the fashionistas of AES make an interesting and unique statement as they parade through the halls.

The age diversity of an AES show is also remarkable. The elders of the industry mingle freely with students, and they both seem to learn something from each other at every show.

## Surrounded by 5.1

This year it seemed you could hardly take a step in any direction without encountering surround sound, in either a recording or a broadcasting context. There is no question that surround is the next wave in audio, and it's not just for soundtracks anymore.

No less than 10 different conference sessions focused exclusively on surround sound issues, and the subject was mentioned countless times in other instances throughout the show, as well. Attendance at most of these sessions was strong, indicating continuing growth of interest in multichannel sound. For the first time it seemed like stereo could eventually become the mono of tomorrow, acquiring the status of a legacy audio format (at least for musical content).

Radio itself had a higher overall profile at this year's AES than ever, with sessions running the gamut from IBOC to IP Audio. The new Association of Public Radio Engineers also took the opportunity to meet at the show for the first time, an event that reportedly may become an annual affair.

For radio engineers who have never attended an AES show, it's an opportunity worth seeking out. For those who have, it's only getting better for broadcasters every year.

Skip Pizzi is contributing editor of Radio World.

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ed, so conservation along this axis is also welcome, particularly when it can be achieved with an increasing retention of fidelity.

Another way to look at this is that the AES is an annual convocation of guardians for both the quality and the quantity of audio delivered to the world's audiences. While some crusade for greater efficiency in distribution, others pursue their quest for ultimate fidelity of reproduction. These are not in opposition, but in fact are two axes of a multidimensional world, and their nexus is worthy of close observation.

The richness of this environment can be gleaned from a quick perusal of the conference sessions at any AES Convention. From acoustics to transducers to amplifiers to transmission, from recording to sound reinforcement to radio to consumer electronics, from archival preservation to forensic analysis to hearing loss to aural perception, from data compression to sound-for-picture to audio effects to surround sound, AES covers the four corners of the audio universe — which in its own right is also expanding.

The growing popularity of the sonic theme park that is AES is evidenced by its numbers, which show strong growth year to year, even in periods when other shows struggle. Twice each year the pro audio world gathers — each fall in the United States (on alternating coasts) and in the spring in Europe, with subject- and region-specific smaller conferences around the world in between. Advantageously, the concentration of audio professionals in cities like New York and Los Angeles makes the frequent placement of AES conventions in those cities certain to draw at least a strong minimum attendance from locals; yet each show generally attracts strong

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## YOUNG ENGINEER

## Public Radio's Mission Lures Chervek

by Ken R.

In the Feb. 1 issue — seeking to explore the question “Where will the next generation of engineers come from?” — Radio World reported on several young radio broadcast engineers. Here is another in a series of occasional profiles keeping readers up to date with the industry’s “new blood,” promising stars of tomorrow who may also be teaching their mentors a few tricks.

At age 25, Nathan Chervek, CBT, doesn't fit stereotypes. He is interested in computers, but he is also content tracing down a transmitter glitch high atop the White Mountains of New Hampshire. He is a musician who enjoys playing guitar, bass and trombone; his taste in radio formats is equally eclectic.

That all helps in his position at New Hampshire Public Radio, where he has been a broadcast engineer since January of 2005. Along with former Director of Engineering John Huntley and IT specialist Steve Bothwick, he has been responsible for duties as diverse as designing a new studio complex and cobbling together an electronic device to help pump water out of a flooded studio basement. As of Sept. 1, Chervek became interim DOE when Huntley left the organization.

“I have a bachelor of science degree in interactive digital media with a concentration in computer science and programming,” said Chervek of his stay at Northwest Missouri State University near Kansas City, Mo. “But about halfway through my four years there I decided I didn't want to end up staring at a computer screen eight hours a day. My roommate was a broadcast major working at KXCXV(FM)/KRNW(FM) on campus, which are both public radio affiliates. That sounded interesting, and I needed beer money! At that time, a board op position paid pretty well, so I started at KXCXV at age 19.”

Station Manager Sharon Bonnett and Chief Engineer Charlie Maley at that campus facility both saw that Chervek was curious about how things worked.

“Nathan is one who isn't satisfied with the obvious,” said Bonnett, who is now retired. “He's congenial and a team player and he has a rich tenor voice cultivated in many vocal ensembles.”

“I started hanging out in the shop and nosing around the satellite room asking a



Nathan Chervek

**Halfway through my four years at college I decided I didn't want to end up staring at a computer screen eight hours a day.**

— Nathan Chervek

lot of questions,” Chervek said. “Charlie asked me to help him upgrade his (Broadcast Electronics) AudioVault system, which worked out well because I could teach him about computers and he could teach me about everything else.”

Chervek is working his way through a Cleveland Institute of Electronics course but has no other formal engineering classes. In his senior year of college he received a scholarship from NPR to attend the Public Radio Engineering Conference at NAB2004 in Las Vegas.

“I used the opportunity to hand out as many résumés as I could, and one of them ended up in the hands of Scott McPherson, assistant general manager at NHPR,” said Chervek. “He didn't have an opening at that moment so I went to

Innovative Broadcast Services in Starkville, Miss., where I intended to stay for a long time. That's a broadcast engineering and consulting company with more than 70 radio clients in the south, and it was a good experience. However, when the position became available at NHPR about six months later, I was very happy to join them.”

**All in a day's work**

“I like working on macros for a site remote or troubleshooting automation,” said Chervek. “I also like the outdoors and have no problem hiking up the mountain in the sometimes gorgeous weather when equipment fails up there. I just like working with my hands.”

A number of non-engineering tasks also fall within his purview including changing light bulbs, helping salt the icy sidewalks in winter and dealing with the phone system.

“For example, when the Northeast got hit with all that rain recently, we had three inches of standing water in our facility's basement,” he said. “We got this idea of using a Burk Technology AC-4 with a Burk GSC3000 remote control unit to get the sump pump to cycle the power so we could avoid vapor lock.”

Chervek enjoyed his brief time consulting commercial radio stations but believes that public radio has an added allure. “It

has a mission to inform its audience,” he said. “When I am out there responding to a transmitter that has gone off the air, I feel like I'm serving the listener and not just someone's bottom line.”

Chervek loves the challenge of dealing with the ever-changing priorities of broadcast. “We're working on upgrading our fourth HD transmitter right now and while that's going on we're designing a whole new studio complex for NHPR, which will be built from the ground up,” he said. “You don't get bored in radio.”

John Huntley, CPBE, remarked on his former charge's good attitude. “He deals with situations immediately but doesn't obsess if it takes a while,” he said. “More importantly, he is not afraid either to ask or to jump in and learn it that way. I knew that we would get along just fine when I saw him post to a mailing list with the annotation, ‘Engineer V 2.0.’”

Any words of advice for young engineering colleagues?

“Don't dread Monday at 9 a.m., but look forward to Friday at 5 p.m., too,” he said.

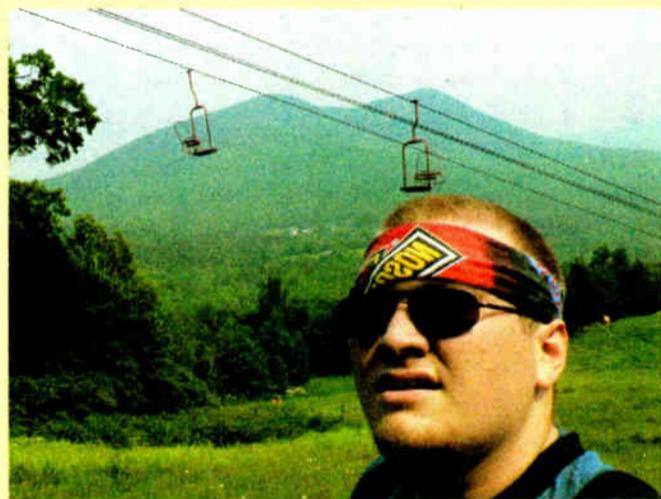
Even though engineers are summoned at odd hours, Chervek has already come to an agreement with his girlfriend about this. “She's had previous jobs where she was on call, so she knows what that's all about,” he said.

Radio World predicts a long and happy relationship.

Ken R. profiled engineer Joseph Brannan of Clear Channel earlier this year. 

**When One Door Closes ...**

“One of our transmitter sites is on top of a mountain at a ski resort, with the transmitter living in a small room in the upper lift building,” Chervek told RW. “In the winter, we have to ride the ski lift to the top, but in the summer, most of the time we can drive the 4WD jeep to the top. This particular



day, one of the other tenants at that site opened the door to our room rendering our exhaust fan useless and the temperature in the room rose over 115 degrees F. I got the jeep stuck in the mud about halfway up the mountain and had to hike the rest of it on foot, just to close a door. An engineer's job is never done.”

## MARKET PLACE

**FMB80 Supports RT+ Applications**

Audemat-Aztec said its RDS Encoder FMB80 supports the Radio Text Plus (RT+) standard recently tested in Seattle.

The FMB80 is compliant with the RDS/RBDS standard and supports ODA (Open Data Applications), the company stated. “This enables the FMB80 to support any kind of new applications like RT+ without any modifications or additions to the encoder.”

RT+ enables FM RDS-equipped receivers to display information such as artist and track details for songs, news headlines and other information. It also allows the receiver to store information such as Web links and phone numbers.

“RT+ was developed by Nokia, broadcaster Westdeutscher Rundfunk (WDR) and the research institute IRT. Audemat-Aztec started working with Nokia 2 years ago by supplying RDS equipment and technical support for their laboratory testing,” the supplier stated. “Audemat-Aztec remains at the disposal of any automation software companies and broadcasters who want to get more information on RT+.”



The FMB80 offers TCP/IP connectivity and communicates with automation software to transmit song titles, artist information and station messages to the receiver. The unit is also capable of advanced RDS functions including ODA, paging, homeland security alerts and TMC (Traffic Management Channel). Audemat-Aztec says it has sold more than 10,000 RDS encoders globally.

For information call the company in Florida at (305) 249-3110 or visit [www.audemat-aztec.com](http://www.audemat-aztec.com).



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## TECH TIPS

# Receiver Amp Helps With STL Mod

by Jim Barry

Bench repair is most of what I do in the radio broadcast field. RPU and STL repairs top the list.

A Nicom NLR 900 STL receiver presented itself as a challenge the other day. A local radio group was using it as their "rov-

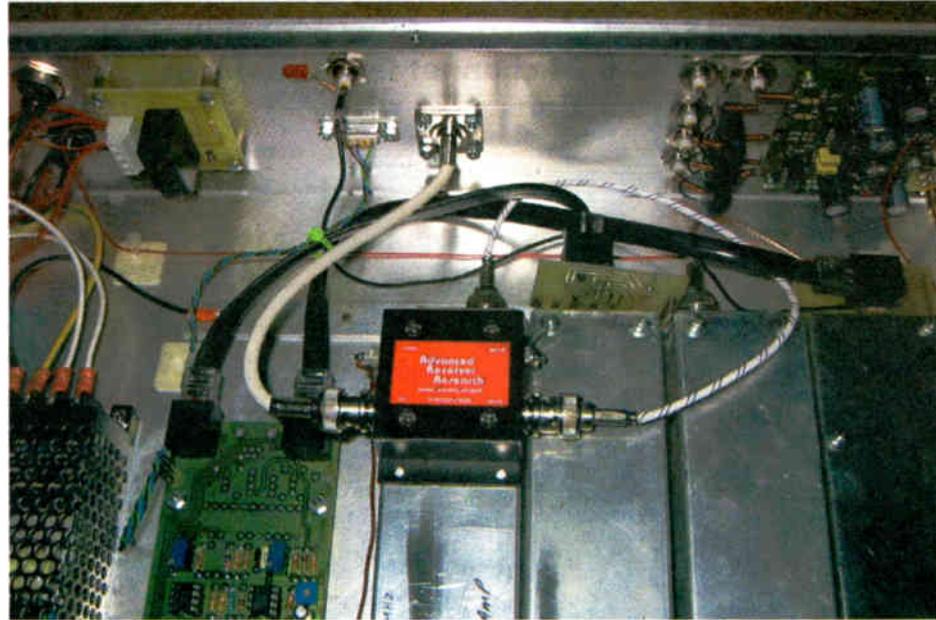
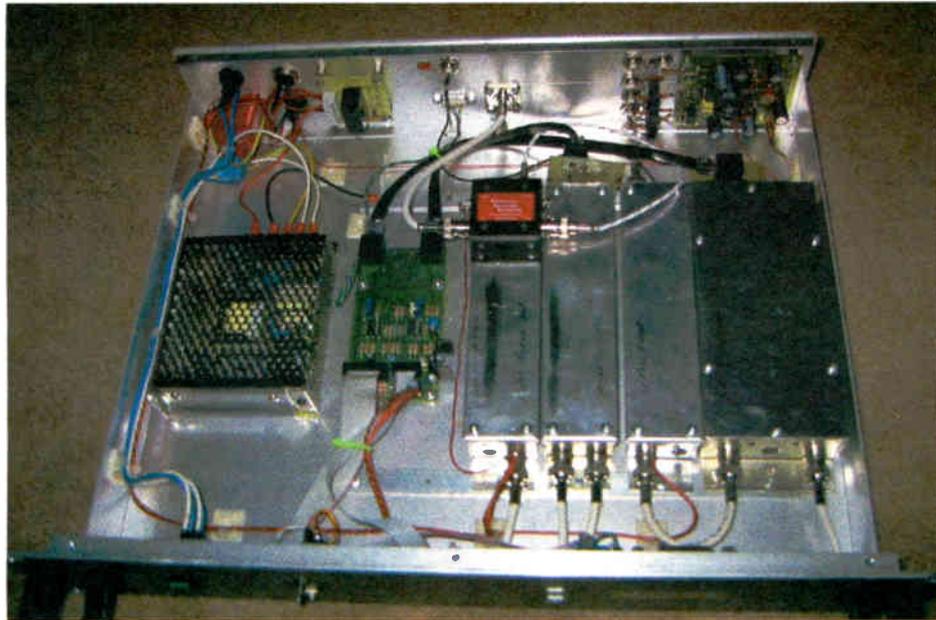
sensitivity of  $-87$  dBm for 30 dB of audio quieting. Apparently newer Nicom designs have better specifications, but that did not fix the customer's problem.

Clearly, what was needed was some low-noise amplification. Advanced Receiver Research ([www.advancedreceiver.com](http://www.advancedreceiver.com)) has been making receiver ampli-

was a 9 dB improvement in receive sensitivity. Signal required for 30 dB of quieting is now  $-96$  dBm. Wow! What a difference. In order to achieve the same result, the STL transmitter power would have to be increased from 7 watts to 54 watts or one of the antenna dishes tripled in size.

The preamplifier needs 11 to 16 VDC to

compare the performance of the Nicom to a Moseley PCL6020 receiver and found the Moseley to be only slightly better than the Nicom without the amplifier. On the Moseley I measured a sensitivity of  $-90$  dBm for 30 dB of audio quieting. Adding the amplifier to the Nicom was only able to improve on the performance of the Moseley by about 3 dBm. This leads me to believe that adding an amplifier to the Moseley may provide enough improvement to make a noticeable improvement



ing spare" to serve when one of the regular Moseley units failed. This kind of spare is excellent for solving problems in a hurry.

The station engineer felt that this particular receiver had poor sensitivity. At first, I replaced the three transistors in the receiver's 950 MHz front end. To my surprise, the sensitivity remained poor. I called NicomUSA and learned from Franco that this is normal for that model. I measured a

fiers for some time and at a good price. For \$129 plus shipping, I got a P900VDG GaAsFET preamplifier and it solved the problem. It has 18 dB of gain and a bandwidth of 40 MHz.

I first tried it after the Nicom's input amplifier/filter, but got only gain and no noise performance improvement. When the preamplifier was connected between the antenna input and the receiver input, there

run. That was available inside the receiver already. In fact, I mounted the preamplifier inside the receiver using two existing 4-40 screws. The downside is that the receiver could run into front-end overload problems if there is excessive RF on site in the 950 MHz range such as an STL transmitter or even cellular facility. In that case, an RF band pass filter might be a good idea.

Several weeks later I had the chance to

and to be worth the effort.

Jim Barry, WØIRE, is an electronic design engineer. He partners with M.W. Persons and Associates, [www.mwpersons.com](http://www.mwpersons.com), when doing radio broadcast work. His Web site is [bay-tech.com](http://bay-tech.com). E-mail him at [jim@bay-tech.com](mailto:jim@bay-tech.com).

Got a tech tip? Want to comment on this or any article? Write to [radioworld@imaspublish.com](mailto:radioworld@imaspublish.com).

## MARKET PLACE

## 'apt-X Live' Unveiled

APT has introduced apt-X Live, an audio coding technology aimed at live performance applications.

The company said Shure Inc. has licensed the algorithm and called that deal "commercially and strategically" significant.



The news came as APT exhibited at the AES show in San Francisco.

APT touts apt-X Live for its audio quality, low latency and error resilience. Managing Director Noel McKenna said the algorithm uses the same architectural principles as the apt-X line and offers a compression ratio of 8:1. In listening tests, the company said, participants were unable to discern any difference between 24-bit/48kHz PCM Audio and apt-X Live.

APT believes it will find strong interest in makers of digital wireless audio, including microphone and headset manufacturers.

For information call the company in New Jersey at (800) 955-APTX or visit [www.aptx.com](http://www.aptx.com).

### Product Showcase



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## GSelector, Talking With the G-Man

Tom Zarecki of RCS explains GSelector to an audience at the IBC convention in Amsterdam, right. The company won an award for honorable mention in the category of best booth design among medium-sized companies — "no small feat since we were competing with giant global TV companies as well," Zarecki said.



GSelector is a music scheduling system that RCS says takes into account the needs of radio programming via satellite, HD, DAB or the Internet. The system lets the operator use a master library to serve multiple stations; there's no need to enter each song into many databases. Global and station-specific codes assist with library management.

A "goal-driven, demand-based" scheduling engine lets the user create a station, then adjust overall sound and flow with attribute sliders. "With one click, you can improve your station. GSelector automatically creates schedules that reflect your changes," the company says.

GSelector considers every song for every position, which RCS says virtually eliminates unscheduled song positions and puts the best songs in the best slots. The system also can alert the staff in advance to adjust schedules across a group of stations, so none of them play any song simultaneously. An audio analyzer adds codes like energy, tempo, texture, open and close.

For information contact the company in New York at (914) 428-4600 or visit [www.rcsworks.com](http://www.rcsworks.com).

## WIRED FOR SOUND

# (Analog) Snake in the Grass

by Steve Lampen

Past articles in this series are archived at radioworld.com.

You've probably used multipair analog audio snake cables. Maybe you've done something on location in a night lub or county fair. Snakes make setting up and breaking down a lot faster. You might even install a snake in your studio to make it easier to ship multiple audio channels around the place.

There are really two kinds of snake cable, old and new. The old kind has individual foil shields around each pair. These foil shields should be wound around each pair with the foil facing in and the colored plastic backing facing out. The drain wire will then be inside the foil with the pair. Sometimes different colored plastic-foil is used to identify a pair or groups of pairs, with a different color code for the two wires inside each pair. If the foil you see is all silver, foil facing out, then all the shields will touch each other and you might as well have a single foil shield over all the pairs since they will share whatever noise or interference signals appear on each one.

### Color scheme

The other type of snake cable, the "modern" kind, has a twisted pair, with a foil shield, and individual jackets on each pair. Less-expensive cable sometimes uses the same color plastic on the jackets. Better cables color-code the jackets. Often, they will start with the resistor color code:

Black	0
Brown	1
Red	2
Orange	3
Yellow	4
Green	5
Blue	6
Violet	7
Gray	8
White	9

Since there is no pair "zero," black is often used to mean pair "10." The old foil-only style is often cheaper and smaller than individual jacketed pairs. The individual jacketed pairs come in a number of styles. Here they are:

Super-flexible analog snakes used to be the purview of Japanese manufacturers but you can now find them American-made as well. These are noodly-limp, which makes them great on location, if you're putting out and picking up every day. But these are the worst snake cables to install. First, they have no fire rating. The NEC code, which applies almost everywhere, says any cable that is installed, even in a conduit, must have some rating. Second, why would you buy all this flexibility only to put it in a wall? And, finally, if you have ever pulled a cable like this through a conduit, you know what frustration is all about. Those soft matte jackets "grab" the inside of the conduit and the cable bunches up at the slightest obstruction. Worst possible install cable.

These super-flexible snakes are begging to be used on the road, so the real

question is how long will they last? A simple test will answer this question. Get a sample of a small pair count (perhaps four-pair) of each manufacturer. Duct tape the ends to the floor and run some steel-wheeled carts over the untaped sections. Office chair are also a great test, with you sitting in them. Just run back and forth a few times. It will be instantly apparent which cable is more rugged. Some super-flex snake cables are 40 times more cut-resistant than others.

The next type of analog snake has a minimal fire rating, such as CM, and is moderately flexible. This can be "in-

stalled" per the NEC, or can be used in the field. If you want a one-snake-does-all style, this might be a good choice.

Then we have "riser-rated" analog snake cable. This has a very high fire rating, just one step below plenum. These snake cables are often stiff, with shiny jackets. That makes them the perfect install cable. Sometimes you can actually push these snakes down a conduit. And the shiny jackets allow the snakes to slide over each other or the inside surface of the conduit.

Finally we have plenum snake cables. They are sometimes hard to find, and

they are very expensive. If you're not sure if the area is a plenum, get a ruling from your architect, fire marshal, building inspector or planning board before you start.

Plenum cables are made of materials that resist being fuel for the fire. Therefore, they often won't have individual jackets. (Too much plastic will not pass plenum burn tests.) However, this means that they are often the smallest snakes for a given conductor size. Until recently, plenum snakes were hard to find in the pair counts that you might want such as 8, 16 or 24. Now they are readily available.

Steve Lampen's latest book "The Audio-Video Cable Installer's Pocket Guide" is published by McGraw-Hill. Reach him at shlampen@aol.com.

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# In 1963, He Crafted an Audio Lifeline

*Engineer Used an RCA Mic, Extension Cords and Ingenuity to Help Save Trapped Coal Miners*

by James Careless

For two weeks in August 1963, the world listened as rescuers tried to free three coal miners trapped 300 feet underground in Sheppton, Pa.

Two of the miners would be saved after a two-week underground ordeal; a third was never found. What most listeners didn't know, and few people now recall, is that the audio lifeline that detected the miners was created by 19-year-old radio engineer Phil Margush, who crafted it out of spliced extension cords, an RCA "salt shaker" microphone and a Voice of Music 7-inch reel-to-reel tape recorder used as a monitor.

In 1963, Margush had just been hired as chief engineer and part-time newsman at WMBT(AM) in Shenandoah, Pa. "It was my first formal assignment as a broadcast engineer," recalls Margush, who now owns Engineering Technical Services in Quakertown.

"WMBT was a 250-watt daytimer that had just gone on the air six months before, serving the anthracite coal mining region of eastern Pennsylvania. The station, in a newly constructed rectangular building, studios and transmitter, was situated atop Locust Mountain, just 100 feet from its quarter-wave antenna."

Initially, the mine cave-in story only warranted a few lines on the AP wire. As a result, the story might not have even caught the station's attention — and the miners might never have been saved — had WMBT newsman Russ Trunzo not become interested in visiting the site.

"So mid-afternoon, when the broadcast schedule permitted, we 'borrowed' the station's one and only tape recorder and the RCA salt shaker microphone, loading everything into my VW panel truck, and off we went to find a little town called Sheppton," Margush said. "Russ, who later saw his career at 1010 WINS, had hoped to get some interviews for the next day's news and to return the tape recorder without its absence having been noticed."

"However, things didn't work out that way."

## 300 feet down

The rescue scene that Margush and Trunzo found was manned by retired miners from around Sheppton and representatives of the state and U.S. Bureau of Mines.

"The debris near the entrance of the collapsed mine was so severe that there was no way a rescue team could be sent in that way," Margush said. "According to Russ Trunzo, it was the brother of one of the trapped miners who first suggested the idea of drilling a bore hole down to the miners, in order to locate them and eventually lift them out."

The idea caught on and an exploratory attempt was made using an 8-inch drill. According to Margush, "There was no certainty that any contact could be made. Maps and diagrams were consulted and



Grainy photo shows drilling rig with VM tape recorder resting on platform above bore hole and casing.

experienced miners gave their input; but everything was highly speculative. The rig operator was an expert; nevertheless everyone said this was a long shot at best."

The drilling continued into the night, piercing through the rock beneath. Finally the drill broke through into an apparent cavity 300 feet down. Even so, the rescuers had no idea if they'd hit the mine. And if they had, were three trapped miners — 28-year-old David Throne, 58-year-old David Fellin and 42-year-old Louis Bova — nearby?

To find out, the rescuers lowered a World War II-vintage, self-powered field telephone down the hole. Some thought they could hear water flowing but Margush was doubtful that anything could be heard

**We enlisted volunteers, who went out to the town of Sheppton and surrounds, borrowing any electrical cords they could find; and we spliced them together with borrowed friction tape.**

— Phil Margush

with such a device of such low sensitivity.

It was at that point that Margush suggested the VM tape recorder hookup to his colleague Trunzo. The WMBT newsman took the idea to the rescue supervisor, who immediately gave approval.

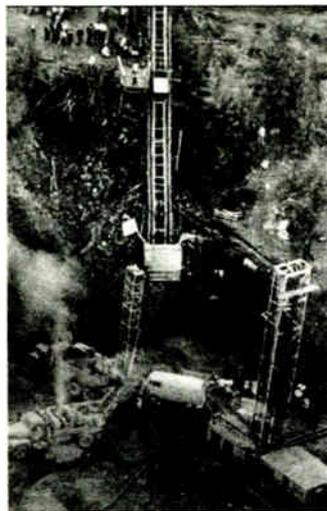
"The VM recorder had a lot of sensitivity in its microphone preamp," Margush says. "It occurred to me that if we could drop our RCA salt shaker down into the hole and connect it to the VM, we might be able to hear what was going on."

The problem with this revelation was cable: Margush didn't have 300 feet of microphone wire on his truck.

"We enlisted volunteers, who went out to the town of Sheppton and surrounds, borrowing any electrical cords they could find; and we spliced them together with borrowed friction tape," he said. "Then we carefully lowered the salt shaker mic down the hole and listened."

## Echoes in the dark

At first, all that followed back to the VM's monitor speaker were the distinctive sounds of dripping water and the prominent echoes of the rescuers above calling down the bore hole. "Then someone said, 'I think I hear voices.' Sure enough, it seemed that we could hear men in the background carrying on a conversation, unaware that we were listening in."



Aerial view of site with WMBT 'news cruiser' mobile unit at the center of the rescue operation. The WMBT unit remained for the duration of the rescue.

The rescuers repeatedly called the names of the trapped miners, shouting into the casing. Finally a response came back, loud and clear.

"The early conversations were very mysterious-feeling, yet very optimistic and happy," Margush recalls. "Within half an hour of lowering the microphone, they knew about the rescue that was about to take place."

Soon after, an electric cord and light were lowered to the miners, again made up of spliced electrical cables. A 5-inch loudspeaker salvaged from a radio was lowered down to make it easier for the miners to hear the surface, but it failed after a while and conversation resumed using the former method of yelling into the bore hole.

## Saved

It would take two long weeks for rescuers to drill a larger, 17.5-inch bore hole to Fellin and Throne. Bova was never found.

For the first days of the operation,

Margush stood vigil around the clock at his VM recorder. Eventually, after 36 hours without sleep, he collapsed. "Apparently I fell into a deep sleep and they couldn't wake me," he says. "When they tried to, I'm told, I shook them off. Apparently I even slugged a state trooper!"

After a short stay in hospital, Margush returned to the Sheppton Mine site, resum-



Phil Margush fell into a deep sleep from exhaustion and could not be wakened.

The young engineer is removed to Locust Mountain Hospital in Shenandoah for observation and recovery.

ing his post at the VM machine. By this point, the audio from WMBT's salt shaker was being relayed over the ABC radio network, and TV crews from the three major networks were turning up as well.

By the time the miners were hauled up from the depths, the Sheppton Mine Rescue had become an international story. Not surprisingly, young Margush was hailed as a hero and lionized by the media. He has preserved some of the newspaper clippings at [www.margush.com/philip/wmbt0000.htm](http://www.margush.com/philip/wmbt0000.htm).

Ironically, it was this experience that persuaded Phil Margush to leave radio and strike out into other areas of electronics engineering. "When you experience such a gigantic event early in your career, everything afterwards seems like an anti-climax," he said. "Eventually, I got tired of the mundane life of a small-town broadcast engineer, and ventured out on my own to find a more active and challenging occupation."

Four decades later, Phil Margush is approaching retirement. Fellin and Throne have since died.

As for WMBT — the station with the jingle that sang, "It must be! It has to be! With that big sound it's gotta be: double-U eM Bee Teeeeeeh!" — it went dark in March 2003, a victim of the FM onslaught that has silenced so many AM voices.

Still, the tale of the Sheppton Mine Rescue radio cave-in lives on, a quintessential radio story: Small-town engineer combines bare bones broadcast equipment with MacGyver-esque wiring to tell a gripping story to a waiting world. 🌐

## A Familiar Problem

The problem that confronted Margush and the rescuers in 1963 continues to confound miners.

AP reported recently: "Los Alamos National Laboratory has developed an underground radio designed to locate trapped miners or help emergency crews communicate with each other during disasters."

The weapons lab signed license agreements with a Canadian company, Vital Alert Technologies Inc., to market the technology. Vital Alert was founded to find a wireless solution to emergency communications after the Sept. 11 attacks. Mining companies asked it for help solving problems with underground communications. The technology, AP reported, "couples very low frequency radiation that can penetrate earth with digital technology like that used in cell phones and MP3 players to allow the radios to transmit voices and text messages. The technology also can help find radio users who are injured and unable to respond."

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**Audemat-Aztec** signed a contract with **Clear Channel** for 400 licenses of its IP2Choice V2 software. The software/firmware package will be embedded and operate in hardware made by Sealevel Systems Inc. to specifications from Clear Channel.

The transmitter remote control will integrate specific requirements from the Clear Channel engineering staff, Audemat-Aztec stated. The package will be available for both the IP2Choice and the Sealevel Platforms. ...

**Barix AG** said **Clear Channel Satellite Services** is using its products for point-to-multipoint IP connectivity from Englewood, Colo., to Clear Channel towers in the southeastern United States. The products are Instreamer, Exstreamer and Barionet devices. Englewood streams audio to tower sites in preparation for broadcast should studios experience power outages. Barionets at those sites activate and switch the Exstreamer backup audio feed for transmission over the air. The latter devices are controlled from Englewood via the IP connection over the satellite. Stations in Texas, Louisiana, Alabama, Mississippi, Florida, Georgia, and the Carolinas are connected; the broadcast group hopes to expand the system to 900 towers over the next year. ...

**Media Monitors** has licensed use of its ad data of broadcast TV and print media to **Greater Media**, which already uses the supplier's radio spot data. ...

**Metro Networks**, part of Westwood One, reached multi-year agreements with **Forever Broadcasting** and **Keymarket Communications** for the Metro Source newswire service. ...

**AEQ** said **National Radio of Angola** chose its Mar4win suite for automation. The system serves a facility in Luanda and 11 regional centers. ...

**Telos Systems** reported recent sales of Zephyr Xstream products to **Sirius Satellite**; **WKFS(FM)/WVMX(FM)** in Cincinnati; **KLZA(FM)** in Los Angeles; **Salem Radio Networks** in Irving, Texas; **WGL(FM)** in Philadelphia; and **WSCR(AM)** in Chicago. **Omnia AM** processors went to **WOKY(AM)** in Milwaukee, **WJCP(AM)** in Austin, Ind.; and **WRIN(AM)** in Lafayette, Ind.

New **Axia** studios are on the air at **WZLX(FM)**, Boston; **WSRS(FM)**, Worcester, Mass.; **WUCF(FM)** in Orlando, Fla.; and several outlets in Port of Spain, Trinidad. Telos also shipped Series 2101 phone systems to **WSB(AM/FM)** in Atlanta and **ABC/Disney** in Arlington, Texas. ...

**Broadcast Electronics** said a 4MX 50 kW medium-wave transmitter was put into operation at **XENK(AM)** in Mexico City. The transmitter is part of a facility renovation at the station. ...

**Jampro Antenna/RF Systems** said Clear Channel station **WMMS(FM)** purchased a VSWR Fine Matcher unit to adjust its FM antenna. ...

**APT** said Norway's largest commercial broadcaster is using the WorldNet Oslo to connect two broadcast facilities. The user is P4; its units serve the main E1 link connecting studios in the capital, Oslo, with studios and station headquarters in Lillehammer. Separately the supplier said it won a six-unit contract to supply WorldNet Oslos to **Canal Sur** in Andalusia, Spain, with audio multiplexing equipment; and Germany's **WDR** has deployed several codecs in its audio switching network for use in surround sound radio broadcasts.

## MARKET PLACE

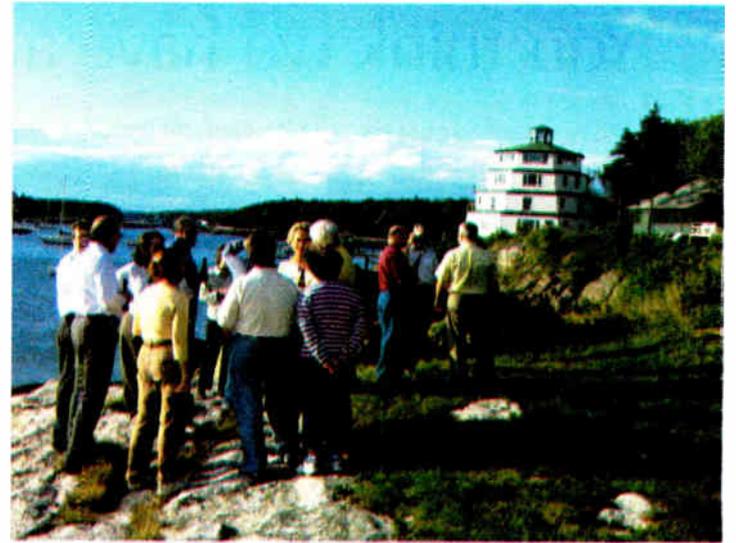
## Dielectric Throws FM Engineering Conference

Dielectric Communications held an FM Executive Engineering Conference in August, giving radio executives from the United States and Canada a look at Dielectric products. The company said it also took input on new product development.

Participants included representatives of Clear Channel, Cox, CBS, CHUM Radio Network, Cumulus Media, Entercom, Harris Broadcast and Richland Towers. The visit included a tour of Dielectric's plant in Raymond, Maine.

The company plans to hold the conference annually.

For information call the company at (800) 341-9678 or visit [www.dielectric.com](http://www.dielectric.com).



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# You think we have a lot to say? You should hear our clients.

When we asked our clients which Element features they liked best — well, you see the results. And this is the *edited* version. (Good thing we bought two pages.)

**Go (con)figure** • The folks at MPR say they really love being able to configure their Elements and keep tabs on their entire Axia network using standard Web browsers. You can set up and administer an entire building full of consoles from the comfort of your own office (where there's plenty of Cheetos and Pepsi). Put an Internet gateway in your Axia network and you can even log into Element remotely, from home or anywhere else there's a Net connection. Great for handling those 6 P.M. Sunday "help me!" phone calls from the new weekend jock.

**Screen play** • Element lets you use any display screen you choose, to suit your space and décor. Get a space-saving 12" LCD, or go for a big 21" monster. (This is Dave Ramsey's favorite Element feature, by the way. Anyone wanna bet he bought his monitors on sale?) Hook up a VGA projector and make a Meter Wall!

**Perfect timing** • You can't have too much time. That's why Element's control display contains **four different chronometers** to help keep talent in sync: a digital time-of-day readout that you can slave to an NTP (Network Time Protocol) server, an elapsed-time event timer, a countdown timer talent can set for any interval they choose... and there's also that big, honkin' analog clock right in the center of the screen (Big Ben chimes not included). We wanted to make it even bigger, but our screen designers charge us by the pixel.

**Where's Waldo?** • Hide-and-seek is a pretty fun game. But not when you're in a hurry, and definitely not when you're on the air. So every Element fader comes with a big, **bold 10-character LED display** right above it to show talent, at a glance, exactly what source is assigned to that fader. If it's music from a digital playout system provided by one of our partners, the display can even show the title or artist of the song that's active. Talent tells us that these displays are at the perfect angle for either sit down or stand up studios.

**Black velvet** • What's 100 mm. long, silky smooth, goes up and down all day and **lasts forever**? Our super-quality conductive-plastic faders, of course. (You have a filthy mind, mister. Shame on you.) We sourced the most durable, reliable, premium faders and switches for Element. And we added extra touches, like the custom-molded plastic bezels that protect on/off switches from accidental activation and impact. Because we know how rough jocks can be on equipment — some of us were (jocks, not rough). And because we also know there's nothing more embarrassing than a sudden case of *broadcastus interruptus*.

**Audio cards** • Well, *um*, there actually aren't any. Not in Element, or anywhere else in an Axia network. Why not? Think about this: your production guy spends hours crafting exciting, finely-tuned bits of broadcast magic, only to filter them through a card sitting in a noisy, RF-filled PC. It's like washing a wedding dress in the Hudson River. Not only that, broadcast audio cards are *expensive*. And they only work in *PCI slots*... how many of those are you seeing on new PCs? The **Axia IP-Audio Driver** installs on any Windows® PC to send and receive pure digital audio right through the PC's Ethernet port — no sound card required. You get better, cleaner PC audio that's sharable right to the network. And you save tons of cash on sound cards, and on the audio inputs you would have needed for that PC card audio — more than enough to buy that cool new network tester you've been lusting after.

**Options** • Clients say they love Element's uncluttered worksurface. We kept it clean by placing an "Options" key over each fader to give instant access to all the advanced goodies. It makes customizing settings easier than selling fudge cake to Dom DeLuise.

**Great Phones** • We wanted the phones on Element to work like an extension of the board-ops themselves. Unfortunately, talent objected to having Ethernet ports implanted in their skulls, so we came up with the next best thing. With Element, jocks never have to take their eyes or hands off the board to use the phones. Element works with any phone system, but it really clicks with the Telos Series 2101, TWOx12, or the new NX 12, which connects four hybrids plus control with a *single Ethernet cable*. Status Symbols™ (those cool little information icons) tell talent at a glance whether a line is in use, busy, pre-screened, locked on air, etc. You can even dial the phone right from the board using the integrated keypad

**Who are these guys?** • Why buy a console from Axia? Element was designed by Mike Dosch and his team of ex-PR&E renegades (who know a bit about consoles). And Axia is a division of Telos, the DSP experts.



#### **Fried Chicken** •

Conductive aluminum bullnose is connected to a 40-kilovolt storage capacitor\* that can be activated with a GPIO closure. Set up a hotline remote trigger for the PD to give the jocks a little "positive feedback!"

Shown: 20-position Element, nicely equipped. \$16,557.00 US MSRP. Not shown but available: 4-, 8-, 12-, 16-, 24- and 28-position Element. Dual exhaust and whitewalls optional at extra cost

**Meter reader** • LED program meters? How very 1990's. Element's SVGA display has lots of room for timers, meters, annunciators (*there's* a five-dollar word) and more — enough to show meters for all four main buses at once. Reboot the console to 5.1 surround mode and the light show is even cooler. Any more bling and those fast 'n furious types'll want it for their dashboards.

**Status Symbols** • There are those icons again. (We're in love with icons. It's the Telos way.) These Status Symbols alert talent to phone lines ringing, mix-minuses minusing, talkback channels talking, etc. They can even display fader numbers, like you see here. Just one more way Element makes it easy for talent to do a fast, clean show.

**How many?** • How many engineers does it take to change these light bulbs? None... they're LEDs.

**Swap meet** • Element modules are easy to hot-swap. Remove two screws and a cable or two, and they're out. In fact, you can hot-swap the **entire console** — unplug it and the audio keeps going, because mixing is done in an external Studio Engine.

**Can I play with your knobs?** • Twist 'em, push 'em, make 'em click. Element comes standard with some pretty powerful production features, like per-fader EQ, voice processing and aux sends and returns. Context-sensitive SoftKnobs let production gurus easily tweak these settings, while simultaneously satisfying their tactile fixations. (Don't worry: for on-air use, you can turn off access to all that EQ stuff.)

**Memory enhancer** • We know how forgetful jocks can be, so Element remembers their favorite settings for them. Element's Show Profiles are like a "snapshot" that saves sources, voice processing settings, monitor assignments and more for instant recall. Have talent set up the board the way they like it, then capture their preferences with a single click for later use. (Hey, make *them* do some work for a change.)

**Stage hook** •

This button activates the emergency ejector seat. OK, not really. It's the Record Mode key; when you press it, Element is instantly ready to record off-air phone bits, interviews with guest callers, or remote talent drop-ins. One button press starts your record device, configures an off-air mix-minus and sends a split feed (host on one side, guest on the other) to the record bus. Like nearly everything about Element, Record Mode is completely configurable — its behavior can even be customized for individual jocks. Sweeeet.

**Coffee?** •

No console is spill-proof, but Element is easy to service and has no motherboard to damage in the event of stupidity.

**It's already in there** • Element comes standard with a lot of cool goodies you'd pay extra for with other consoles. Like custom voice processing by Omnia™ that lets you quickly build and capture compression, noise gating and de-essing combinations for **each and every jock** that load automatically when they recall their personal Show Profiles. (There's even a secret "Big Balls" setting that makes wimpy interns sound like John Leader. A fifth of Chivas to the first guy who finds it.)

**Talk to me** • Need some one-on-one time with your talent? Talk to studio guests, remote talent, phone callers — talk back to *anyone* just by pushing a button.

**Mixmaster** •

Does the thought of constructing a complicated mix-minus on-the-fly bring a big grin to your face? If so, you're excused (Masochism 101 is down the hall). But if you hate building mix-minuses manually as much as we do, you'll love the fact that Element does them for you. No more using all your buses for a four-person call-in; no more scrambling to set up clean feeds for last-minute interviews. When you put remote codecs or phone calls on-the-air, Element **automagically** figures out who should hear what and gives it to 'em — as many custom mix-minuses as you have faders.

**Push my buttons** • You can program these custom button panels with any macro you want, from recorder start/stop to one-touch activation of complex routing switches and scene changes using PathfinderPC™ software. You can probably even program one to start the coffee machine (black, no sugar; thank you).



[www.AxiaAudio.com](http://www.AxiaAudio.com)

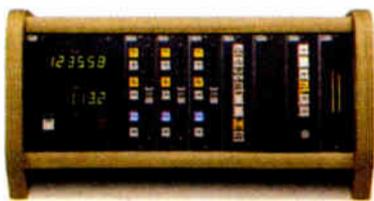
# THE NAB RADIO SHOW

## NAB Radio Show Product Report

### SAS Lineup Expands

SAS came to the NAB Radio Show in Dallas with three Rubicon broadcast console control surfaces for a range of applications.

They are the Rubicon, for major-market and intensive applications; Rubicon-SL, for less



demanding on-air or production studios; and the new Rubi-T Mini Broadcast Console, shown.

The Rubi-T is 6 inches high and can accommodate any number of input modules, monitor modules and talkback modules. It's intended for news booths, edit booths, voice booths, voice tracking and as a mini secondary effects mixer in on-air studios. Features include 100 mm P&G fader, channel ON/OFF, and four programmable buttons that can be source select, bus assignment, cue or talkback.

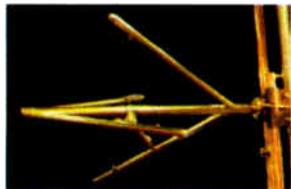
Rubicon models interface directly to the SAS 32KD Digital Router/Mixer, which is expandable up to thousands of channels, or to the new RIOGrande stand-alone 32x32 Router/Mixer.

The RIOGrande is described as a full-featured 32x32 router/mixer with both analog and digital I/O. The user can connect a Rubicon, Rubicon-SL or Rubi-T Console Control Surface for a complete system. "Add a second RIOGrande to expand to a 64x64 system that can accommodate multiple consoles," the company stated. "Then, when you're ready to expand to a full 32KD-based installation, the RIOGrande converts to the RIOLink Remote I/O Interface to concentrate all studio I/O into a single CAT-5 cable interconnect to TOC."

Contact the company in California at (818) 840-6749 or visit [www.sasaudio.com](http://www.sasaudio.com).

### Jampro Shows JMPC-HD Antenna

Jampro Antennas/RF Systems has introduced the RCHA-323-10HD Digital FM Radio



combiner and JMPC HD certified antenna.

The combiner provides isolation and properly sized inputs for analog and digital FM transmitters. The company says self-cooling techniques provide safe combining without the need for AC-powered cooling fans. Jampro can provide the combiner for use with a station's coax and reject load, or as a system with these components included for quick installation. A lower-power-rated RCHA-222-10HD is available.

The JMPC-HD antenna, shown, is the medium-power version of the manufacturer's FM Penetrator. The Penetrator HD is available with and without deicers or radomes, and was designed 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. Multiple frequency design is available. Circular polarization offers excellent performance for HD Radio, stereo and SCA operation. A higher-power-rated JHPC-HD is available.

Contact the company in California at (916) 383-1177 or visit [www.jampro.com](http://www.jampro.com).

### Orban Adds Optimod 6300-DAB

Orban is now offering the Optimod 6300-DAB to digital broadcast and professional audio markets.

The 6300 is a multipurpose stereo audio processor for digital radio, digital television, netcasts, STL protection, audio production and digital mastering.

The unit offers 20 kHz audio bandwidth and 48 kHz internal sample rate, and succeeds Orban's Optimod-DAB 6200 audio processor while promising improved processing algorithms and more flexibility. The 6300 contains a stereo enhancer, AGC, equalizer, phase-linear multiband compressor/limiter with either two or five bands, and two independent stereo look-ahead peak limiters. Peak limiting can be "flat" or preemphasis-aware at 50 or 75 microseconds, allowing the 6300 to protect preemphasized analog STLs. For video applications, broadcasters can activate the included CBS Loudness Controller to prevent audience irritation and tune-outs caused by loud commercials.

Contact the company in Arizona at (480) 403-8300 or visit [www.orban.com](http://www.orban.com).

### Audemat-Aztec Upgrades Goldeneagle

Audemat-Aztec adds to its line with Broadcast Manager software, which centralizes management of Goldeneagle HD and the company's transmitter remote control units,



IP2Choice and Silver Remote Control.

This tool is intended for groups of stations that want to manage networks, get statistics and centralize alarm distribution and unit log-in.

Audemat-Aztec announced a software upgrade to the Goldeneagle HD, shown. V1.4 integrates time and level alignment monitoring as well as RF mask monitoring, so that the product can send an alarm when detecting out of tolerance conditions on these specific parameters.

Also, both IP2Choice and Silver Remote Control have an Ethernet-TCP/IP port and an embedded Web server. Both units can send alarm via e-mail, SMS or voice messages with the voice/DTMF interface option.

Contact the company in Florida at (305) 249-3110 or visit [www.audemat-aztec.com](http://www.audemat-aztec.com).

### Nautel Adds XR3, XR6 AM Transmitters

Nautel is expanding its XR Series line, introducing XR3 and XR6 AM transmitters, which can be used for HD Radio or Digital Radio Mondiale operation.

The move extends the platform design that includes the XR12, XR25 and XR50.

Base units for the XR3 and XR6 include dual exciter sections that have an auto transfer function in the event of a low-level circuit malfunction. A second power module can be added with an auto transfer function in case of a high-level problem. Nautel says the modules provide the function of a full main/standby transmitter system for about half the normal cost and space requirements.

The new models offer extra redundant modules for continuous broadcast, 128 event logs to facilitate troubleshooting and power programmers that allow for a year of night time automatic power selections.

Contact the company in Maine at (902) 823-2233 or visit [www.nautel.com](http://www.nautel.com).

### Moseley LanLink Brings IP to RF

Moseley Associates showed its new high-speed LanLink.

The LanLink HS900D brings IP-based applications and accessories at transmitter sites. Backup servers, security surveillance, Internet connections, IP-based transmitter monitoring are examples.

LanLink provides a 1 Mb network connection at remote sites where no wires or cables exist. It operates in the 900 MHz band without licenses, leases or new antennas.

Also in Moseley digital STL solutions, for the traditional 950 MHz STL band, the company says the Starlink is the first digital STL to provide an optional Ethernet data channel for HD Radio and multicasting.

The payload capacity of a Starlink T1 STL/TSL can cut a station's communications costs when compared to using discrete audio, telephone and data circuits, according to the supplier.

Contact the company in California at (805) 968-9621 or visit [www.moseleysb.com](http://www.moseleysb.com).

### HD Radio, More Mapping Are Part of MAPro 4.2

BIA Financial Network told attendees of the NAB Radio Show about Media Access Pro Version 4.2. The company says this version provides information on HD Radio, CP data, station move-ins, low-power FMs and radio station audience levels; it adds several custom

reports and searches and improvements to its mapping program.

MAPro is a data service and analytical software with data about approximately 14,000 radio stations and 4,625 unique owners in the United States, Canada and Mexico, plus info on TV and newspapers.

It now includes information on stations licensed or that will be licensed to air HD Radio

programming, including expanded data such as on-air date; population coverage

area; digital contour coverage; multicasting, call letters, format and slogan; and total number of digital stations on air.

"This added information makes it easier to find HD Radio programming opportunities within a market of interest," the company stated.

MAPro 4.2 also offers an enhanced way of viewing a station's licensed data and, when applicable, construction permit data. Users can toggle between license and CP data and output reports with both sets. Users can search for CP information using the new FCC application number data field. By viewing CP information, users can know the number of CPs in a market, identify overlapping signals from competing stations and determine when a CP will be a new move-in to a local market, BIA stated.

Separately, BIAfn announced the availability of ActiveAccess, a private-label desktop application for delivering news, alerts, promotions and other content to the computer desktop.

Contact the company in Virginia at (703) 818-2425 or visit [www.bia.com](http://www.bia.com).

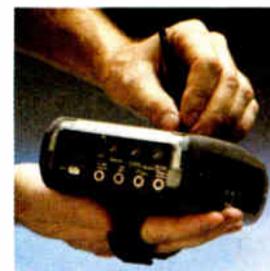
### Comrex Updates Access Rack

Comrex showed Access Rack Version 2.0. The upgrade to the Access Rackmount Stereo BRIC IP Codec now includes auto fallover/fall-back, ability to dial to a specific port address, 15 kHz stereo on a single POTS line, incoming connection password protection and IP multicast capability. The release also supports the Comrex AAC Option package for Access.

The addition of AAC coding algorithms to the Access Rackmount will give users up to 20 kHz mono, stereo and dual mono audio for STL-quality. Access has been developed to allow broadcasters to use wired and wireless IP data circuits, including the public Internet, to transmit broadcast quality, low-delay audio for remote broadcasts and back-up STL applications.

Comrex also told visitors about the latest developments for the Access Portable Stereo BRIC IP codec, shown, scheduled to ship late this year.

Contact the company in Massachusetts at (978) 784-1776 or visit [www.comrex.com](http://www.comrex.com).



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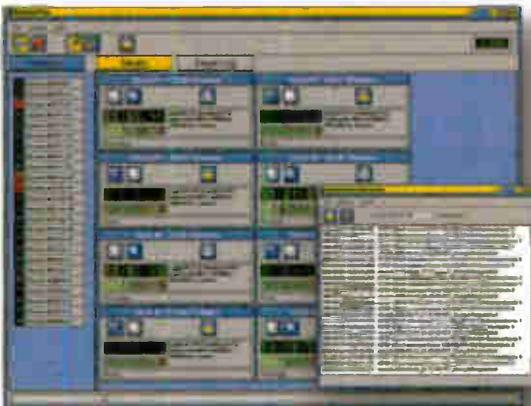
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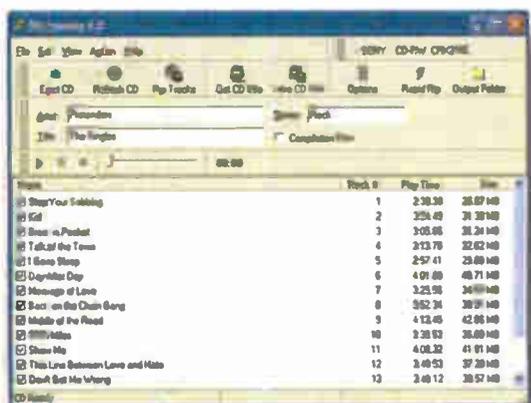
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## Harris Introduces HT-HD+

Harris debuted its HT/HD+ high-power common-amplification single-tube FM HD Radio transmitter, which the company says evolved from the technology of its HT Series of FM transmitters and marks the company's



foray into the HD Radio market with tube-type transmitters. It is shown installed at WCOL(FM), Columbus, Ohio.

Harris also showcased its ZX low-power transmitter as part of a multicasting demo showing small-market broadcasters how they can take advantage of HD Radio multicasting opportunities in low-power situations. A ZX1000 (1 kW) transmitter programmed for Tri-Mode operation was on display; it allows broadcasters to switch between digital, analog and analog+digital modes on the fly.

The demo featured a FlexStar HDI-100 Importer, HDE-100 Exporter and HDx exciter for multicasting Ibiqity's Generation 3 Engine architecture, which brings the Importer and Exporter back to the studio and reverts the exciter to a more user-friendly and reliable DSP-based operation.

Harris also promoted the DATAplus system, which accepts data management from

multiple sources and stores, prioritizes and separately outputs the data to multiple sources including Program Associated Data for HD Radio. The data is delivered alongside audio programming in the same HD Radio transmission stream. DATAplus also can be used to deliver text as RBDS information for analog receivers and Web transmission. Each output may be formatted as required, and the station may choose which items flow to any given output.

And Harris talked about MicroMax, a low-cost FM exciter. The product is aimed at small-market U.S. and international radio broadcasters. It's a 30-watt, 1 RU exciter that can interface with Harris and other transmitters on the market. Frequency can be changed from the front panel.

Contact the company in Ohio at (513) 459-3597 or visit [www.broadcast.harris.com](http://www.broadcast.harris.com).

## Burli Enhances Newsroom

Burli Software said product enhancements that other companies may be rolling out as "new" are already in the hands of its customers.

Burli demonstrated the latest features of its radio newsroom software. New aspects for its news production system include ingest and creation of RSS and news data feeds; management of newsroom podcasts; and multi-channel, multi-format audio recording. These are features now being used in many radio newsrooms, the supplier says.

The supplier also demo'd its multi-server redundancy, which the company says makes the system suitable for 24/7 all-news operations that can never be off the air.

Contact the company in Vancouver, Canada, at (604) 684-3140 or visit [www.burli.com](http://www.burli.com).

## Pulsecom Talks HD PCAU

There are roughly 4,500 Pulsecom PCAUs now supporting telco STL links nationwide, the supplier says, but phone companies have not been able to deliver the 20 Hz - 20 kHz service level required by HD Radio and stations that want optimum signal quality, according to the supplier.

To address this issue, Pulsecom said it is introducing the HD PCAU. The unit, Pulsecom says, continues to avoid MPEG signal corruption and introduce minimum delay to enable real time monitoring; it also adds apt-X 20 Hz to 20 kHz audio, an in-band RDS data link and compatibility with existing PCAUs.

This means transitioning from analog to digital or from 15 kHz to 20 kHz can be done at each end of a link as time and budgets permit rather than via a costly and risky flash cut, the supplier states.

Concerns about malicious Internet attacks are eliminated by using nailed up telco private lines, it says. HD PCAU is said to provide faster, easier, backward-compatible operation during earthquakes; second-level outdoor lighting; and airborne contaminants protection.

Contact the company in Virginia at (800) 381-1997 or visit [www.pulse.com](http://www.pulse.com).

## APT Unveils New Algorithm, WorldCast Range

APT introduced apt-X Live, an audio coding technology aimed at live performance applications. It touts the algorithm for its audio quality, low latency and error resilience. Compression ratio is 8:1. In listening tests, the company said, participants were unable to discern any difference between 24-bit/48kHz PCM Audio and apt-X Live.



The firm also unveiled the WorldCast range of IP audio codecs for broadcasters. WorldCast Horizon and WorldCast Meridian (the latter is shown) are the first products in a new line of APT audio codecs featuring IP connectivity as core functionality. The supplier says the units provide non-destructive, near-zero delay enhanced apt-X coding in DSP-based codecs designed for reliable audio-over-IP transport.

New features were added to APT's WorldNet Oslo audio multiplexer for studio to transmitter and studio networking links. Highlights include increased audio coding options and channel capacity, phase-locked discrete surround sound, in-band management and cross-connect on E1/T1.

Contact the company in New Jersey at (800) 955-APT or visit [www.aptx.com](http://www.aptx.com).

## Tieline Has Module For Commander G3, i-Mix Codecs

Tieline came to Dallas with a 3G wireless broadband cellular remote software module for its Commander G3 and i-Mix G3 codecs.

The company says broadcasters with 3G broadband-enabled cell phones can connect from anywhere they can get reliable wireless

3G coverage, and deliver FM-quality mono and stereo audio for remote broadcasts.

A 3G broadband connection enables data transfer at download speeds of up to 384 kbps and upload speeds of up to 128 kbps. The software has been integrated into the Commander G3 and i-Mix G3 via a USB master module. If



the 3G connection supports the bandwidth, off-air studio communications in the background over the same connection can be delivered.

Once a 3G-compatible cell phone (with broadband Internet service on the SIM) is connected to the optional USB master module on the Commander G3 or i-Mix G3 codecs, the codecs take over the dialing of the phone and enable a connection to the Internet and the transfer of audio back to the studio live.

Additionally, Tieline's remote broadcast over IP system includes a "failover technology" option, which allows broadcasters to go to a backup network should their main Internet connection fail.

Contact the company in Indiana at (888) 211-6989 or visit [www.tieline.com](http://www.tieline.com).

## WireReady Displays Free Music Scheduling

WireReady showed free built-in music scheduling for its ControlReady automation system for stations that lack a third-party music scheduler.

Additional picture handling, podcast and RSS features have been added to NewsReady and WebReady, software features that the company says are used in Web sites including those of WJBC(AM) in Bloomington, Ill., (shown) and WDBO(AM) in Orlando, Fla.

SalesReady contact management and tele-sales software now offers quarterly new business searches and new business additions to the lead database.

AlertReady EAS capture and EMAIL software now directly interfaces with the NewsReady newsroom system.

CallTaker, WireReady's automated school closing system, now supports PIN-based auto-recording for reporters to file audio reports from the field so the system can be used year-round.

MpegReady now provides automatic "on-detection" conversion between WAV, MP3 and MP2 files on as soon as they are detected on a local hard-drive, servers and FTP sites for stations that want to avoid hand-converting between formats.

Contact the company in Massachusetts at (508) 393-0200 or visit [www.wireready.com](http://www.wireready.com).

## A Pre-Delay Audio Receiver by Mid-Atlantic RF

Mid-Atlantic RF Systems now sells an FM/SCA receiver intended for use by commercial digital FM stations to receive pre-delay audio to communicate reliably with and queue talent in the field without the 8-second delay of the digital broadcasts.

The Model BSC98-20-D features spatial antenna diversity and a frequency plan that the company says will not interfere with aircraft NAV or COM radios. It also features input filtering and a high input intercept performance to minimize interference when collocated with an operating aircraft COM radio.

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In a typical application, a receiver would be installed in an equipment case with other equipment to support a traffic or other reporter in a van or small aircraft. Two antennas would be installed at a quarter-wave interval on the roof of the van or the top or bottom (or side) of the airplane.

The company also showed the Model HY098-XCN RF Power Combiner as a standard part. This will combine outputs of two power amplifiers in the FM broadcast band. Two power options are available. A four-way combiner will be available soon, and custom combiners are available.

Contact the company in Maryland at (410) 893-2430 or visit [www.midatlanticrf.com](http://www.midatlanticrf.com).

## Shively Low-Power Filters Suitable for HD

Shively exhibited the Model 2900 Series Low-Power Filter, winner this year of a Radio World "Cool Stuff" Award.

The company said the product is ideal for a number of HD Radio applications.

The Model 2914 filter was selected as part of the recent Towercast HD Radio demonstration project in Paris, France. TowerCast is France's first privately held tower company; it teamed with parent company NRJ Group and SIRTI to begin broadcasting HD Radio on a test license granted for 88.2 MHz. NRJ Group owns a television station and four major radio networks in France. SIRTI is a broadcast syndicate representing 123 independent local and regional broadcasting operators.

Shively manufactures FM broadcast antennas, filters and combiners.

Contact the company in Maine at (888) SHIVELY or visit [www.shively.com](http://www.shively.com).

## Superior Electric Debuts CS3 Series

Superior Electric displayed its Stabiline power quality systems and exhibited the new CS3 Series of parallel connected transient voltage surge suppressors, shown.



The CS3 Series units are a hybrid parallel design with individually fused MOVs that provide protection and continuous operation. Thermal disconnects protect against sustained over-voltage events. The company says a 200 kAIC short circuit current rating allows for direct bus connection without the need for upstream over-current protection.

The CS3 units provide all-mode protection (L-N, L-G, N-G, L-L) and are housed in Nema 4 steel enclosures. Units are available in 80 kA, 100 kA and 200 kA per mode surge current capacities for single-phase and three-phase electrical configurations. Standard monitoring includes status indicator lights, a service indicator light, Form C contacts, an audible alarm with silence button and a surge counter.

Each model is UL1449, Second Edition listed, as well as cUL and UL 1283. Units come with a 10-year warranty.

Contact the company in Connecticut at (860) 585-4556 or visit [www.superiorelectric.com](http://www.superiorelectric.com).

## Surround Is Topic At Dolby

Dolby Labs told attendees about its Dolby Pro Logic II surround sound technology.

Approved as one of three surround sound formats for the Ibiqity Digital system, it allows surround sound programs to be transmitted

simultaneously over digital radio and analog FM signal paths. The company says with Dolby Pro Logic II, the surround soundfield remains intact, even while tuning HD Radio stations, during signal fades or other periods of blending to analog.

The demonstration showed surround programming over the full signal path, from ingest through HD Radio transmission to consumer receiver.

HD Radio content encoded in Dolby Pro Logic II can be stored, edited and broadcast as a traditional two-channel signal. The content is decoded into five-channel surround sound by the listener's Dolby Pro Logic II receiver in the home or in many car audio systems.

The company says 46 million of its surround decoders are in use in homes and cars.

Contact the company in California at (415) 558-0200 or visit [www.dolby.com](http://www.dolby.com).

## Google Shows dMarc Automation Systems

Google demonstrated the SS32 and Maestro radio automation systems. Google recently purchased dMarc.

These systems connect advertisers and agencies directly to radio stations with a platform that automates sales, scheduling, delivery and reporting. The result, according to the company, is greater control over quality and operating costs while maximizing revenue and accountability.

Jim Woods, formerly of Harris, is now director of automation for Google's dMarc radio automation division. Woods is managing the release of the next generation of Scott SS32 and Maestro automation systems.

Contact the company in California at (949) 791-1200 or visit [www.dmarc.net](http://www.dmarc.net).

## Codec Features Expand at Mayah

Mayah Communications showed its Audio Gateway Codecs Centauri II, Merk II and the Ganymed family.

Shown is the portable codec/mixer Merk II. The company says it has the capabilities of the Centauri II family, including IP, ISDN, V.35, Gateway, Backup and Flashcast technology, but also can handle up to four microphones and headphones, creating a customized working environment for event commentators or reporters. New software features of other Mayah codecs including SIP or MPEG TS with FEC over IP are part of Merk II.



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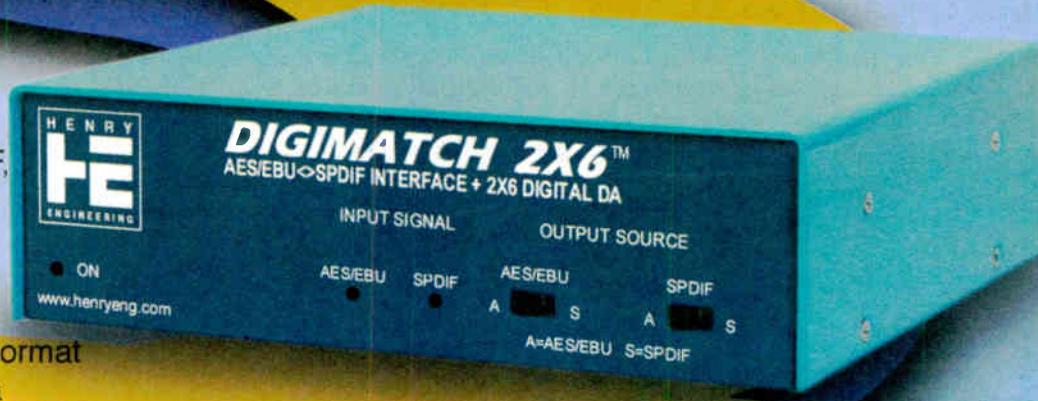


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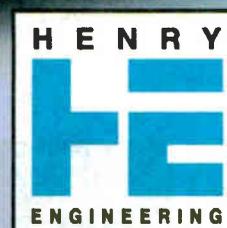
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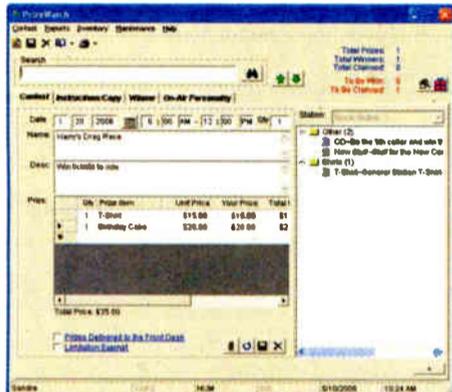
Centauri II has new hardware options enhancing its redundancy and reliability of streaming.

Contact the company in Germany at 011-49-811-55-16-0 or visit [www.mayah.com](http://www.mayah.com).

## Prophet Has Software For Reporters, Station Contests

Prophet Systems Innovations debuted three products in Dallas: NexGen 2006, PrizeWatch and NewsBuilder.

NexGen Digital 2006 is the latest version of the company's automation software. It includes enhancements and features requested by NexGen users.



A Screen Shot of Prophet's PrizeWatch

PrizeWatch creates station contests and tracks prize inventory; it is a central location for winners and their electronic confirmation signatures.

NewsBuilder is a standalone newsroom software that enables reporters to write newscasts, receive and revise wire copy and digitally record, edit and playback audio.

The company also displayed the HD-R Importer, which enables advanced IBOC capabilities, like multicasting and datacasting. As a stand-alone module, it can work with any automation system and integrates with NexGen.

MusicGen Pro is a professional, affordable music scheduling system built for the Windows operating system.

Contact the company in Nebraska at (308) 284-3007 or visit [www.prophetsys.com](http://www.prophetsys.com).

## Logitek Artisan Enables Customization via Modules

Logitek Electronic Systems is taking orders for the Artisan line of router-based digital audio consoles. Like other Logitek consoles, these are control surfaces for the supplier's Audio Engine, a router accommodating analog and digital audio I/O.

The company says Artisan consoles use a series of drop-in modules that permit users to buy configurations tailored to their needs. Applications include advanced radio production,



small performance group mixing and on-air/news for small- to medium-market television.

Features include multiple frame sizes, allowing console configurations ranging from newsroom work areas to on-air locations; 5.1-compatible operation; direct access to two master mix busses and four sub mix busses from each fader module; five-function dynamics processor and four-band equalizer.

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Artisan consoles can be configured using four modules: fader, monitor, master and effects. Meter Bridges are available.

Logitek also showed an updated version of its vScreen PC application for the company's Console Router Systems. The company is now shipping vScreen, which allows users to design custom operator interfaces consisting of faders, meters, buttons and graphics in desired configurations. The updated version includes more flexibility in image display, backgrounds and labeling along with advanced meter display abilities, according to the company.

Contact Logitek Electronic Systems in Houston at (800) 231-5870 or visit [www.logitekaudio.com](http://www.logitekaudio.com).

## BE Highlights Message-casting, 'Good Stuff'

Broadcast Electronics held a free seminar on the business opportunities and operational challenges of HD Radio titled, "HD Radio: All the Basics and More." Speakers discussed how stations are converting and the impact on station operations, listeners and the bottom line.

Multicasting and messagecasting also were explored, along with a look at how Internet broadcasting has played a role in HD Radio implementations. Technical planning, system architectures and the nuts and bolts of conversion also were discussed.

In addition to the seminar, BE showed its line of transmitters and studio products, including HD Radio transmission, studio multicasting and its Messagecasting suite. BE's Messagecasting products from The Radio



Experience offer applications for managing, scheduling and formatting messages for readout on HD Radio and RDS tuners, as well as over the Web. A Messagecasting module is shown.

Options include online connectivity to the company's TRE Data Center for real-time song information lookup with message "laundering," and EAS function for transmitting emergency text messages originated by civil authorities. Traffic and other data provided by outside services can be added as plug-in applications that work alongside native applications.

BE also kicked off an "All the Good Stuff and More" promotion, entitling broadcasters to free products when they purchase or upgrade to a BE AudioVault digital media system or BE RDi 20 RDS encoder, shown.

Additionally, BE is offering a 60-day free trial of its TRE Message Manager application to those who sign up for TuneFly, a text application that "pings" listeners by e-mail or text message when a favorite song is about to air. The promotion runs until the end of the year.

Contact Broadcast Electronics in Illinois at (217) 224-9600 or visit [www.bdcast.com](http://www.bdcast.com).

## Wheatstone Shows Production, Air Consoles

Wheatstone featured its G-7 production console, shown, which offers independent operation (no PC required), 12 user-programmable switches, automatic failsafe DSP/CPU card options and a redundant power supply option.

Additional highlights include switched meters with system-wide access, graphic interface setup soft-



ware and event scheduling software. Expansion and compression are featured on input channels, as are a four-band parametric EQ and variable high- and low-pass filters. The G-7 also has four stereo output busses, eight mix-minus outputs and two stereo auxiliary sends.

The company also displayed the G-6 on-air console, which it says offers the feature set of the G-Series' larger surfaces in a studio-friendly footprint. The unit provides integration with Wheatstone's Bridge digital audio router and allows system-wide access to a station's on-air and off-air audio resources via interlinked CAT-5 or fiber optic cable.

Features include Ethernet protocol, VDIP configuration, X-Y controllers and eight-character controller displays. The G-6 offers a number of AUX sends and preset options.

Contact Wheatstone in North Carolina at (252) 638-7000 or visit [www.wheatstone.com](http://www.wheatstone.com).

## Dielectric Highlights HD-Plus, Dibrid

Dielectric says the HD Plus antenna achieves the level of analog and digital signal isolation necessary for IBOC broadcasts, and does so without the isolator required by most antenna systems recently approved by the FCC for HD Radio operation.

The HD Plus can be integrated alongside existing analog FM antennas, allowing a station to continue analog broadcasting while adding a digital broadcast of the same signal at the same frequency.

Dielectric also had the HD-R Dibrid combiner on display, which facilitates IBOC radio broadcasts. The Dibrid does not use switches, so it permits "hot switching" that keeps broadcasters on the air as functions are changed. The company says this feature also extends the operating life of transmitter components.

Other products include the DCR-C ring-style antenna, circularly polarized with a power rating of 10 kW per section and available in stacked arrays of up to 16 sections; and FLEXLine flexible dielectric cable in air and foam configurations.

FLEXLine Air coaxial cable is available in 7/8-inch through 6-1/8-inch line sizes; Foam FLEXLine is available in 1/2-, 7/8- and 1-5/8-inch sizes. The cables feature copper inner conductors, a closed-cell foamed polyethylene insulator, polyethylene jackets and an oxygen-free copper corrugated outer conductor.

Contact Dielectric in Maine at (207) 655-8152 or visit [www.dielectric.com](http://www.dielectric.com).

## Burk Introduces AFD-1, Demos ARC Plus

Burk Technology's AFD-1 made its debut at the convention.

Visitors saw a live demo showing how the AFD-1 detects electrical arcs or flame and sends a contact closure for integration with alerting devices or a station's remote control system. Burk says the product is suitable for use



near equipment cabinets, transmitters, lightning arrestors or anywhere threatened by high-voltage arcs or flame.

Burk also demonstrated the ARC Plus facility remote control system, shown. The ARC Plus connects an unlimited number of

sites, each with up to 256 channels of metering status and command, taking advantage of the scalability of IP.

The user can access the entire system from any unit, take control using a Web-browser or PC software or dial in to the system over the phone. Backwards compatibility means the system allows broadcasters to advance their facility management operation incrementally, protecting their hardware investment.

Additionally, show attendees saw the line of G-Link G-Bus Expansion Series products for the GSC3000: the GT-4 remote temperature monitor, AC-4 and AC-8 remote outlet controllers, GX-128 interface for X10, and the OneConnect for Nautel and Acrodyne transmitters.

Contact Burk Technology in Massachusetts at (800) 736-9165 or visit [www.burk.com](http://www.burk.com).

## AudioScience Speeds Up With ASI6500

AudioScience debuted seven products in Dallas.

The ASI6000 series is being extended with the ASI6500 line of PCI sound cards. The ASI6500 series is smaller and faster; the company says it has more functionality than the equivalent ASI6000 card. Models are the ASI6544, ASI6522 and ASI6514 with both balanced analog and AES/EBU I/O, and the analog-only ASI6540 and ASI6520.

Rounding out the ASI5000 series of linear PCM sounds cards is the ASI5020, an analog-only PCI card with two stereo inputs and outputs.

New in the software department, AudioScience showed its ASIO driver. Licensed from Steinberg Media Technologies, the ASIO driver allows AudioScience cards to provide low-latency multichannel recording and playback when used with applications like Adobe Audition 2.0, Steinberg Cubase and Cakewalk Sonar. The ASIO driver will be integrated into both the WAVE and WDM drivers operating under Windows 2000 or XP.

Contact AudioScience in Delaware at (302) 324-5333 or visit [www.audioscience.com](http://www.audioscience.com).

## AEQ Arena Is Flexible Router

AEQ showed the Arena control surface, suitable for radio broadcasting applications such as on-air control. It interfaces with the BC2000D System and can operate as an audio console or as a digital audio router.

The company says the most important feature is its routing capability, which allows the system outputs to be summed and re-routable to other outputs. It enables as many N-1 busses or clean feeds to be created as there are outputs.

The Arena control surface consists of two units: the Arena DM with five faders, plus the control and monitoring section for the studio, and the Arena D10 with 10 faders. Seven Arena D10s can link via Ethernet to the Arena DM. The system includes features such as intercom, automatic monitor cut-off, cough muting, fader start, control signaling and control signals for the automation of external equipment.

Additionally, the Arena adapts to configurations including control room, control room/studio, control associated with several studios, mixed configurations and integration



into large facilities.

Contact AEQ in Florida at (954) 581-7999 or visit [www.aeqbroadcast.com](http://www.aeqbroadcast.com).

### Neural Features NeuStar Platform, Software

Neural Audio demonstrated codec and pre-conditioning technology on its newest platform, NeuStar 4.0 and in the software version, NeuStar SW4.0.



The company said NeuStar was designed specifically for HD Radio low-bit-rate audio transmissions.

The NeuStar SW4.0 Codec Pre-Conditioner/Audio Processor features Neural's N-Coding Load Analysis System, which allows real-time visual monitoring of audio vs. codec performance. NeuStar SW4.0 also offers a suite of audio management tools, to address volume and spectral consistency.

The NeuStar SW4.0 is the software version of the NeuStar 4.0. The software version can be run directly on the HD-R Importer, offering multiple audio channels of processing within one computer.

Both the software and hardware versions of NeuStar are designed to be placed in-line ahead of Internet streams, DAB, DRM, satellite, compressed STLS, ISDN, etc., for codec improvements and audio processing.

Contact Neural Audio in Washington state at (425) 814-3200 or visit [www.neuralaudio.com](http://www.neuralaudio.com).

### D.A.V.I.D. IP-Based Products Ease Content Distribution

D.A.V.I.D. Systems showcased new applications that it believes ease content distribution across multiple platforms, including podcasts, HD Radio, streaming audio, RBDS and Web site publishing, including video.



The company says it has developed IP-based products to speed the integration of traditional broadcast with emerging technologies and take advantage of efficiencies that IP connections make possible.

For example, the Remote Reporter application allows staffers to access the database from anywhere, uploading and downloading stories, updating metadata and communicating in real time with colleagues at the head end.

Another example is publishing a station's "Playlist to the Web." With this product, D.A.V.I.D. says it can continuously update a station's page to display the current song being broadcast and 10 of the previous songs played, including text and images.

"Playlist to the Web" can create links to online retailers like Amazon that will return revenue to the station when a listener makes a purchase. Other features include Media Mover, the News Portal and Searchable Station Archives.

Contact D.A.V.I.D. Systems in Virginia at (888) 374-3040 or visit [www.davidsystems.us](http://www.davidsystems.us).

### Barix Makes Show Debut With Instreamer, Exstreamer

Barix Technology exhibited at the NAB Radio Show for the first time, and brought along its Instreamer-100 and Exstreamer-100 audio encoding and decoding units.



Instreamer

The Instreamer encodes audio from analog and digital devices into the MP3 format in real time for point-to-point or multipoint delivery over the Internet or IP-based systems. The serial port in the Instreamer allows the operator to control additional devices remotely over the same network connection from any location.

The Exstreamer is a network-based audio decoder that pulls digital audio from an IP network and converts it to music or voice at the receiving address.

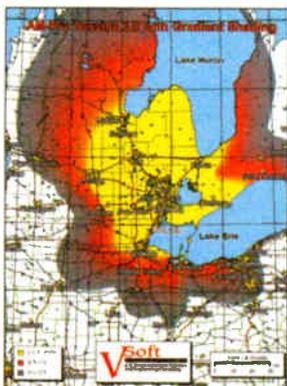
Additionally, the company debuted a programmable software feature for both products that allows system integrators and OEMs to develop custom applications in a network-, audio- or USB-flash environment. Broadcasters can use the programmable software for applications such as fixed STL, remote pickups, audio stream monitoring and alarm transmission; and also schedule announcers, call sign generators or network or I/O triggered alarming devices with supervision.

Contact Barix Technology at (866) 815-0866 or visit [www.barix.com](http://www.barix.com).

### V-Soft Upgrades AM-Pro Mapping Program

V-Soft Communications showcased its AM-Pro 2, an upgrade to the company's AM-Pro allocation and coverage mapping program.

This version supports "grid-style" calculation of groundwave and skywave field strengths and interference, similar to V-Soft's Probe propagation prediction program.



Daytime allocation studies are enhanced by the ability to remove overlap area over water and accommodation for the existing facility. Night allocation studies now support full "clipping" studies.

Features of AM-Pro 2 include a Cancel button for initial night and day allocation studies that lets the user go back to the "wizard" and change a setting if a mistake was made; improved equivalent distance methodology for limit and point location field strength calculation; a database searching system where a table of "matches" is reported; and the ability to edit the AM database and/or create custom databases.

Automatic calculation of critical hour radiation limits, a revamped pattern editor and the ability to plot the existing facility station contours in daytime allocation studies round out the highlights.

Contact V-Soft Communications in Iowa at (800) 743-3684 or visit [www.v-soft.com](http://www.v-soft.com).

DRM85

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Combining a broadcast-quality Flash recorder with a Sennheiser mic capsule, HHB's new FlashMic is perfect for interviewing, journalism and any type of voice recording.

One button press is all it takes to start recording in either linear or MPEG 2 formats. 1GB of built-in memory stores a massive 18 hours/999 tracks of recordings and it's easy and quick to transfer files for editing or onward transmission via FlashMic's built-in USB interface.

Power comes from standard AA batteries and the included FlashMic Manager software makes it easy for individual users or news organizations to configure single or multiple FlashMics for particular applications and file naming protocols.

FlashMic is all you need for broadcast-quality recording.

So just pick up a FlashMic and go.

[www.flashmic.info](http://www.flashmic.info)



FlashMic shown actual size



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## Studer: Networkable OnAir 3000

Studer said its latest digital radio console has been enhanced with the release of the OnAir 3000Net. This was the first NAB Radio Show appearance for this product.

An option to the OnAir 3000, the product migrates the desk from a standalone operation to an open and networked part in the overall infrastructure of a broadcast center.

Interconnected audio sources are visible in the input routing page on the OnAir 3000Net user GUI and can be patched to faders in the same way as local sources, making operation as simple as with the standard OnAir 3000, the supplier says. Routings, including remote sources, can be stored and recalled with snapshots as usual.

Existing OnAir 3000 consoles are upgradeable to the OnAir 3000Net version, with a hardware and software change. The console offers three main stereo mix busses — PRG A, PRG B and REC — plus an audition facility, four stereo aux busses, 16 mix-minus sends configurable as auxes and three independent studio monitoring/talkback circuits, including

two PFL circuits for split desk operation.

Contact the company in New Jersey at (201) 782-0328 or visit [www.studer.ch](http://www.studer.ch).

## GSS Rolls Out Emergency Receiver

Global Security Systems was at its first Radio Show. The company is a systems integrator, service provider and manufacturer of the GSSNet Homeland Security and All-Hazards First Alert System.

New at the show was an Emergency Warning Receiver that costs less than \$25 each in quantity. Wireless and battery-driven, it was designed for mass public distribution. It uses the FM transmission network to deliver data to the receiver. "Simple public notification requires that the largest number of recipients possible see a message and that the message source is reliable and repeatable," the company states.

GSS also promoted mobile advertising using FM-based geo-targeting that allows the user to know their location. "The FM-based data channel, separate from SMS RF channels and protocol, utilizes the display, antenna, battery and microcontroller of the current appliances and leverages the powerful and far-reaching FM signal to deliver mobile advertising data," it said.

Contact the company in Mississippi at (954) 850-6606 or visit [www.gssnet.us](http://www.gssnet.us).



## OMT Debuts v2.6 iMediaTouch

OMT Technologies showcased version 2.6 of its iMediaTouch automated and live assist digital delivery system, and says it has added 48 operational features including FailSafe in case of a server failure, and Auto Trim for fine-tuning recordings.

Other added features include Project Editor tools for creating shows from multiple cuts, improved satellite show recording for delayed playback and expanded Cart Chunk tag support to ease content ingest. The company says enhanced production features that facilitate editing and the Auto Resume backup machine that starts playing where the main server left off round out the highlights.

Contact the company in Winnipeg, Canada, at (888) 665-0501 or visit [www.imediatouch.com](http://www.imediatouch.com).



## AudioFile Post Broadcast Suite Is by KLZ

KLZ Innovations exhibited its AudioFile system, which consists of three primary programs: Server, Player and Monitor.

The AudioFile Server continually records multiple audio sources, which can be played independently at a specific delay. Audio is recorded in linear PCM format at 48 kHz sampling and automatically archived as MP3 audio. When equipped with an I/O interface, delays also can be applied to GPLs to accommodate automatic local insertions or alternate program material.

AudioFile Player works in three modes: Monitor, Skim and Archive. The Player can be installed on computers with LAN, WAN or Internet access to the server. Multiple players can be simultaneously opened without affecting the recorder or the time delayed playback.

AudioFile Monitor serves to continually report system status. Visual cues and alerts display concerns with connected audio sources.

The company says the Player and Monitor operate at a

lower priority. If too many users access an AudioFile Server concurrently, they may hear audio dropouts due to bandwidth limitations. These dropouts are not part of the audio being recorded or delayed audio playback.

Contact the company in Winnipeg, Canada, at (800) 334-9640 or visit [www.klz.com](http://www.klz.com).

## ENCO Partners With Powergold & Wicks

ENCO Systems is highlighting StreamLine, an integrated package of digital automation, music scheduling and traffic and billing.

StreamLine essentially ties three systems together to eliminate the need for imports and exports to create what works like a single system.

ENCO, Powergold and Visual Traffic from Wicks Broadcast Solutions have combined efforts on a new operational structure. StreamLine automatically reconciles with both music and traffic so the user knows what played and what didn't, according to the suppliers. Changes can be made and reflected "on the fly" and music libraries are automatically synchronized and updated.

Along with StreamLine, ENCO also this fall is promoting the latest version of DAD, which incorporates a refreshed user interface touted as easier and more intuitive.

PADapult, the data tool for HD Radio, Web streaming, and RDS products also will be showcased.

Contact the company in Michigan at (800)-ENCOSYS or visit [www.enco.com](http://www.enco.com).

## Energy-Onix to Show Internet RPU, STL

Energy-Onix came to the fall Radio Show with the E-Caster Internet RPU, the Tele-Link III Internet STL and DRE technology, which permits an FM broadcast station to simultaneously transmit additional digital stereo and mono channels with its normal FM stereo or mono analog.

The E-Caster system permits a broadcaster with an Internet connection at the studio to originate a 15 kHz mono program from the E-Caster, which is portable and contains a four-channel microphone mixer. The system includes facilities to "talk back" from studio to remote.

The Tele-Link III achieves a 22 kHz analog stereo link by way of interconnecting two terminals with a broadband Ethernet path such as ISDN, T1, DSL or spread spectrum microwave.

The company says DRE technology requires no changes to the existing FM analog transmitter. The system consists of an encoder and receivers, and was demonstrated with an Energy-Onix stereo exciter.

Contact the company in New York at (518) 758-1690 or visit [www.energy-onix.com](http://www.energy-onix.com).

## Rohde & Schwarz Exhibit Air-Cooled Transmitters

Rohde & Schwarz presented its R&S SR8000 transmitter line for the FM low-power range from 100 watts to 1 kW.

The compact transmitters are air-cooled. They are based on the company's platform concept, which provides a common platform for TV and sound broadcast transmitters of this series. They feature R&S SU800 digital exciters and are remote-monitored and remote-controlled via SNMP, Web interface and parallel remote-control interface.

The R&S SU800 exciter comes with an AES/EBU interface, which allows direct insertion of digital audio data. Analog impairments from the studio to the frequency modulator output can thus be prevented.

The exciter also provides test points to analyze the main parameters. For example, the MPX baseband signal, RF output signal, input signals, forward and reflected power, amplifier parameters and fan function can be measured and displayed.

The power amplifier of the R&S SR8000 series uses MOSFET technology.

The company says the R&S SR8000 transmitters complement its R&S NR8200 transmitter line and will be available in September.

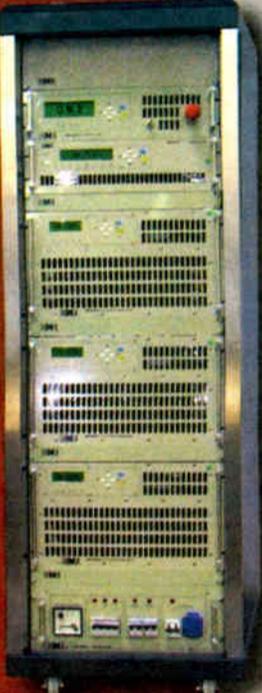
Contact Rhode & Schwarz in Maryland at (410) 910-7800 or visit [www.rohde-schwarz.com](http://www.rohde-schwarz.com).

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## ABC Offers StationMonitor

StationMonitor, shown by ABC Radio Networks, provides program directors with a Web-based way to monitor music airplay on 2,500 music stations. It can be customized to track specific stations, markets and formats; it is "powered" by MediaGuide.



The ad monitoring portion of the service allows salespeople to track competitors' ads in 30 markets. Users can build custom panels to compare demographic and format competitors, and show advertisers that bought on competitive stations, but not on yours.

Its monitoring technology uses a network of computers to electronically "listen" to radio stations in 200 markets, and identify airplay without the use of watermarks, in-station equipment or content manipulation, ABC says.

Contact Mike Kropp in New York at (212) 735-1141.

## Ad Library for Listeners From Paladin

Paladin AdSolutions was at the show displaying RadioAd.com, its Web-based search engine and marketing portal for radio advertisements.

The company says it assists stations by providing a non-competitive "ad library" for their listeners.

Users enter their area code, select the radio station(s), select the ad category and key word and hit "GO." Broadcasters can take action on the ad by listening to it, going to the advertiser's Web site, calling their phone number or clicking through to the station's site.

Additionally the company exhibited RadioAd.com/Backdoor Web-based business administration, which provides 24-hour administrative access to RadioAd.com listings. Users assign the search engine and marketing criteria to the ad. RadioAd.com/Backdoor also provides the user with control over ads, allowing access to supporting ROI information for the client's ad.

Contact the company in Washington state at (425) 558-1859 or visit [www.paladinadsolutions.com](http://www.paladinadsolutions.com).

## Liquid Compass Adds Managed Services Division

Liquid Compass debuted its Managed Services Division, which will handle customers' media Web sites and in-stream ad scheduling needs.

The company says stations need not worry about learning a new application to manage in-stream commercial inventory or sales executives to ensure that ads are scheduled appropriately.

Stations can choose to take advantage of in-house services by filling out a traffic request form on Liquid Compass' client log-in site and uploading the advertiser's creative material; the Managed Services Division handles the process from that point on.

Additionally, the company says it has reached a milestone in surpassing its goal of 500 live radio stations streaming on its network within the U.S.

Liquid Compass recently re-signed Entercom Communications to a new contract, which it says will surpass 100 radio stations (including terrestrial and HD2 side channel) on its network by the end of the year.

Contact the company in Colorado at (303) 839-9400 or visit [www.liquidcompass.net](http://www.liquidcompass.net).

## Non-Stop Search Powers Up

Non-Stop Music says its track library, and the other libraries or collections it administers, can now be searched and downloaded with more speed and efficiency.

The CUEgle music search and download engine gives broadcasters access to 1,100 CDs with some 37,000 tracks of original composed music, arranged and recorded at a soundstage in Salt Lake City.

Visitors to CUEgle will find large images of the CD covers for each collection, marked by names such as "Action Premier 1," "Suspence 4" and "Tenor Sax Quartet — Bossa Nova."



They can be clicked to display track title, length and a quick description.

Each MP3 track can be previewed and downloaded to the user's desktop, where it can be inserted into the project. Users in need of highest-quality WAV or AIF file can conduct their CUEgle search online, then pull the files from a CUEgle-supplied hard drive. If they

choose the track, the usual blanket or needle drop licenses apply.

Added search capabilities include 28 categories to facilitate searches, such as "Atmospheric Chillout," "Country and Western" and "Kitsch Retro Lounge." Users also can narrow or broaden their music searches with keywords. Music consultants also are available to make suggestions regarding the library.

Contact the company in New York at (212) 242-1155 or visit [www.nonstopmusic.com](http://www.nonstopmusic.com).

## Bid4Spots Notes First Anniversary

Bid4Spots, an online reverse auction marketplace for unsold radio ad inventory, debuted PowerBidder, a technology that expedites the

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EQUIPMENT FOR REMOTES

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Ultimate digital audio console.

**BC 300**  
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**BC 500**  
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**BC 2500**  
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**PAW 120**  
Palm-size digital recorder. New and improved design.

**Swing**  
Portable codec, audio mixer and telephone hybrid.

**Eagle**  
ISDN audiocodec with phone hybrid capabilities at a great value!

**Course**  
The COURSE, a 4-unit chassis, with control software and dual power supplies accommodates up to 10 communication boards: dual channel ISDN codec, Digital Hybrid (analog line) or V35/X21, and soon to be released IP codec.

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Toll Free: 1-800-728-0536 (US only)  
e-mail: [sales@aeqbroadcast.com](mailto:sales@aeqbroadcast.com)

For more information please visit us at  
[www.aeqbroadcast.com](http://www.aeqbroadcast.com)

bidding process for radio stations.

In the Bid4Spots model, advertisers create auctions early in the week for ads they would like to run the following week. Radio stations bid against each other (bidding the price down) to win an advertiser's spot.

Spot length	Station	# of Spots For Sale by Daypart	Crave's \$ Per Spot	# of Winning Spots	Avg Spot Rate	Total Winnings by Daypart
60 seconds	WAAA-FM	28	\$47.00	20	\$58.00	\$1,160.00
30 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
30 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00
60 seconds	WAAA-FM	35	\$15.00	10	\$41.00	\$410.00

Winning 95 Spots for \$2,950.00

The more auctions in which stations compete, the better the chances are of winning auctions and selling last-minute airtime, the company says. PowerBidder enables general sales managers with multiple stations to enter their rates on one bidding screen and immediately apply them to multiple auctions.

With PowerBidder, sales managers enter the total number of radio spots they wish to sell across any number of stations, along with the gross dollars per spot for each daypart. PowerBidder determines which ads the stations should bid for to sell the most inventory.

Additionally, the company says it has marked its first year in operation with achievements such as completing 1,000 auctions and reaching the \$2 million milestone, awarding auction winnings with that aggregate value among its participating radio stations.

Contact the company in California at (866) 326-7788 or visit www.bid4spots.com.

## DocSoft Search System Improved

DocSoft displayed its latest search technology, Element:A/V. The company said it heard feedback from potential users at the spring NAB convention that helped it develop a robust, easily used audio/video search tool.

DocSoft showcased the ability to search "spoken" content within audio and video files, not just the metadata associated with the file. The company also displayed a feature for users to jump directly to the point of the A/V file where the word was spoken and play the file from that point.

It says users are not limited to searching across files by word or topic, they can choose to create a complete text transcript of any file with one click. DocSoft also included the display of time codes for all "utterances" or phrases that are spoken within the file.

Contact the company in Oklahoma at (877) 430-3502 or visit www.docsoft.com.

## WireCAD Shows V4

WireCAD says it's focused on providing tools for serious system designers. Its design software includes automated tools to produce accurate, detailed single-line drawings, rack layouts, cable labels and other reports.

The company says Version 4 offers reverse engineering tools to create drawings directly from a user's imported data.

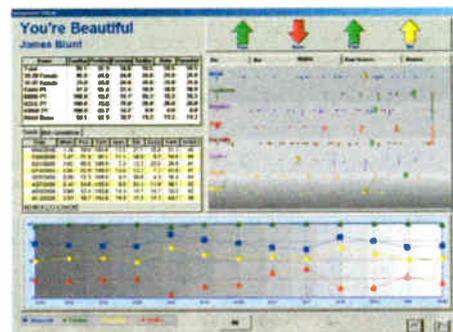
Also at the show, the company promoted WireCad XL, a student version of the software; XLT, for single users on multiple projects; and

Pro, for shared databases and multiple projects. Contact the company in Idaho at (661) 253 4370 or visit www.wirecad.com.

## SongSorter Tests for Hot Rotation Burn

ComQuest Callout showed its SongSorter Music Analysis software.

The company says this is a quick, easy way for stations to make sense of weekly callout and auditorium music test results.



Using color-coded arrows, trending data and a song score matrix, PDs can visualize how well songs are testing individually, as well as in context with other songs in a music test. This helps programmers find the center, or core, of the music their listeners prefer, and find which songs are compatible, as well as those that aren't.

ComQuest Callout provides in-house callout music and perceptual software for radio stations. The company operates its own call center for weekly music callout research in San Diego.

Contact the company in California at (619) 659-3600 or visit www.callout.com.

## LAN Displays e-PIF Software, Radio Fusion

LAN International promoted its Electronic Public Inspection File software, which enables broadcasters to monitor public inspection files remotely.

The company says if there is an issue with a public inspection file in a remote market, broadcasters have no way of overseeing those files from the corporate level, which LAN International says leaves them at risk.

The e-PIF software allows users to scan and upload new files; maintain public documentation from a local or centralized location; share corporate experience and achieve compliance oversight of public inspection files at their local market; receive automated reminders for certain recurring files; and implement proactive disaster recovery.

Additionally, users can streamline public access via a secure kiosk located within their city of license.

The company also had its Radio Fusion system on display. It organizes, manages and transforms data into information for sales. Beginning with a lead, account executives create an e-proposal reflecting inventories and pricing. After review and approval, the proposal becomes an order. With final management approval, the order is injected into the Viero revenue management system.

Contact LAN International in California at (949) 425-3300 or visit www.lanint.com.

## WO Traffic Manages Inventory, Tracks Market History

Wide Orbit's WO Traffic software is a scalable Windows-based system that manages traffic, sales, client management, billing and accounts receivable for broadcasters.

Additionally, it has inventory and yield management tools that the company says can increase revenue.

WO Traffic offers centralized management of traffic and reporting from one location for multistation groups, and tracks market history and conditions to help broadcasters make pricing decisions. Features include advertiser profiles, station blueprints, market blueprints, revenue reports and account management tools.

The company says the system has been installed in more than 500 radio and television stations and cable networks. Seventy-four radio stations are live with the system including the Entercom clusters in Sacramento, Calif., and Boston, as well as Pacific Empire Radio, Vista Radio in Canada and MBC Grand. An additional 43 stations are under contract to go live with the system in the next six months.

Contact Wide Orbit in San Francisco at (415) 675-6700 or visit www.wideorbit.com.

## 25-Seven Snags News/Talk Sales

25-Seven Systems said its Audio Time Manager is being used by several prominent news/talk stations including Bonneville's WTOP cluster in Washington, Clear Channel station WLW(AM) in Cincinnati and NPR news affiliate WBUR(FM) in Boston.

WTOP uses it to join a live network news update smoothly when breaking news makes it impossible to meet the post. WBUR uses the ATM to help local news keep on time during "Morning Edition."

The manufacturer describes ATM as an audio TiVo on steroids. It allows stations control over time and solves problems such as introducing random starting events without talk-ups; dropping in IDs and creating breaks in the middle of continuous programs with no loss of content; and eliminating the need to back-time into the network.

Contact the company in Massachusetts at (888) 257-2578 or visit www.25-seven.com.

## ERI Adds Filter Line

Electronics Research Inc. rolled out an FM Band-Pass Filter product line for IBOC and low-power analog FM applications.

The filter series is designed for use as a band-pass filter for protection from undesirable cross-modulation products and can also be configured as a branch combiner for combining two or three analog or IBOC transmitters into a single antenna.

ERI also has a constant-impedance combining module available in the 955 Series. The filters are rated at 3 kilowatts average power and can be tuned for any FM operating channel between 88 and 108 MHz.

The manufacturer said the filter cavities are sized to provide low insertion loss resulting in minimal temperature rise and reduced transmitter power loss. The individual cavities are loop-coupled so that each filter bank can be optimized for the particular application required and can be retuned in the field if necessary. The filters are provided with an integrated floor mounting frame that can suspended from a ceiling or wall mount with optional hardware.

Contact the company in Indiana at (877) ERI-LINE or visit www.eriinc.com.



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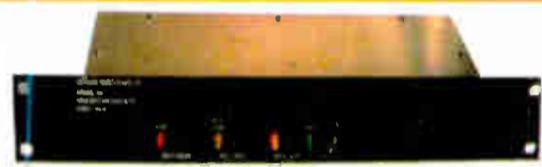
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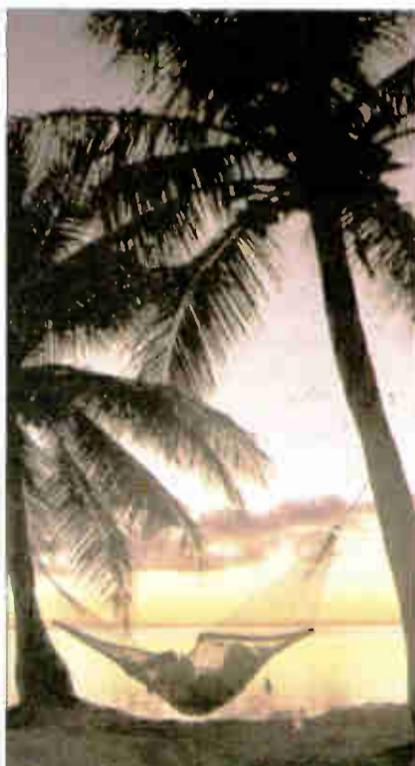
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## 'Kaleidoscope' Keeps It Jumping

*WFCJ Airs Monthly Gospel Musical and Comedy Show In Dayton and Online*

by Ken R.

You can count the number of radio gospel variety shows featuring live music and comedy on the fingers of, well, just a few fingers. Add "Kaleidoscope" to that short list.

"Kaleidoscope" is the brainchild of WFCJ(FM) Program Director Bill Nance. The show usually is pre-recorded; it is streamed and broadcast once a month from Dayton, Ohio at [www.wfcj.com](http://www.wfcj.com), generally airing at 7 p.m. on Saturday evenings.

The radio station provides Christian music and Bible teaching to listeners in southwest Ohio.

"The Mall at Fairfield Commons, in Beavercreek, Ohio, gives us the space to record our show at no charge in exchange for the publicity," said Nance. "We have a live audience and Chick-Fil-A, a mall tenant, has joined us as a sponsor. I buy the one hour of monthly airtime from the station and try to earn enough money to cover the \$1,000 cost of each show, which includes the band, the announcer and technical expenses."

"Kaleidoscope," hosted by Nance and Melody Morris, offers Christian music and features national performers such as 4 Him, Avalon, Ray Boltz, Dave Boyer and Dallas Holm, who stop by as they travel through the Dayton/Cincinnati area.

These artists usually donate their time, but the show has its own paid seven-piece band, "Joshua Jazz," led by Chris Haines. Dave MacCoy is the featured vocalist. This experienced musical group backs up artists who don't bring their own pre-recorded instrumental tracks. Sponsors provide door prizes and tickets are free to listeners who write or e-mail the station.

"Kaleidoscope" airs once a month, but sometimes for convenience several shows are recorded in one day.

Occasionally the show is held at an outdoor venue and on rare occasions it airs live. Commercials are delivered live, sometimes ad libbed, by the talent.

Even with a limited budget, restricted rehearsal time and the general chaos of a live venue, "Kaleidoscope" has endured for seven years and counting. Chick-Fil-A and another sponsor, AAA, have been with the program since it began.

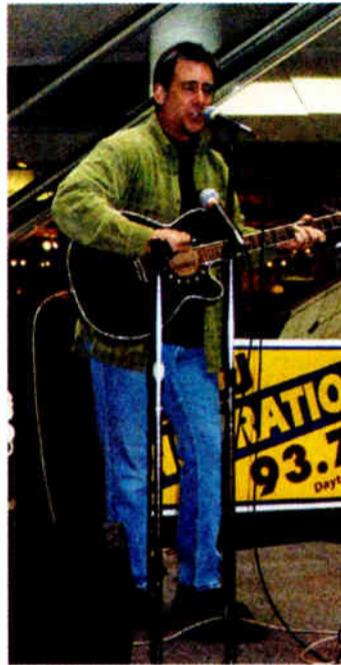
The show "allows us to take God's love through music and interviews into the public arena," Nance said. "The uniqueness of the show often causes mall shoppers to stop, watch and listen and hopefully hear something that can help or encourage them."

"While the message of Christ is our purpose in all of our programs," he wrote in an e-mail, "'Kaleidoscope' affords us a way to connect with listeners and others in a personal way. This is what localism in radio is all about."

### Starting simple

Engineer Bob Morris said that in the beginning he used just a Mackie mixer and a TASCAM 32 two-track reel-to-reel. The two co-hosts shared one wireless Shure microphone.

"The house band had a couple SM57s and we mixed



Dallas Holm



The musical group Selah

directly to two-track without any sort of backup recording," said Morris. "To air the show we'd take the same reel-to-reel back to the broadcast center and dub to MiniDisc or computer with no chance to edit or adjust other than the occasional splice to get rid of dead air."

After the first several years, Morris began recording to a Sony MDS-JE520 MiniDisc machine, which solved tape dropout problems but still offered limited post-production options.

"If something went wrong, there it was, broadcast in all its glory with 50,000 watts," he said.

In a mall, sound bounces off every surface, creating an ambiance that isn't always good. Thus, Morris decided to run two separate mixes, one for broadcast and one for the audience. Morris and Paul Orebaugh usually handle the over-air mix and the house mix, respectively. They spend about 3-1/2 hours setting up for each show, so the band only gets about 45 minutes to run through their often custom-written arrangements and rehearse with the musical guests.

Eventually more microphones were added. The house band consists of a trumpet, trombone, two saxes, an electronic keyboard, electric fretless bass and small drum kit. Each of the horns receives its own SM57 while the keyboard and bass are run through passive direct boxes. The drums are afforded three mics: a Shure Beta 52 on the kick drum and a pair of Sony ECM-33P condensers overhead. Singers in this musical genre have wide dynamic ranges so a range of Behringer compressors are employed to tame the levels.

The show is now captured with an Alesis ADAT HD24 hard-disk recorder.

"This is a wonderful, rock-solid piece of gear that allows us to record each microphone and instrument feed to separate tracks," said Morris. "We can now go back into the post-production studio and remix and edit the whole program. Multiple copies of the show are made on CD-R and stored at the studio and off-site."

### More blessed to give

Non-profit Christian-format WFCJ is commercially licensed, but largely listener-supported.

"We keep commercials to about 15 percent of our budget to stay within IRS guidelines," said Nance. "We don't have salespeople and in fact have to turn people away who want to buy airtime. About two-thirds of our income is from listeners and we air a few nationally syndicated shows like 'Focus on the Family,' which contribute to our earnings."

To hear "Kaleidoscope," check the program schedule at [www.wfcj.com](http://www.wfcj.com).

Nance said he enjoys working on the show, but that based on the number of other stations attempting such a program, staging a live gospel musical/comedy once a month may be more difficult than it sounds.

The author says he used to perform in a band, playing a mean piano. Not a good piano; just a mean one. He can be reached at [ken@kenr.com](mailto:ken@kenr.com).

## Equipment for 'Kaleidoscope'

### Speakers

Mains: Mackie C300  
Monitor, Wedge: CGM ARM-112H-1  
Monitor: Hot Spot

### Amplifiers

Main & Monitors: Samson Servo 550, 275 W stereo

### Snakes and Cables

Horizon 20-channel, 100-foot main snake  
Whirlwind Medusa splitter (16 channel),  
SB series with one direct and one isolated  
output with ground lifts

### Mixers

FOH: Mackie 1604-VLZPro  
Recording/Broadcast: Mackie 32-8

### Recorders/Playback

Multi-track: Alesis HD24  
Master 2-Track: Sony MDS-JE520 MiniDisc  
Backup 2-Track: Sony MDS-JE480 MiniDisc  
Analog Backup: Sony SLV-N50 VHS  
CD/Cassette Playback: Denon DN-T620  
MiniDisc Playback: Sony MDS-JE470  
Splitter/Combiner: Behringer Ultralink Pro MX882

### Effects and Processors

Recording Effects: Yamaha REV500  
FOH Effects: Alesis MicroVerb 4

### Compressors

Recording:  
Behringer Multicom Pro-XL (4-channel)  
(3) Behringer Multicom Pro (4-channel)  
Behringer Autocom Pro (2-channel)

### FOH:

Alesis 3630

### Microphones

Drum Overheads: Sony ECM-33P  
Kick Drum: Shure Beta 52A  
Wireless: Shure SM58 Wireless with LX Receiver  
Passive Direct Box: Pro Co CB-1 with ground lift

### Software

Post Production Editing and Mix: Steinberg  
Cubase SX3  
Mastering, and CD Burning: Steinberg Wavelab 5  
Conversion from HD24 to Windows XP:  
Alesis FST/Connect, Version 1.04



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# Unclaimed Musician Royalties to Expire

by Craig Johnston

Are you Clyde McPhatter? A Member of the Old Geezers? One of The Zucchini Brothers?

If you are, SoundExchange has money for you. But you have to register with the organization by Dec. 15, or the money will be forfeited.

This may sound like a Nigerian e-mail scam, but it's not. Royalties from digital airplay of sound recordings have been coming in, and SoundExchange, the organization assigned to collect and distribute those royalties, is having trouble locating some or all the members of around 9,000 recording acts who have money coming.

The Digital Performance in Sound Recordings Act of 1995 and the Digital Millennium Copyright Act of 1998 granted royalties to featured performers on sound recordings played via certain digital broadcasts. AM and FM broadcasters do not pay these royalties to performers for over-the-air broadcasts, but do for streaming their programming over the Internet. So do satellite radio broadcasters and independent Webcasters.

## 'Floating out there'

The royalties, in most cases ranging from .02 to .14 cents per performance, per listener, may sound like small potatoes. But they have been collected retroactive to February 1996, and are mounting up. Many performers have already registered

with SoundExchange and are collecting their royalties. But many have not.

The organization has decided to sunset royalties collected for the period from Feb. 1, 1996 through Feb. 29, 2000. Performers must register with SoundExchange by Dec. 15 or forfeit their rights to royalties from that period.

"The sunset amount is approximately half a million dollars," said John Simson, executive director of SoundExchange. "It's actually a fairly healthy amount

for those first actual performances. So we had to set some kind of deadline, because otherwise that money would keep floating out there in perpetuity."

SoundExchange has put a list of the unregistered acts that have royalties coming for that period on its [www.soundexchange.com](http://www.soundexchange.com) Web site. "Ninety-percent of the people, and I'll even include music junkies such as myself who know a lot about a lot of different genres, 90 percent of the people you won't recognize," said Simson.

**Royalties from digital airplay have been coming in, and SoundExchange is having trouble locating some of the recording acts who have money due.**

based on what was actually collected for between 1996 and 2000, which was really the infancy of this when there were really only three companies paying royalties into the system."

Simson estimated \$55 million to \$60 million will be collected for digital performances in the current year.

To register, "you've got to fill out some paperwork," said Willem Dicke, editor/communications at SoundExchange. "People say, 'Yeah, I'll do it later, I'll do it later,' and at this point we're 10 years on

However, some recognizable names were also on the list as Radio World went to press, such as Peter, Paul and Mary, as well as Mary-Kate & Ashley Olsen. "Typically if it is someone well known, we'll have sent two or three letters, e-mails, different requests trying to get them to register," said Simson.

## Good and true

Groups such as Jan and Dean, Peter and Gordon, and The Kingsmen have an asterisk by their group's name, indicating that that some members of the group have registered but some have not. For groups that recorded multiple albums over years or decades, performers in the group may have changed.

"There are over 40 people who actually recorded, at one time or another, as a member of The Drifters," said Fred Wilhelms, an entertainment attorney based in Nashville. He estimated 25 or so performers recorded with Fleetwood Mac over the years. Neither of those groups is on the list.

"Depending on which track it is, which album it is, it can be a completely different lineup," Simson said. "Each one of those lineups is a completely different payment schedule for us."

Once the musical performers are contacted, SoundExchange sometimes has trouble getting them to take the matter of such found-money seriously. "It's difficult because a lot of people don't know about SoundExchange," said Dinke. "I think this is one of those things that seems too good to be true: There's an organization that has money for you."

Wilhelms is sympathetic to these musicians. "The labels they recorded for disappeared 30 years ago and now are in the hands of the Universal or EMI or whoever, and [the performers] don't expect to see the money, so they don't go looking for it."

He has experience in this regard. As a favor to a record label several years ago, he tracked down several hundred of its recording artists who had dormant royalty accounts.

"A good solid 10 percent, I had to find a second way of convincing them that they money was actually there for them, and it wasn't going to cost them anything to get the money. I had to find another artist to convince them, or go through a mutual friend, or I even went through a minister to convince them that the money was there, was legitimately theirs, and that they weren't getting scammed."

"It's one of the things we're trying to hurdle with awareness campaigns," said Dinke. The organization has taken out ads in trade publications and made other efforts to get the word to recording artists.

For instance, SoundExchange has cross-referenced its missing artist list with databases from The American Federation of Musicians, AFTRA, The Blues Foundation and The Recording Academy, and hopes to do the same with ASCAP, BMI and SESAC.

One such effort that bore fruit was with CD Baby, the online music store selling music from independent artists. "We have 5,500 potential matches with CD Baby, and they sent an e-mail out saying 'Hey, we think we've identified SoundExchange royalties for you 5,500 people,'" said Simson. He said it's then up to the artists to register.

Many of the artists are owed less than \$100 for the pre-2000 period, though there are a few who are owed tidier sums. Any royalty money forfeited will go to paying operating costs for SoundExchange. The organization's expenses normally are paid out of royalties collected.

So if you know where to find members of The Fireflies, who recorded "You Were Mine" and "I Can't Say Goodbye," tell them they've got until Dec. 15 to register for their digital broadcast royalties. 🌐

Anyone seen Jimmy Durante lately? Here is a small sampling of the acts listed by SoundExchange as subject to lose money. An asterisk means some but not all members of a group have registered. A separate list details record labels.

In the month after the list was posted in September at [www.soundexchange.com](http://www.soundexchange.com), 720 artists and 89 copyright owners came forward, according to SoundExchange.

1 Life 2 Live  
Aaron Y Su Grupo Ilusion  
Alabama State Mass Choir  
Bay City Rollers\*  
Big Fish Ensemble  
Blood, Sweat & Tears\*  
Cathy Jean And The Roommates  
Chalice  
David Frizzell  
Earl Scheelar's Funky New Orleans  
Evidence Of Mercy  
Five Blobs  
Forester Sisters  
George Abdo & His "Flames Of Araby"  
Gladys Knight & The Pips\*  
Grand Funk Railroad\*  
Hans Und Ellen Kollmannsberger  
Hansel & Raul  
Ipanema Beach Orchestra  
Jimmy Dickens  
Jimmy Durante  
Jon Of The Pleased Wimmin  
Kukuruzza  
Lamont Cranston Blues Band  
Lightnin' Hopkins  
London Pops Orchestra  
Margit Anderson & Roland Steinel  
Meat Puppets  
New Edition\*  
Peter And Gordon\*  
Radio Iodine  
Rappin' 4-Tay  
Richie Allen & The Pacific Surfers  
Sex-O-Sonique  
Sister Sledge\*  
Tear Da Club Up Thugs  
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# Remote Control



## WVRC-8 8 Channel Web & Voice Remote Control System

The WVRC-8 provides a cost-effective, one rack-unit solution for web based and/or recordable voice response dial-up transmitter site control. The WVRC-8 was designed from a user point of view, so all of the basic functionality you need is included to control your site equipment, while including the accessories other manufacturers consider optional. The WVRC-8 is equipped with a browser based 100 event function program scheduler and 8192 event alarm logger, while the user may select from four email recipients and a sound effect to play when an out of tolerance alarm is generated. The WVRC-8 is equipped with eight high-resolution analog (telemetry) channels, while each of the eight optically isolated status channels may be configured for 5 to 24vdc wet or dry (contact closures) status monitoring. The eight control channels

are equipped with independent SPST one-amp relays for each raise/on and lower/off function. These relays may be latched, unlatched or momentarily closed. The WVRC-8 is supplied with spoken words and phases in English, while the user is free to record words and phases in their language. In addition, the WVRC-8 may be programmed for dial-up operation via HyperTerminal, while the Java applet programming can be performed using your favorite web browser. System expansion may be accomplished by cascading multiple WVRC-8's on the same telephone line and/or Ethernet switch. Future external add-on products such as X-10 modules, Zig-Bee hubs, and AC power controllers may be attached via the BT-Link expansion port. The WVRC-8 is supplied in a 1-RU chassis.



## WRC-4 Web Based Remote Control

The tiny TOOLS WRC-4 is a fresh approach to remote site monitoring and control or providing an inexpensive solution to Internet enabling your present remote control system. The WRC-4, combined with web access and your favorite web browser, brings you the following features, all available in this small, but powerful tiny TOOL: A powerful built-in web-server with non-volatile memory; 10/100baseT Ethernet port; four channels each of high resolution telemetry inputs with a large monitoring range; optically-isolated status (contact closures or external voltages) inputs; normally open dry one amp relays; open collector outputs; front panel status indicators, a single front panel temperature sensor and 4-email notification addresses. The WRC-4 is also SNMP enabled. The WRC-4 has been carefully RFI proofed, while including the accessories other manufacturers consider optional. The WRC-4 is supplied with plug-in euroblock screw terminals and loaded with a generic web page that may be edited by the end user. The WRC-4 works with either dynamic or static IP addresses (when used with a dynamic IP, an inexpensive cable or DSL router may be required). Multiple WRC-4s may be used with a user provided Ethernet hub. The WRC-4 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.



## VAD-2 Voice/Pager Auto Dialer with Silence Sensor

The tiny TOOLS VAD-2 is a user programmable two-input with integrated stereo silence sensor, multi-number voice/pager auto dialer, designed for dial out voice message notification. The VAD-2 has two dry contact inputs and stereo silence sensor, which, when tripped, will sequentially dial up to four different phone numbers and play back a user recorded message corresponding to the tripped input. The VAD-2 is also equipped with two SPST one amp relays for the control of external equipment. The VAD-2 can store up to four 32 digit phone numbers and one 32 digit pager phone number which may be associated with any of the two inputs and/or stereo silence sensor. The VAD-2 is capable of remote or local configuration and message recording with a total recording time of 16 seconds. The two SPST relays may be programmed for momentary, latching or tone duration operation. The VAD-2 may be set on a desktop, mounted on a wall or up to four units mounted on the RA-1, Rack-Able mounting shelf.



## AVR-8 Voice Remote Control

The AVR-8 is a voice remote control system that automatically reports changes detected on any of its eight digital inputs to a remote telephone and/or pager. After speaking a greeting message that may identify the source of the call, the AVR-8 then speaks a unique message for each input change. Each message comes factory programmed, but may easily be re-recorded with your own customized messages. After reporting, the AVR-8 allows you to give it commands through your telephone keypad. Functions include telling the AVR-8 to report on the input state of any of the eight digital inputs, commanding the AVR-8 to pulse any one of its four relays for 750 ms and/or turning any one of the relays on or off. When a relay command is given, the AVR-8 speaks the relay 'name' followed by the 'on' or 'off' message. For instance, commanding relay 4 ON causes the AVR-8 to turn the relay on and then report "Relay 4 ... is on." As with the greeting and input messages, the relay 'name', 'on' and 'off' messages may be re-recorded if desired.

In addition to initiating a call out when inputs change, the AVR-8 monitors its telephone line to receive a call-in from a remote location. When a call is received, the AVR-8 speaks a greeting message, and is then ready to receive and execute commands to report on its inputs, change to its relay outputs or turn on an audio input to the telephone line.



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# Google: Try Us, You'll Like Us

Search Company Offers Free Coupon Ads for Radio Stations And Other Businesses

by Joe Dysart

Apparently, there is such a thing as a free lunch, at least in Google Land.

Apart from its initiative in selling radio time, already reported in these pages, the Internet search goliath is offering radio stations — and all other U.S. businesses — free coupon advertising on its Google Maps (<http://maps.google.com/>) site, in an effort to get more businesses to “think Google” for local advertising.

Essentially, the coupons pop up on Google Maps when a visitor types in a ZIP code or town name, along with a keyword. The service also offers general information about the businesses being searched.

A search on Google Maps for “radio stations” in “New York,” for example, brings back 8,300 links at present (not all of them area radio stations). Similar searches in other ZIP codes yielded similar results.

“Google’s goal is to connect searchers with the information they need, whether it’s halfway around the world, or in their neighborhood,” says Sergey Brin, Google’s co-founder and president.

## Simple

Given Google Maps’ reach, the company’s offer to host coupons from any and all radio stations and U.S. business at no charge is substantial. In June alone the site saw 23 million visits from Web users, who used Google Maps to get driving directions, generate maps of specific areas and find businesses located in a particular town or ZIP code.

The service also enables users to get additional information on a business — such as a radio station’s phone number, street address, hours of operation, directions to the business, Web and e-mail address, user reviews and similar info — by clicking on business names returned by the search.

In practice, creating coupons for Google Maps is simple. Businesses sign up for a free account at Google Local Business Center ([www.google.com/local/add](http://www.google.com/local/add)), click on the “Coupons” tab and follow the online prompts to auto-generate their own coupon from a template in about five or 10 minutes.

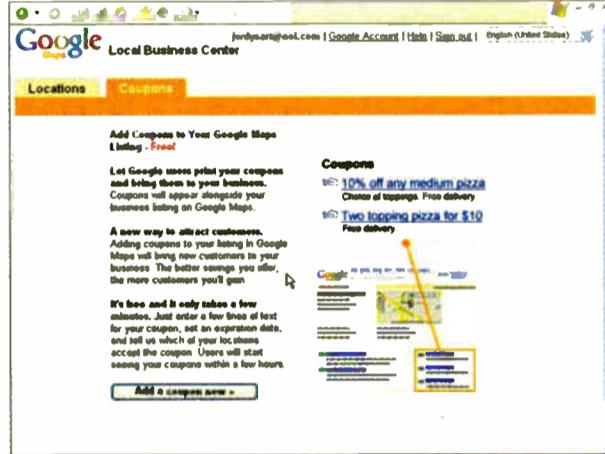
No graphic design skills are necessary. You don’t need to be a champion wordsmith. Essentially, if you have the wherewithal to keypunch in your business name and a few words about your coupon offer, Google Maps will do the rest for you.

A radio station does not need a Web site to take advantage of the offer, since the Google Maps system auto-generates a company’s coupon any time a user con-

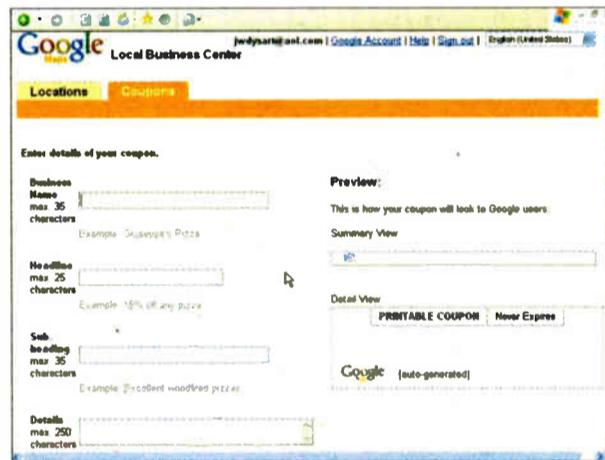
so, after Google calls to confirm that the business has in fact posted a coupon to its Maps site.

Brand-new businesses or those not on Google’s radar may have to wait up to six weeks to see their coupons online. The reason: Google prefers to verify the existence of these businesses by mailing a postcard to the business address. The card includes a PIN the business can use online to activate their business listing on Google, and trigger their coupon to “go live.”

While all the Google coupons generally take the same format — business name, a short headline describing the



Google is offering all U.S. businesses free coupon advertising.



Online template helps with coupon creation.

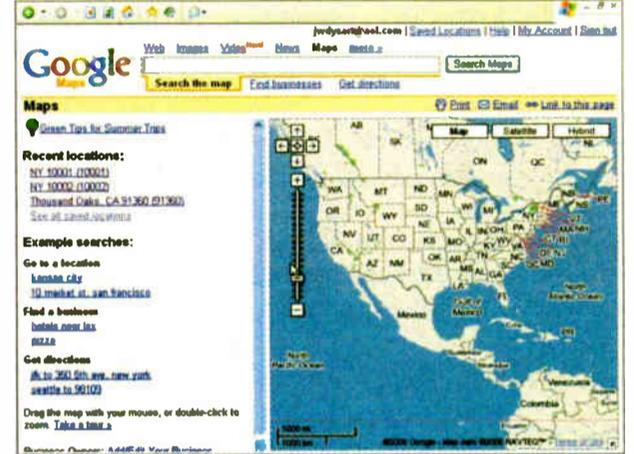
offer and a few lines of text offering specifics — radio stations can upload a small graphic to go with the coupon, such as a business logo or product pix. Each coupon also comes with its own, unique identifier number generated by Google to help prevent coupon fraud.

This freebie from Google represents an enhancement of its strategy to build a comprehensive, accessible data-

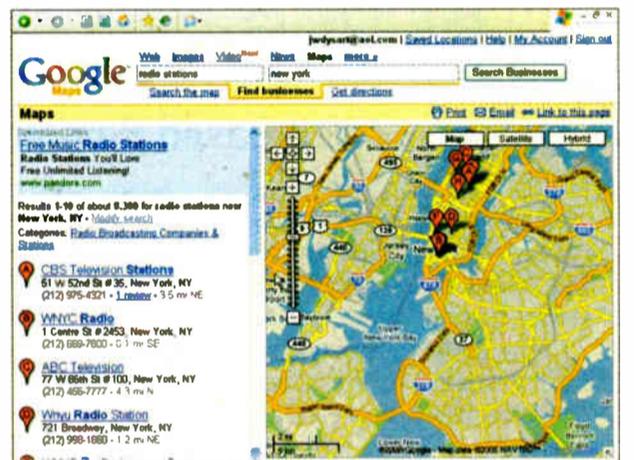
In the meantime, the company is courting the business community with a number of other free promotional services, including:

- Google’s Webmaster Tools ([www.google.com/webmasters/](http://www.google.com/webmasters/)): Your company’s Web site can rank higher in Google’s search engine returns after you tweak the site’s design with these tools. GWT will detail for your Webmaster why certain pages on your site are tougher for Google to track, and why.

- GWT will also identify the most popular search terms being used to find your site, and allow you to identify and correct any site design “violations” that are preventing the site, or some of its pages, from being listed by Google.



Google Maps saw 23 million visits in June.



A search on Google Maps for ‘radio stations’ in ‘New York’ returned approximately 8,300 related links.

- Google Search for Web Sites ([www.google.com/services](http://www.google.com/services), click on “Web search and site search”): Instead of reinventing the wheel, you can use the same search technology Google uses for its search engine as a search engine for your own site. Price: free.

- Google Base (<http://base.google.com/base>, click on “FAQ”): With this service, Google allows your company to post virtually any type of marketing materials, job offers and similar fare to its free, online hosting service. Company PDFs, podcasts, text files and the like can be uploaded. Each item can be categorized by you with search terms and attributes that make it easier for your intended audience to find your materials.

- Google Analytics ([www.google.com/analytics](http://www.google.com/analytics)): This program will enable your Web designer to ensure that every page on your Web site is as user-friendly as possible.

- Google Book Search ([www.google.com/services](http://www.google.com/services), click on “Books”): While this service is designed primarily for publishers, Book Search can be used by companies offering extensive white papers, educational materials and similar promotional tomes. This Google service offers info-seekers a preview of a few pages of your book, as well as a link to where they can buy the book online.

Joe Dysart is an Internet speaker and business consultant based in Thousand Oaks, Calif. E-mail him at [joe@joedysart.com](mailto:joe@joedysart.com).

**Essentially, if you have the wherewithal to keypunch in your business name and a few words about your coupon offer, Google Maps will do the rest for you.**

ducts a search for your type of business in your ZIP code.

“The coupon creation process is very simple, which suggests businesses will use it,” says Greg Sterling, an analyst with Sterling Market Intelligence, a market research firm that monitors local search advertising.

The fact that 70 percent of U.S. households now use the Web as an information source when shopping locally, according to a March 2005 study from the Kelsey Group, may help convince businesses to take Google up on its offer.

For established stations already in Google’s database, the coupons generally appear online in about a week or

base of U.S. businesses and leverage that to sell local advertising.

Back in early 2005, Google went live with the Google Local Business Center, which offers businesses the ability to get listed for free in Google’s database, as well as update that listing at any time.

Ultimately, Google hopes to profit from its free coupon program by offering businesses the opportunity to feature those coupons on its primary search tool, the Google search engine at [www.google.com](http://www.google.com). Google search offers businesses a much broader base of users than Google Maps, and is used by thousands of businesses as an advertising tool.

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radioworld.com Line ad	\$2/word			
Blind Box Ad	\$16 additional			

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## ◆ READER'S FORUM ◆

### IP Webinar

Paul, I wanted to thank you for hosting the audio-over-IP seminar (Sept. 27). I thought it was very informative and well planned. I agree with most of the panel's points on where IP is today in the U.S. and where it is headed. I do believe it is the wave of the future and it is already here. One of my questions was what do codec manufacturers need to address relating to the IP technology?

The Prononet codec, which you saw at the NAB, does use IP technology. It addresses some of the concerns relating to IP like reliability, latency, etc. It has multiple algorithms and has ISDN as a backup. I've found that customers are using it in STL applications, point-to-point for audio delivery and point to multipoint (multicasting). Most are using it over their private WAN or LAN network, which they have most control over.

As stated by the panelist in the seminar, when it comes to the public network, there are issues. I believe however, that will improve with time and technology. Right now, end users can use MLS networks, which will assure them a certain service level agreement with the provider. It is more costly, but the results are worth it.

*Alvin Sookoo  
President  
ATA Audio  
Randolph, N.J.*

### Bauer 707

Loved your article "Paul Gregg and 45 Years of Bauer" (RW Online, Archives,

10.06.04), and the recent letters about the Bauer 707, although I'm a bit distressed over the picture of the vandalized, "mutilated" 707 (*Reader's Forum*, Sept. 13).

I am the proud owner of a Bauer 707. Serial Number 120 went on the air new in 1961. It is still on the air 365 days a year and sounding great. In 1986 the 707 was joined by a new Bauer 602A S/N 155 FM driven by the hard-to-find Bauer 6020 exciter Serial 103. The wire-wrap prototype of the 6020 was test run in my 602A.

Both of these transmitters are work-horses and have provided extremely reliable, dependable service. I have the highest admiration and regard for Paul Gregg over our 30-year acquaintance.

*Duane J. Williams  
Libby, Mont.*

### See for Yourself

Thanks so much for telling your readers about VOA's new Studio Tour ("From the Editor," Sept. 27).

Our latest surveys show that our worldwide audience is now more than 115 million people. And even though VOA has expanded a great deal into television and the Internet, radio is still a vital part of our broadcasting strategy.

We hope the readers of Radio World can drop by for a tour to see our live operations for themselves.

*Letitia King  
Chief of Media Relations  
Office of Public Affairs  
International Broadcasting Bureau  
Washington*

difficult to meet, courts will consider circumstantial evidence of the podcaster's state of mind.

### Conclusion

Although podcasting is a comparatively new and energetic medium of communication, it is still subject to traditional principles of defamation law in the United States. Podcasters should be aware of defamation law when exercising their editorial judgment over what content to include in a broadcast.

*Jeffrey P. Hermes is a partner and Samantha L. Gerlovin is an associate in the Boston office of Brown Rudnick Berlack Israels LLP. Both have been involved in Internet media cases and have written on the subject of Internet publication and the law. Contact them at (617) 856-8200 or by e-mail at jhermes@brownrudnick.com or sgerlovin@brownrudnick.com.*

### Letters to the Editor

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

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

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

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

## ADVERTISER INDEX

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16	Armstrong Transmitter Co.	www.armstrongtx.com
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24-25	Axia - A Telos Company	www.axiaaudio.com
35	Bext, Inc	www.bext.com
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39	Broadcast Tools, Inc	www.broadcasttools.com
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## Podcast

► Continued from page 46

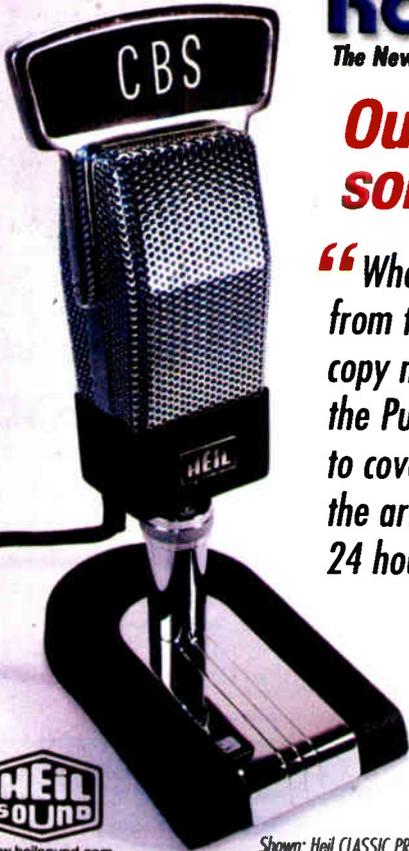
high-profile people and corporations) and public officials (such as elected and appointed politicians and high-level government employees). "Actual malice" is also sometimes required in product disparagement actions.

"Actual malice" is a legal term of art that refers to actual knowledge by the podcaster that a published statement is false, or a high degree of awareness on the part of the podcaster that a statement is probably false. Unlike the negligence standard, which compares a podcaster's conduct to what a reasonable person would have done, the actual malice standard focuses on what the podcaster actually knew about the statements published.

Although the actual malice standard is



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**“When you deal with everything from transmitters, studios and the copy machine, to the PC LAN and the Public File, Radio World seems to cover it all. I'm still waiting for the article on how to get more than 24 hours out of the day though!”**

**Allan A. Augustyn**  
Director of Network Engineering  
Radio Results Network  
Escanaba, Mich.

Shown: Heil CLASSIC PRO offers a retro look of the '40s with the dynamic sound of today.

## GUEST COMMENTARY

# Podcasting Defamation: A Costly Mistake

*Broadcasters Should Know What Constitutes Defamation, False Statements*

by Jeffrey P. Hermes and Samantha L. Gerlovin

Podcasting is challenging existing paradigms for how corporations and individuals reach out to their audiences. However, like any other mass media publisher, podcasters can be held responsible under United States law if they cross the line from the protected exercise of the freedom of speech to defaming the subject of a podcast. While the basic principles of defamation law have long been settled, courts are still deciding how those basic principles will apply to new media such as podcasting.

## What is defamation?

Defamation is the use of language that is capable of injuring the reputation of a person or corporation through the communication of false statements of fact to a third party. Defamation is relevant to podcasters because of the potentially significant economic impact of litigation initiated by injured individuals or corporations.

considered false.

When the defendant in a defamation case is a media defendant, and the allegedly defamatory statements address matters of public concern, the plaintiff will have the burden to prove falsity. It has not yet been established whether podcasters will be considered "media defendants," but at least three courts that have considered other forms of Internet publications have found them to constitute "media."

Whether a podcast addresses matters of public concern will depend on the specific content of the podcast: a podcast which addresses purely personal issues is less likely to qualify, whereas a podcast that comments on matters of general public interest or importance is more likely to be protected.

## What is opinion?

In addition to the protection for true statements discussed above, certain statements receive First Amendment protection because they cannot be proven to be true or

**It has not yet been established whether podcasters will be considered 'media defendants,' but at least three courts that have considered other forms of Internet publications have found them to constitute 'media.'**

In addition to the cost of defending a lawsuit, damages in defamation suits can be substantial in amount. However, the First Amendment imposes specific limitations on such claims in the United States. These limitations are discussed below.

## When is a statement 'false'?

Statements that are "substantially true" cannot support a claim for defamation. A statement is "substantially true" even if it contains minor inaccuracies, so long as any such inaccuracies do not affect the "gist" or "sting" of the statement. In other words, if a statement in a podcast would have substantially the same effect upon a listener as the literal truth, the statement will not be

false. The most important example of speech receiving this protection is "opinion," which, in defamation law, is a concept including two categories of statements.

The first category of "opinions" includes vague or figurative statements that do not convey specific factual meanings. On this basis, courts have rejected defamation claims where defendants have: called a plaintiff a "meat-head" and "barbarian"; identified a store as "trashy"; described a plaintiff as a "bitch"; or described a theater production as "a rip-off, a fraud, a scandal, a snake-oil job."

The second category includes conclusions based upon facts that have been presented to a listener. For example, a pod-

## Best of Luck, Ernie and DeLores

The warmest meeting we had during the recent NAB Radio Show was with Ernie and DeLores Ankele. You read in RW that the Ankeles had sold their majority ownership in console manufacturing company Autogram to Circuit Research Labs (which also owns Orban). Autogram production now moves from Plano, Texas, to Benton, Ark.

Autogram was founded in 1969 as part of packaging company Day Manufacturing.

The Ankeles subsequently bought out that owner. Ernie Ankele told us two years ago that he and his wife were ready to retire and had hired a broker to help them sell their majority interest in the company; at that time he was 81, she was 75.

We're happy for CRL, delighted that the brand name will be carried on and pleased for the Ankeles that they'll have some well-earned relaxation time after decades in the console biz. But our feelings are bittersweet; and we can't help but view the news as another departure among a generation of small "old school" analog manufacturing companies whose rock-ribbed products, it seems, lasted forever and whose owners were as much a part of each sale as the technology.

RW Editor in Chief Paul McLane says, "The affection and friendship that the Ankeles showed me year after year were a sustaining part of my experience at trade shows, dating to a convention in the mid-1980s when the couple took me out to dinner with no agenda other than to make sure I didn't spend an evening away from home alone. They are kind, classy people, the best that Texas has to offer."

We'll miss them.



Ernie Ankele, left, and DeLores Ankele flank Autogram buyer Jay Brentlinger.

— RW

cast by a service-oriented company might discuss the experience of a rival corporation, and, based upon the facts discussed, state the conclusion that the rival is not capable of providing the services that the podcaster can.

While the declaration that the rival corporation is not capable of providing certain services is capable of damaging the rival's reputation, by providing the relevant facts, the podcaster has enabled listeners to make up their own minds, and made clear that the podcaster's conclusion is only an opinion. Under such circumstances, this conclusion will not be actionable, regardless of how unjustified a listener might feel the conclusion to be.

If, however, the podcast merely states that the rival company is incapable of providing certain services without providing the factual basis for that conclusion, listeners might infer a factual basis (possibly one not contemplated by the podcaster). If such an inferred basis turns out to be false, the podcaster might be held liable for intentionally or negligently implying false facts.

What is the podcaster's duty to research the facts?

Under the First Amendment, podcasters cannot be held liable for publishing even false and damaging statements, unless they act with some degree of fault. In most jurisdictions, there are two standards of fault that apply to defamation actions: "negligence" and "actual malice."

A "negligence" standard traditionally applies in cases involving plaintiffs who are "private figures," i.e., individuals or organizations that have not projected themselves into the public eye. Under a negligence standard, the plaintiff must prove that the podcaster failed to act with the level of care that a reasonable person would have exercised in researching whether the statements in the podcast were true.

Negligence can depend upon a variety of factors including the amount of time spent in research, whether there were attempts to obtain comments from both sides of a disputed issue, and the trustworthiness of sources of information.

In contrast, the "actual malice" standard applies to statements involving public figures (for example, celebrities and other

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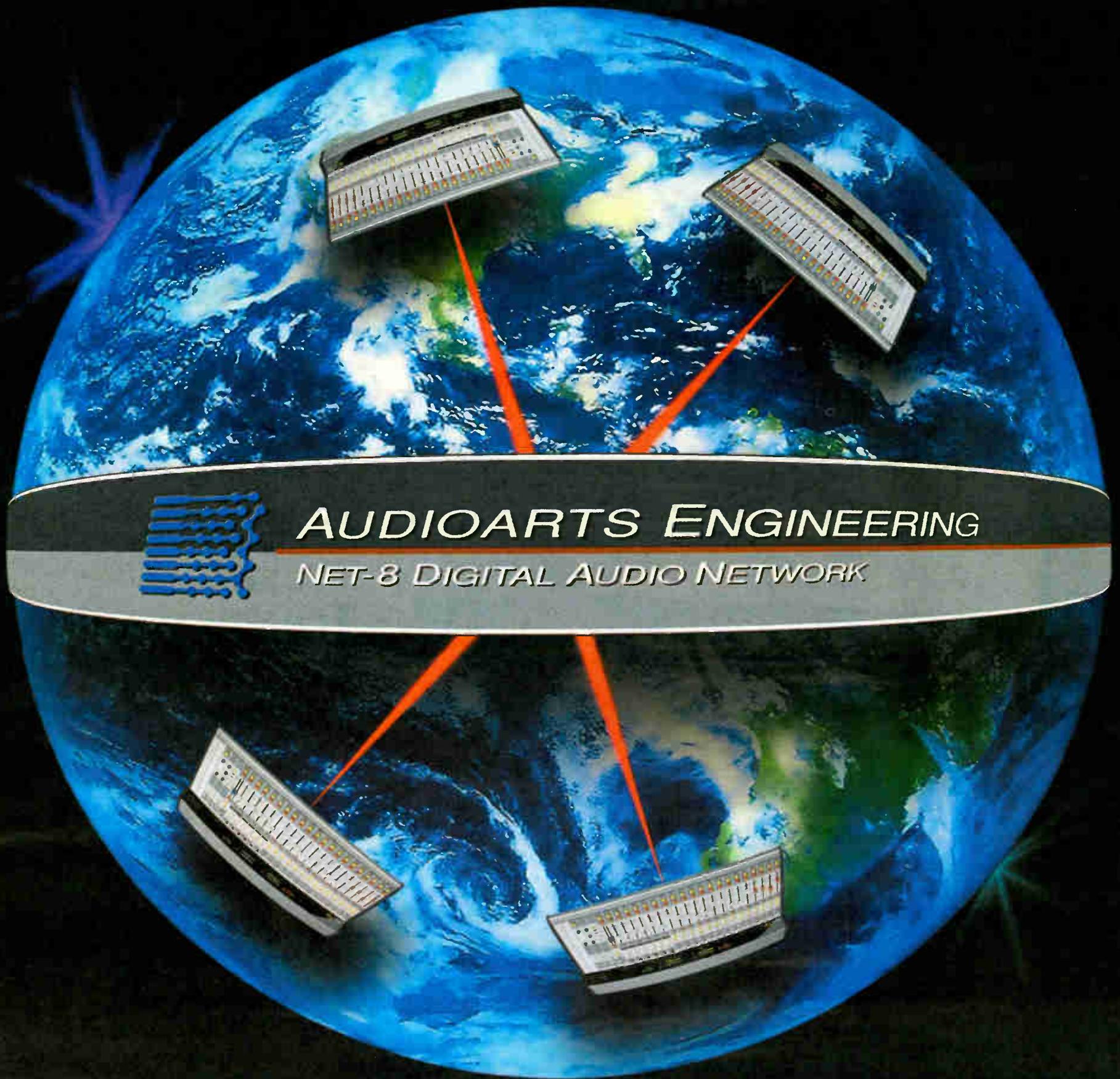
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