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Take a virtual tower tour.

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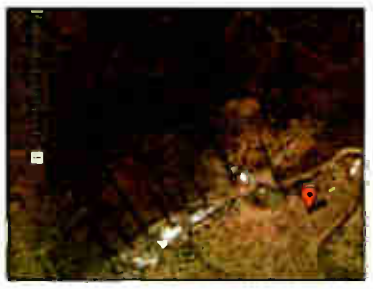

Radio World

$2.50 The Newspaper for Radio Managers and Engineers September 16, 2005

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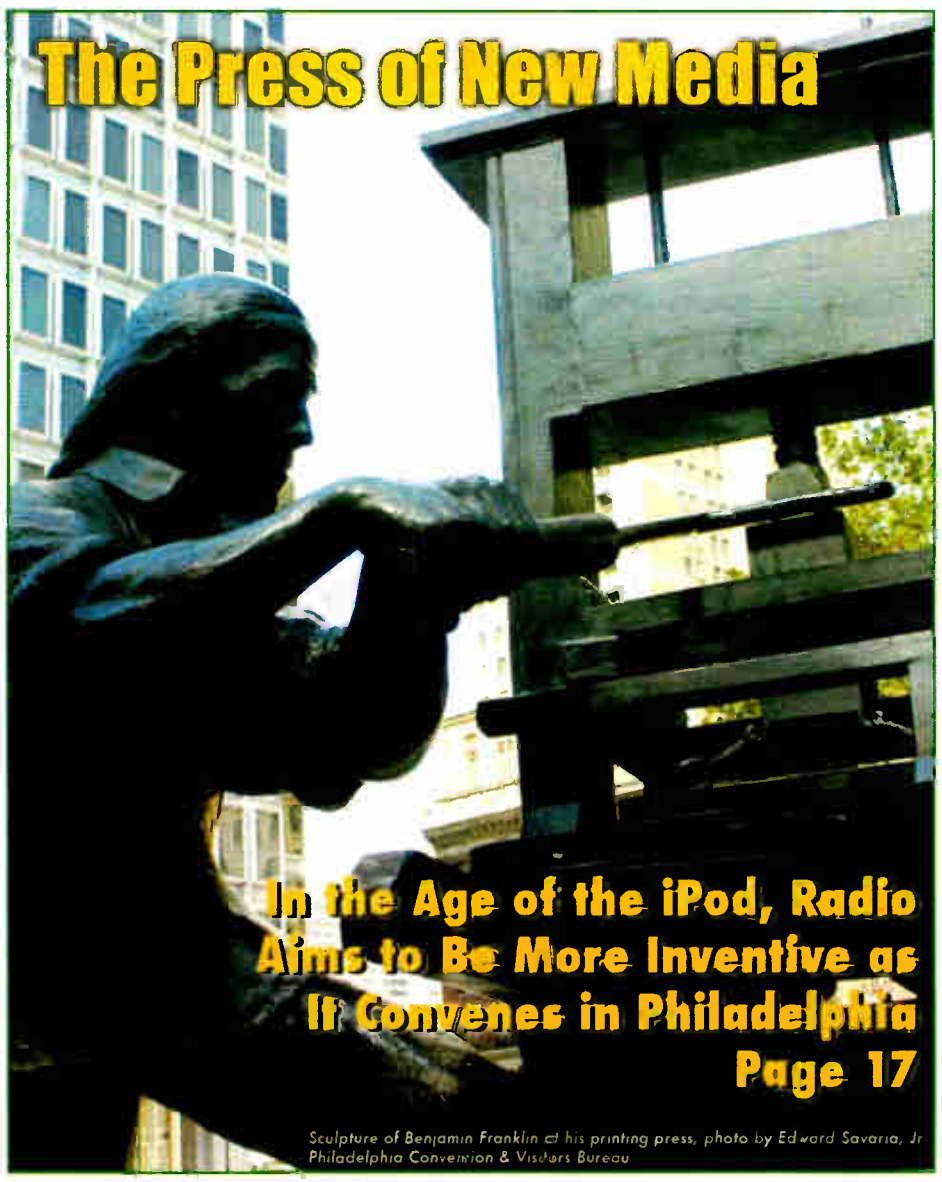

Sculpture of Benjamin Franklin at his printing press, photo by Edward Savaria, Jr Philadelphia Convention & Visitors Bureau

You Are Listening to '98.7 HD-2'

How Should Multicast Station Names Appear On the Display?

by Leslie Stimson

WASHINGTON The discussion of exactly what U.S. radio listeners should see when they flip the "on" switch on future digital radios has expanded beyond engineers to include programmers and marketers.

It's a debate that could affect succeeding generations of HD Radio receivers, one that has taken on urgency with the onset of multicasting, under which the number of new channels on the dial could skyrocket. Nevertheless, decisions being discussed may not affect radios before the 2009 OEM model year.

Debate over the display involves balancing desires. Some want new channels to look different than traditional stations on the receiver display; others feel new stations should look similar to their heritage channels. Meanwhile, receiver manufacturers have injected a dose of cold reality into the talks, warning that cost and practicality factor large in their

See MULTICAST, page 8 ▶

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World Radio History

◆ NEWSWATCH ◆

Fries to Leave RAB

NEW YORK Gary Fries will depart the Radio Advertising Bureau after next year.

Fries, has notified the Radio Advertising Bureau's board that he will fulfill his contract, which expires in December 2006, but not seek renewal. The RAB said a search committee and succession plan would soon be in place. A spokeswoman told Radio World Fries has not made plans.

The news means two of commercial radio's most visible proponents for many years are leaving within months of each other. The NAB is in the process of replacing President/CEO Eddie Fritts. RAB said the timing is a coincidence.

RAB Board Chairman and Buckley Broadcasting CEO Joe Bilotta credits Fries with transforming the organization over 14 years and raising its profile. Bilotta also cited Fries' work towards more accurately determining radio's effectiveness in the eyes of ad buyers and creating the RAB Radio Training Academy, a sales training and certification program.

Fries came to RAB in 1991 from Unistar Radio Networks, where he was president. He also has been president of Transtar Radio Networks, president/COO of Sunbelt Communications' Radio Division and VP of ITC Communications and Multimedia Broadcasting.

Fries began his radio career in Lincoln, Neb., where he worked as a part-time salesperson at Stuart Broadcasting's KFOR(AM) while in college. By age 24, he landed his first management position at KRGI(AM), Grand Island, Neb.

Satellite Advertising Seen Up 112.8% This Year

NEW YORK The average person is expected to spend 10 hours a day with media by 2009, with the greatest hourly gains to go to home video, consumer Internet and wireless content and interactive television. Those gains will drive consumer spending on media over the $1 trillion threshold for the first time. Those are conclusions reached in a Veronis Suhler Stevenson communications industry report.

Executive Vice President Jim Rutherfurd stated that during the last five years, the investment firm has seen a shift from advertising-based to consumer-supported media, and a transfer of spending from traditional to new media.

Veronis Suhler predicts growth in total communications spending to be 6.8 percent for 2005, reaching $857.59 billion. Of that, the firm expects new media advertising to grow 20.7 percent, reaching $68.62 billion by 2009, compared to 4.2 percent for traditional media at approximately $192.28 billion.

Spending on new ad media, such as cable and satellite television, satellite radio, e-media, consumer Internet movie screen advertising and videogame advertising grew 21.7 percent in 2004 to $31.37 billion, and is forecast to grow 20.7 percent in 2005 to $37.86 billion.

The firm projects spending for broadcast and satellite radio, including broadcast advertising, satellite subscriptions and satellite advertising, to rise 4.6 percent this year, as the 2.7 percent growth in broadcast advertising expenditures is augmented by 132.4 percent growth in satellite radio subscription and 112.8 percent growth in satellite radio advertising. Total satellite radio spending will rise 131.8 percent to $680 million this year.

Total broadcast and satellite radio spending combined is forecast to grow at a compound annual rate of 6.2 percent from 2004 to 2009, reaching $27.45 billion in 2009, "as the unprecedented expansion of satellite radio accentuates the relatively tempered growth of broadcast radio advertising," states Veronis Suhler.

See NEWSWATCH, page 3 ▶

See Us at NAB Radio Show Booth # 311

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HD Radios Reach BMW Dashboard

by Leslie Stimson

WOODCLIFF LAKE, N.J. BMW will be the first automaker to put HD Radios in cars. Ibiquity Digital is working with the automaker to train its salespeople in how to demo the radio in showrooms; it has dedicated a page to automotive dealers on the Ibiquity Web Site.

Radio World had been reporting BMW's plans for several months. The carmaker in August confirmed it will include HD Radio as a factory installed option in its 7 Series model this fall. The first HD Radios in BMWs will not support multicasting.

The line of cars was introduced in the spring; HD Radio is being added as a new feature, BMW executives said.

The left, rectangular window displays the main menu, a graphic display of the BMW controller with colored arrows pointing to eight available menus. The right, square window is displaying date, time, temperature and onboard (trip) computer data.

Upscale

"We've found that 7 Series customers are most often interested in technology," said Dave Buchko, BMW product communications manager. The 7 Series is the largest four-door model BMW makes; the line includes four models. They retail for about $72,000 to $117,000. That compares to the 3 Series, which retails starting around $30,000.

The list price for the HD Radio option is $500.

BMW wanted to inform dealers early, but delivery was expected to start in late September or early October, said Bill Scully, product communications specialist.

"We're excited about it and looking forward to see how it fits in the market," said Scully, who said BMW is introducing HD Radio in a single product line for now.

"That's the way we'll start. Each car has its own electronic entertainment platform," which makes it harder to simply plug in a new feature across an entire product line, he said.

The 7 Series does not use a standard radio faceplate in the dash; the feature displays are consolidated into one screen. The HD Radio receiver will be trunk-mounted and accessed via the display screen that sits in the top and middle of the dashboard. The driver uses a controller to manipulate the display, which includes AM, FM plus features such as a CD player, navigation system and telephone, said Scully.

The controller is a knob on the console where the BMW shift lever would normally be; that's moved to the steering column in the 7 Series.

Although the automaker uses various manufacturers for its radios, Visteon is manufacturing the HD Radio, BMW confirmed. RW had reported earlier that the receiver maker had an "unnamed European automaker" as a client for its HD Radio.

BMW introduced Sirius Satellite Radio as a dealer-installed option on some models in 2002 and is transitioning to a factory-installed option. That list price is $595 for the receiver and BMW picks up the monthly subscription charge for a year, said Scully.

A customer may order both the HD Radio and Sirius options, and would have two receivers in the trunk. Both would be included in the display in the dash.

Asked how long it took to integrate HD Radio into the automotive platform, Scully said entertainment options generally take a short time compared to the development of a new car. As an example he cited the short development time for the iPod automotive adapter, an aftermarket accessory.

BMW worked with Apple to develop the adapter, located behind the dash and connected to a cable the driver can access in the glovebox. The automaker says it was the first carmaker to bring it to market more than a year ago.

The 2006 BMW 3 Series Sedans have a standard auxiliary audio input jack in the center console storage bin. With a cable, an iPod or other audio device could be connected to, and played through, the vehicle's audio system using the Aux input mode.

Ibiquity Digital hopes other automakers will follow BMW's lead. Ibiquity President/CEO Robert Struble said this spring the technology developer has "commitments from eight other brands in 30 different vehicle platforms" for an expected rollout within two years.

◆ NEWSWATCH ◆

▶ NEWSWATCH, continued from page 2

Disney/ABC Back With NAB

WASHINGTON Calling its two years away from NAB a "hiatus," Disney/ABC announced it would rejoin the association. In a dispute over the TV ownership cap, ABC also had pulled its 70 radio stations, in addition to its network and 10 TV stations, out of membership.

The broadcaster issued a statement quoting Disney Executive Vice President/Worldwide Government Relations Preston Padden saying, "ABC believes that the best interests of our industry, our company and ultimately the viewing public can be promoted by returning to the NAB at this time. With policy differences now behind us, ABC and NAB are once again in a position to work together towards our important common goals."

Padden now gets a seat on the NAB board.

SBE Launches Coordinator Accreditation

INDIANAPOLIS Frequency coordinators now can receive accreditation by SBE. The society has begun a no-cost, no-test accreditation program, it stated in its newsletter.

"Accreditation will give our hard-working, volunteer coordinators the opportunity to demonstrate they are part of a standards-based, nationally-recognized program of local voluntary broadcast-auxiliary frequency coordination," the group stated.

"At the same time, it will allow SBE to demonstrate to the broadcasting industry the widespread acceptance of a voluntary set of standards guiding local coordination."

The society said the voluntary accreditation program is not a form of SBE certification.

See NEWSWATCH, page 10 ▶

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World Radio History

'We're Not Dead Yet'

Traditional radio has taken a pounding at the hands of media critics and some journalists. The laundry list of complaints is over-familiar by now: No localism. Bland programming. No interactivity. Another impersonal arm of corporate America reaching into suburbs and small towns everywhere.

Local media just aren't sexy compared to the likes of satellite radio and podcasting. Is it finally time for local radio to pack it in and hoist a white flag?

Emphatically, no. Consider the recent survey commissioned by the Michigan Association of Broadcasters and conducted by the Communications Research Institute. It yielded encouraging results about how listeners view local radio.

The study found that listeners strongly prefer the ability of local radio to keep them in touch with their communities. MAB President/CEO Karole White believes the study provides "hard, unbiased data" confirming what broadcasters have believed. Among the highlights:

- 79 percent of respondents said they had spent as much or more time listening to local radio compared to a year ago.
- 95 percent said they expected to listen to local radio as much or more in the coming year.
- 88 percent felt their local radio station provided a valuable service to their community.
- 50 percent of satellite customers indicated that they didn't receive good reception while driving.
- Even young adults who have increased their use of new technologies remain regular radio listeners.

The survey has strong implications for local radio broadcasters. It suggests that we are at our best when we do what many other media do not, namely, reflect events in the local communities. Some stations excel at this, but too many view localism and community service grudgingly, taking a nearsighted approach to the costs of such work.

Rather than an obligation, localism is an opportunity. Maybe this means making your station part of grand openings at the mall or blowout sales at area car dealerships, local sports, parades and holiday celebrations. Maybe it's news. How will people find out about an important vote at the school board meeting late last night? Will they hear about it on your station? Or will they read it a day later via TV news or two days later via an old newspaper story? City council meetings, zoning board hearings and local disasters are things that people want to know about, and the sooner the better. Or maybe you will develop a new, more creative approach to mixing it up with the people in your market.

The study reminds us that we need not take the onslaught of negative headlines passively. Radio does have assets.

The study also reminds us that we need not take the onslaught of negative headlines passively. *Radio has assets*, and more organizations need to research and promote those strengths as MAB has done.

The survey suggests a hunger for more of what you've got: the ability to get into the community and provide immediate coverage of events that local people care about. Are you listening?

★ ★ ★

What should you be doing right now to prepare your radio facility for surround sound?

It's an important question if you believe part of our future is in surround, as many do. IMAS Publishing Group is presenting a seminar to help you answer it, hosted by RW Contributing Editor Skip Pizzi, who has authored some of the best information anywhere on this topic and also co-chairs the NRSC Surround Sound Audio Task Group.

The seminar takes place in New York next month just before the AES convention. See page 61 of this issue for details.

★ ★ ★

Also of exciting note, during the AES itself, is a special session, "70th Anniversary of FM Broadcasting: A Look at Major Armstrong's Contribution to Broadcasting."

This session is moderated by Radio World's Scott Fybush of Northeast Radio Watch and organized by Radio World, AES and Steve Hemphill. It looks at Edwin Howard Armstrong's career and highlights the recent commemoration of the 70th anniversary of his public demonstration of FM broadcasting.

The discussion from this summer's event has now been expanded into a more comprehensive look at Armstrong's legacy, including insights from several people who worked with him and others who have worked to promote his achievements.

The presentation will include a visual tour of Armstrong's historic laboratory and tower site and a display of some of his artifacts, such as the original Empire State modulator breadboard, original 42-50 MHz FM receivers and the Alpine site logbooks from the world's first FM radio station, W2XMN.

Participants include Renville H. McMann, Jr., retired ex-president of CBS Laboratories; Jerry Minter, president of Components Corp.; Henry G. Dietz, president of the Henry G. Dietz Co.; Gilbert R. Houck, owner of Houck & Bowen Engineering; Armstrong amateur historian Mike Katzdorn; Charles E. Sackermann, Jr., CEO of CSC Management; Steve Hemphill, owner of Solid Electronics Laboratories; and Robert Carter Brecht, Marion Armstrong's nephew.

Time and place are not firm at this writing but you can sign up for AES at *www.aes.org*. We'll provide updated information via RW NewsBytes, which you can sign up for at *www.rwonline.com*.

From the Editor

Paul J. McLane

★ ★ ★

In this issue we take a look at sessions and issues of the upcoming NAB Radio Show.

Radio World is pleased to offer readers complimentary passes to the exhibit floor. The show takes place at the Pennsylvania Convention Center this month.

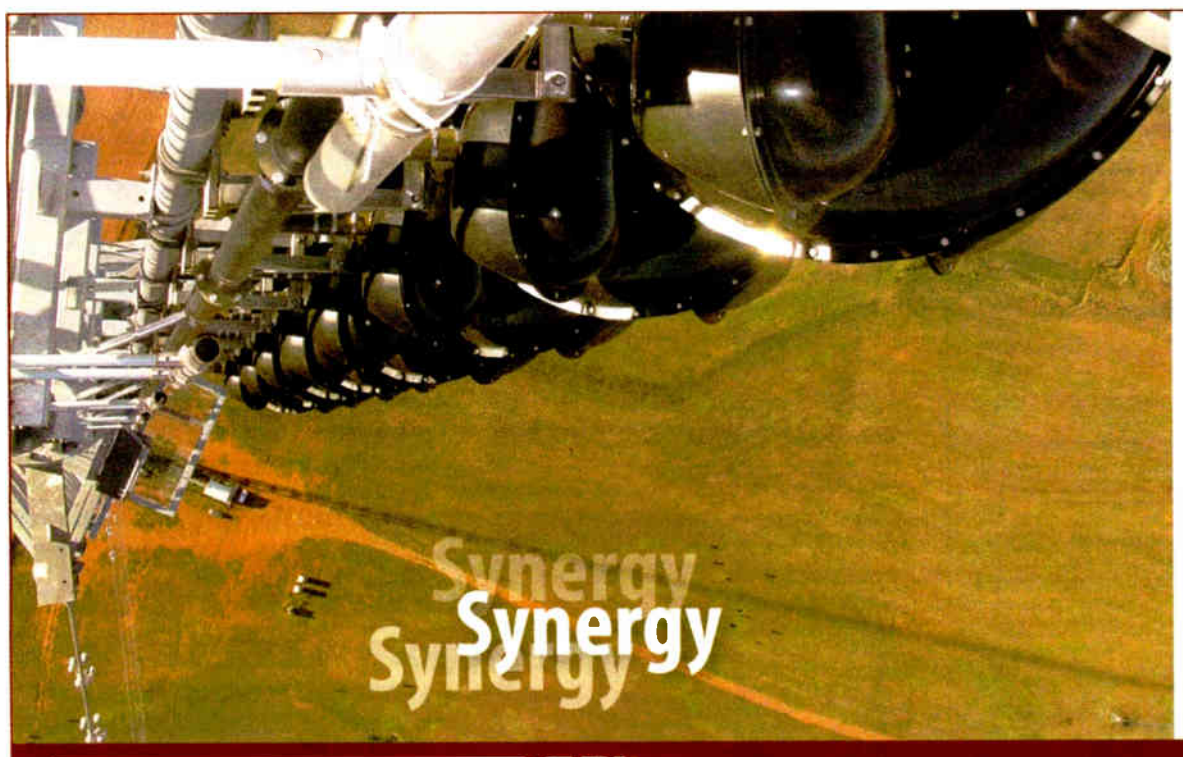
Point your browser to *https://registration.expoexchange.com/ShowNAB052/* and scroll down to VIP Exhibits; enter your Radio World complimentary pass code, CJ1794.

★ ★ ★

I told you earlier about the departure of long-time ad coordinator Simone Fewell. Now I'm happy to welcome Claudia Van Veen, new ad coordinator for the Radio World publications and Pro Audio Review magazine.

Van Veen has an extensive background in meeting/planning, marketing and ad sales coordination, among other things. Most recently she was vice president of administration for e-commerce company INFe Ventures; she is former executive manager of the Deafness Research Foundation/World Council on Hearing Health as well as former marketing, meeting and trade show manager for Kerrigan Media International.

RW advertisers will find her a friendly, helpful resource. She's at ext. 154.



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World Radio History

GUEST COMMENTARY

How to Stay Out of FCC Trouble

by David H. Solomon

The author is a partner in the Washington law firm of Wilkinson Barker Knauer LLP. From November 1999 to May 2005, he served as the first chief of the Enforcement Bureau of the FCC. He was FCC deputy general counsel from 1994 to 1999.

As the communications marketplace has become increasingly competitive and deregulated, the FCC has placed a high priority on strong enforcement of its rules. With fewer rules to enforce, the agency has become more serious about punishing companies that run afoul of the remaining requirements.

The FCC has initiated more than $100 million in new enforcement action over the past six years. Commissioners and members of Congress of both political parties have supported this tough enforcement regime.

The broadcast industry has an admirable tradition of regulatory compliance, and much of the commission's enforcement action has focused on other industries. Nevertheless, broadcasters have found themselves in the FCC's enforcement cross hairs.

That's not likely to change any time soon. This article provides some practical advice to radio broadcasters about how to avoid the FCC's wrath and, if you become the subject of an enforcement action, how to minimize its impact on your stations.

Comply

The best way to avoid FCC enforcement action is to comply in the first instance. All the persuasive arguments you and your lawyer can develop against enforcement after the fact are unnecessary if there isn't an underlying problem that needs to be addressed.

Fixing a problem once the agency brings it to your attention is not enough to keep you out of trouble. Broadcasters should have FCC compliance programs in place and make sure that they are implemented proactively. This should include training new employees and periodically requiring all employees to refresh their compliance education.

Management should take an active role in overseeing compliance and compliance education efforts. When problems occur, they should be fixed promptly.

Maintaining a serious compliance and training program will yield a two-fold benefit. First, it should ensure compliance or at least reduce the number of potential violations. Second, having such a program should enable broadcasters to establish their good faith with the FCC, which can reduce the penalty if a violation does occur.

Licensees should certainly try to comply with all applicable requirements. Nevertheless, some violations are more likely to be the subject of enforcement action or involve higher penalties than others, so focusing on those areas is particularly important.

What are some of the major high-risk areas for radio broadcasters?

Indecent Programming. Indecency, of course, has been the commission's No. 1 one broadcast enforcement area in recent years. The agency took about $8 million in new indecency enforcement action last year, *roughly four times the amount of indecency enforcement during the prior 76 years that the FCC and its predecessor the Federal Radio Commission have been in business.*

Then-Commissioner (now-Chairman) Kevin Martin, along with Commissioner Michael Copps, was at the forefront of the agency's stepped-up indecency enforcement so, if anything, the FCC will probably get even more aggressive in this area. To make things worse, Congress is seriously considering increasing the statutory indecency penalties and taking other legislative steps that could result in even stronger indecency enforcement.

It is no longer unthinkable that the commission could seek to revoke licenses for serious and/or repeated indecency infractions.

It is no longer unthinkable that the commission could seek to revoke licenses for serious and/or repeated indecency infractions.

While lots of attention has been paid to high-profile television indecency cases such as the Janet Jackson Super Bowl incident, FCC statistics indicate that more radio programs were the subjects of indecency complaints than television programs in 2004. Radio programs accounted for three times the number of newly issued Notices of Apparent Liability for Forfeiture than television stations.

Radio stations with shock jocks and those that run lots of other live programming or "edgy" songs are particularly at risk for indecency enforcement. With respect to live programming, the commission has indicated that an effective time delay is the best way for stations to protect themselves.

If your stations don't employ a time delay system, compliance training and education are even more critical. Of course, there's always the risk of the unexpected statements of a guest or even a bystander on a live program

Payola/Sponsorship Identification. Another likely "hot" enforcement area in the next year or two is likely to be payola and related sponsorship identification rules. Early in Chairman Martin's tenure, the commission issued a strong public notice about the importance of these rules and indicated a clear willingness to take strong enforcement action where warranted.

While the public notice focused specifically on the issue of video news releases and thus did not directly apply to radio, there's little doubt that the agency will respond seriously to payola or sponsorship identification violations in the radio area as well. Indeed, earlier this year, the FCC publicly announced an investigation into a potential radio payola/sponsorship identification violation.

More recently, in response to New York Attorney General Eliot Spitzer's $10 million payola settlement with Sony BMG Entertainment, Chairman Martin directed the Enforcement Bureau to conduct a follow-up investigation and indicated that the commission would take "swift" enforcement action if it uncovered violations. Commissioner Jonathan Adelstein expressed his view that the facts underlying the New York settlement "may represent the most widespread and flagrant violation of any FCC rules in the history of American broadcasting."

The number of payola complaints made to the FCC may increase in the wake of Commissioner Adelstein's recent call for the public to come forward with payola complaints — what he termed a "Neighborhood Watch" approach to payola. Stations need to guard not only against the traditional "pay for play" scenario but also against undisclosed product placement situations, or even situations where a guest comes onto a talk show and touts the benefits of a product she was given for free by the manufacturer.

Photo by Leslie Stimson

David Solomon

Remember, a broadcaster is not simply required to disclose consideration when it knows about it, but also must act with "reasonable diligence" to find out whether there has been a payment or other consideration (even during another stage of the production chain) in connection with material being broadcast on the station. This can get pretty tricky.

Public Safety. Even before 9/11, the FCC gave high priority to enforcement in the public safety area. Chairman

See ENFORCEMENT, page 6 ▶

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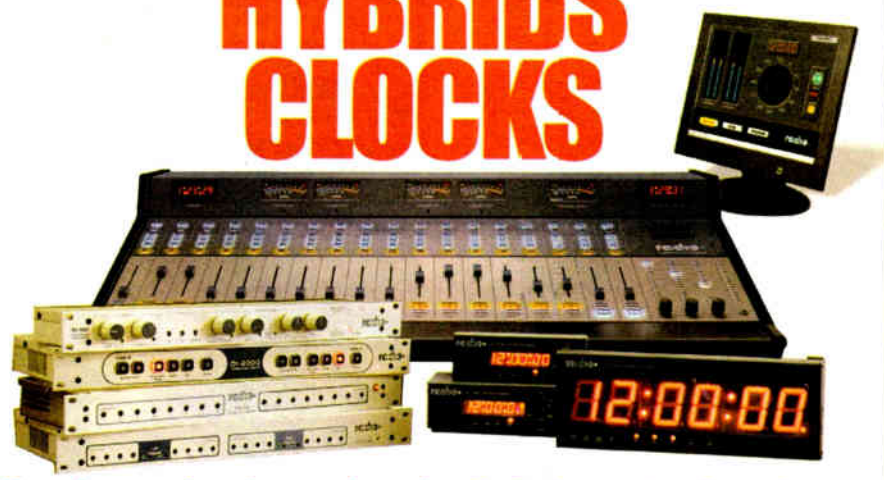

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World Radio History

TV Firm Hopes to Buy Navigauge

by Randy J. Stine

ST. PETERSBURG, Fla. Just when it looked as if in-car listening researcher Navigauge would go out of business, another media research and analysis company has stepped forward and hopes to have an agreement in place to buy the company's assets by the end of this year.

Officials with erinMedia LLC say the TV ratings provider is entering the radio data collection business through an alliance with Navigauge Inc. and hopes to someday change the business model of ratings delivery services.

Navigauge closed its doors and suspended operations in early June after negotiations to sell the Atlanta-based company to a potential buyer collapsed. It released 18 employees, including CEO Tim Cobb and Carl Ceresoli, technical expert and co-founder of the company (Radio World, Aug. 3).

Frank Maggio, erinMedia Chairman and CEO, declined to discuss specifics of the pending agreement. He said he hopes the deal is finished in the fourth quarter.

Fast deal?

"We are confident we can reach an agreement. It should be a fast transaction. This is an opportunity to bring together complimentary technology-driven media measurement systems. We believe the Navigauge in-car measurement devices are superior to diary methodologies," Maggio said.

Navigauge analyzes radio listening data collected from passive technology installed in the cars of panel members.

> **We are confident we can reach an agreement.**
>
> — Frank Maggio, erinMedia Chairman and CEO

The company's IQMonitor radio audience measurement device, which incorporates global positioning technology, is installed in about 500 vehicles in the Atlanta area. The service measures media consumption by each person in the car.

"It's passive, inclusive and accurate data of in-car listening that can benefit advertisers and radio broadcasters. The methods deliver relevant results without relying on listener's memories. We must convince broadcasters that this is more than just an add-on service," Maggio said.

Maggio said Navigauge "deserves its fair share" of the current ratings market and will "review the business practices of Arbitron and others in the ratings industry" and the practices they use.

"In-car listening is a huge percent of listening time and we'll be the best at measuring that," Maggio said.

At competitor Arbitron, Vice President of Communications Thom Mocarsky said radio needs an audience measurement system that works no matter where listening occurs: at home, at work or in the car.

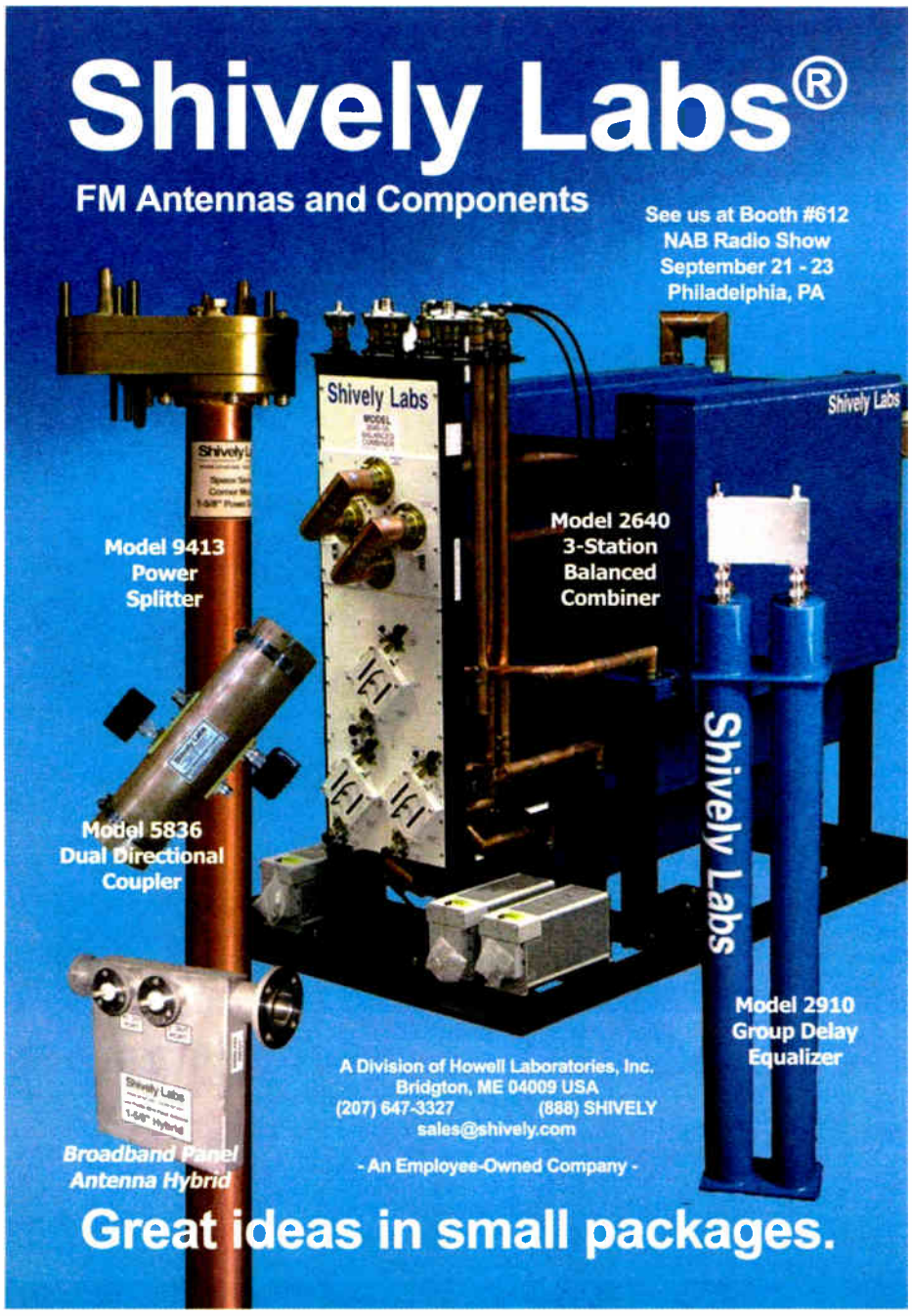
"By being an appliance-based, in-car only solution, Navigauge misses 60 percent all of radio listening which takes place at work and in the home," he said.

"They also have no direct measurement of demographics since they don't know who is in the car, they only know what the receiver is tuned to. That's why (the Arbitron) persons-based measurement is superior to such an incomplete solution, no matter how high-tech it may look," Mocarsky said.

Antitrust matter

erinMedia has taken on an established player in another niche. The television audience analysis firm, with ReacTV, filed an antitrust lawsuit in U.S. District Court for the Middle District of Florida, Tampa Division, against Nielsen Media Research in June contending that Nielsen has a monopoly over television ratings. The suit seeks to end Nielsen's grip over television ratings research by voiding its staggered long-term contracts with TV networks to allow customers to take advantage of erinMedia's interactive set-top box technologies.

See NAVIGAUGE, page 7 ▶



Enforcement

▶ Continued from page 5

Martin was a strong supporter of public safety as a commissioner so it can be expected that the agency will continue active enforcement on such matters as the Emergency Alert System, tower lighting and painting, RF radiation limits and AM tower fencing.

Such "localism" requirements as the main studio rule, the public file rule and the quarterly issues/programs list will also likely continue to be important enforcement areas.

Tell the truth

Once a complaint is filed against you, or the FCC does begin investigating you, the single most important thing you can do to help yourself is to be forthcoming and tell the truth. Companies under investigation for relatively minor offenses can get themselves in much worse trouble by trying to hide the facts or lie.

Leaving morality aside, there's a reasonably good chance you are going to get caught. When you do get caught, you are going to be in deep trouble, with your licenses potentially at risk. So be responsive and be honest.

In addition to providing a truthful and complete response to the FCC's inquiries, you should also use the investigation as an opportunity to put forth your best legal and policy arguments against enforcement action. While it's never a good thing to be investigated by the FCC, if it happens, you should take every opportunity to present your best case and not simply respond to the questions directed to you by the commission.

The Enforcement Bureau staff will read carefully what you provide. If you have a good case and present it well, you will prevail.

Think 'Consent Decree'

If it looks like the FCC may be heading toward a proposed forfeiture (or, even worse, a revocation hearing), you may want to propose entering into a Consent Decree with the commission. A typical Consent Decree will not include a finding of a violation or an admission of liability.

The company will make a voluntary contribution to the Treasury in lieu of a monetary forfeiture and commit to certain compliance measures that often go beyond the requirements of the rule itself. The key to getting a consent decree is making clear in discussions with the commission that you recognize you had some problems and you are committed to ensuring that they don't happen again.

Don't be stupid

There is a lot of commission case law in the enforcement context that gives guidance regarding what arguments work and what arguments don't work. Many broadcasters seem to be unaware of this case law or decide to ignore it. This is not a good idea.

During my tenure as chief of the FCC Enforcement Bureau, I saw many of the same old unsuccessful arguments over and over again. Some of my favorite bad arguments include those along the following lines: "We think the rule is stupid," or "We think the FCC is stupid," and "We think Congress is stupid," and also "We think the courts are stupid."

Of course, as bad as these arguments are, they aren't as nearly bad as saying to an individual decision-maker that, "We think you personally are stupid." I heard that one too.

It may feel good to say it; but trust me, it won't help you.

You are also not likely to avoid enforcement action by arguing that your company is too big to ensure compliance at all its many stations, that you have a unique format that provides special public interest benefits or that you fixed the problem as soon as the commission told you about it.

As to arguments that can help you, the best I can tell you here is that you should focus on the facts, the law and any important underlying policy considerations in a clear, dispassionate and persuasive manner. And, to return to where I started, the more you can say about your compliance efforts the better.

RW welcomes other points of view.

World Radio History

Navigauge

▶ Continued from page 6

Maggio said erinMedia uses advanced database technologies and proprietary intellectual software to collect second-by-second viewing stats from advanced TV set-top boxes. The passively collected data is combined with statistics from independent data sources, including audience behavior, size and demographic composition.

The suit contends that using outdated audience measurement technology costs consumers in the long run by causing advertisers to sell their products at higher prices, Maggio said.

"There is a lot of wasted advertising dollars and an under-representation of minority viewers, which results in the homogenization of American television programming," Maggio said.

Maggio declined to speculate whether Navigauge eventually would use similar legal tactics against Arbitron.

"We will extend an olive branch to Arbitron to maybe work together. We think there is a unique synergy between what products we offer. It could be a hard pill for them to swallow. We should be allowed to compete," Maggio said.

In comments to Radio World, analysts have said it would be difficult for any company to compete head-to-head against Arbitron without a large investment.

Long-term obstacles

It's not clear if any of the 18 Navigauge employees released from their jobs in June would be re-hired should the deal go through, although Maggio said in a perfect world he'd "like to bring back as many as possible" to join the combined entity. It's likely former Navigauge Senior Vice President Drew Simpson would re-join the company if a deal is completed, according to Maggio.

Simpson confirmed there is mutual interest for him to rejoin the company if things work out.

"They have some very capable people ... very bright engineers. A lot will depend on if we relocate Navigauge to our headquarters in St. Petersburg," Maggio said.

Navigauge is based in Atlanta and continues to collect data in that market using the company's IQMonitor radio audience measurement device. The company placed on hold its plans to launch in Houston later this year after June's developments.

Simpson admits Navigauge faced a daunting challenge, and despite ambitious deployment plans, never gained the momentum needed to succeed on its own without additional investor money.

"Most or all radio broadcasters in large markets have signed long-term, high-dollar contracts" with ratings services, he said. "This has removed nearly all ratings dollars from markets."

Maggio, who purchased the majority of assets in erinMedia late last year, envisions a complete overhaul of the current business model in the ratings research industries.

"I think broadcasters and agencies need to become partners in this business ... to provide greater access for them to participate," Maggio said. "I view broadcasters and the advertising community as an important part of the business model and the ultimate success of Navigauge."

Sneak Peek at HD Radio Show News

Several companies will promote products or services related to HD Radio at the NAB Radio Show this month.

Ibiquity Digital plans a demonstration kiosk for the show floor so attendees can see how its new Web site, the HD Radio Playbook, works. The company also will announce winners of its HD Radio promo contest.

Radiosophy was cooking up a giveaway of receivers to the winners of drawings held at the end of each day on the exhibit floor.

Broadcast Electronics plans to demonstrate a studio system integrating AudioVault audio, SoniXtream streaming and Now Playing text for on-air, Internet, RDS and HD Radio delivery platforms. The company will feature its 4MX 50kW transmitter.

The FXi digital FM exciter, XPi 10 Data Exporter, IDi 10/20 Data Importer and other transmission products will represent the company's HD Radio technology for second-generation multicasting and data services.

Harris plans to show its Flexstar HDX-FM exciter and the Intraplex NetXpress platform for transport of audio over IP.

As part of a multicasting demo, Harris NeuStar products that enable stations to offer 5.1 surround sound will be displayed. Day Sequerra HD Radio monitors will demodulate IBOC signals as part of the multicast demo; Harris is a Day Sequerra dealer.

NPR will reveal details about the contents and its partners for its five new multicast programming streams. This month, the network is launching the 24/7 channels for member stations for use on supplemental audio channels. Formats include classical, folk, electronica, jazz and Triple-A.

NPR initially will support these for two years; it eventually would like to offer more channels, said Manager of Programming and Acquisitions Eric Nuzum.

For convention preview coverage, see page 17.

— Leslie Stimson

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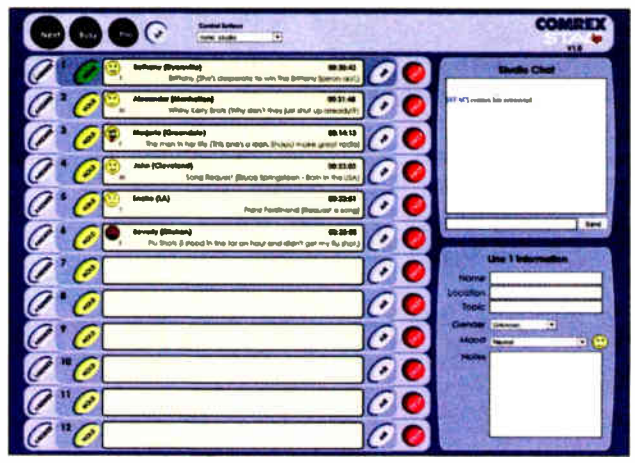

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World Radio History

Multicast

▶ Continued from page 1

decision-making and in the choices automakers would make.

Members of the National Radio Systems Committee are sifting through display options for multicasting stations on HD Radios. In August, they invited station programmers and marketers to give their input during a demonstration held at NAB headquarters.

Representatives of Delphi, Kenwood, Radiosophy and Boston Acoustics provided engineering prototype receivers for an off-air, one-hour demo of various station multicasting designation possibilities, committee members told Radio World.

Several Washington FMs participated in the demo including non-commercial WAMU and WETA, Howard University station WHUR, Radio One station WMMJ and Clear Channel stations WIHT, WBIG, WMZQ and WWDC.

Photos by David Layer

Engineering prototype HD Radios were used in the multicast station ID demo including models by Boston Acoustics, Delphi, Radiosophy and Kenwood (clockwise from upper left).

Designations

The idea was to see various displays and tuning schemes and let participants switch back and forth among HD Radio stations, multicast stations and analog stations for discussion purposes.

"This is an issue that surfaced in a technical forum, but it is really a marketing issue," said Milford Smith, vice president of radio engineering for Greater Media and co-chair of the DAB Subcommittee of the NRSC. The marketers and programmers who were invited, he said, provided valuable input during the meeting.

Currently, receivers that decode split digital streams designate additional channels by associating them with the main channel. A display might read "WXYZ HD-1," "WXYZ HD1," "98.7-1" or "98.7-HD1." Other displays show the supplemental channel designation within a circle or a square, such as "WXYZ①."

A big question is whether the display for supplemental audio channels should remain tied visually to the main channel, a discussion that ventures into format and marketing.

Jeff Marrah, manager of receiver technology for Delphi and co-chair of the task group working on the supplemental audio identification issue, said broadcasters consider the channels to be a "value-added" service and want them to be marketed as something new yet found easily on the dial.

In the first generation of receivers that can tune supplemental channels, a unit tunes to the main station first, then to the supplemental audio channels in order: WXYZ's main digital station; then to WXYZ HD1, which is the first supplemental after the main HD station; then WXYZ HD2 and so on.

For a station with formats on the additional channels that are in some way related to the format of the main channel, this display scheme works. But some programmers want to have a distinct, separate way of identifying the supplemental channels.

Dave Wilson, liaison between the Consumer Electronics Association and the task group, said the committee is looking at a new numbering approach, one that would give consumers the illusion of a new band for the "new" stations, as well as variations of the current numbering scheme.

Using this method, the listener would not see the radio tuning to the main and then supplemental channels; the listener would see only the supplemental designation appear on the display.

In the new numbering scheme, 88 MHz to 108 MHz becomes 200.1 to 299.7 for the supplemental channels. For example, the supplemental digital channels for a station on 88.1 would appear as 200.1, 200.2 and so on.

Proponents say this approach gives radio the chance to have the appearance of a completely "digital" band. But this also raises the question of whether and how to list stations that remain analog, sources said.

How radio receivers acquire the signals of the new channels, how fast that happens and how the tuning is affected by whether the user is tuning up or down, are factors under review.

Radio tuning or scanning is straightforward going up the dial; the receiver tunes the stations in order, first the main and then the supplemental channels in order.

Coming back down the dial, Wilson said, logically you'd want the receiver to tune to the channels in the reverse order, beginning with WXYZ HD2, WXYZ HD1 and then the main WXYZ. "But the receiver has to tune to the main (channel) first, find the others and then go backwards," he said. "Would the delay while it's been doing that be objectionable for listeners?"

Acquisition times in the demos at NAB, with multicast tuning as currently implemented in the prototypes, were roughly 5 seconds. That length of time would vary depending on the make of receiver and reception characteristics, committee sources said. Most described the delay as not onerous.

However, the delay would not be eliminated in the new band approach and could be lengthier without the analog backup, said a receiver maker.

Smith said most manufacturers provide an indication on the display, such as the word "Linking," while the radio is tuning so a user knows something is happening during the wait. This becomes more important in instances when the radio does not automatically blend to analog.

When the digital signals are split, the first HD Radio signal has a backup analog signal no matter the bit rate, Smith said. But subsequent channels do not; they remain digital.

When an all-digital signal is lost, the receiver mutes, like a satellite receiver does, one manufacturer said. The unit stays on that channel until the signal is reacquired or the user tunes away. When this happens on Delphi products, "No Signal" is indicated on the display.

The task group is looking at situations under which a digital signal has analog backup and how that factors into signal acquisition.

No frustrations

Yet while various tuner displays can distinguish HD Radio stations, any future changes must be balanced against cost considerations for receiver manufacturers. Getting HD Radios in cars is critical to generate volume digital receiver sales, experts believe.

OEM receiver makers are stressing the importance of keeping costs down because automakers can veto radio features.

An auto company executive knows the selling price of a new car before it's built, Marrah said. That executive is given budgets for materials and labor.

"He's asking, 'What's going to help me sell that car?' If he doesn't perceive that (a new feature) will help bring people into dealerships, he won't spend a penny on that," Marrah said.

The group also is taking into account the amount of space on the radio to display text, especially important in an OEM design, and it doesn't want to obsolete radios already in the market that are able to decode multiple digital signals.

Above all, industry experts say, they want any display scheme to be simple for the user.

"Break their understanding, and all you do is frustrate them," according to one receiver manufacturer, who said the last thing the task group wants is to force users to have to look at the manual to figure out how to tune to the multicast stations on HD Radios.

Confusion is a notable issue for OEM receiver makers because a driver's main focus is supposed to be the road.

"The challenge is ... when the customers are confused, they don't just

See MULTICAST, page 10 ▶

Audemat-Aztec
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FMB80
R·D·S encoder
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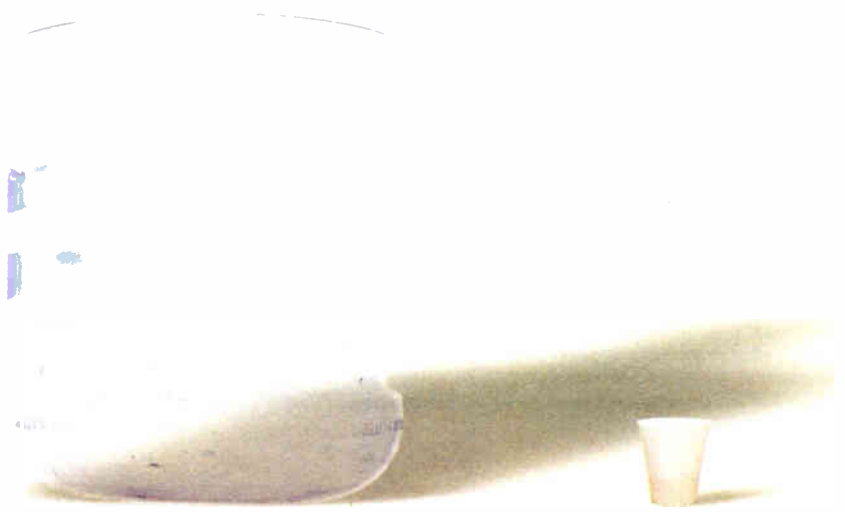
World Radio History

Multicasting.

It's like trying to fit —

well, you know.



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World Radio History

Multicast

▶ Continued from page 8

bring the radio back. They bring the entire car back," said Marrah.

In these cases, while auto dealers are paid to swap out an old radio for a different one, the receiver maker and the auto manufacturer pay the added costs of the new radio and labor, he said.

not attend reportedly told at least one participant that getting an extra button for the supplemental digital channels was "about as likely as getting a second steering wheel in the car," several sources said.

For real?

Several receiver manufacturer representatives on the NRSC told Radio World they hope automakers will become excited about installing HD Radios in vehicles and adopt the multicasting feature.

Delphi, Kenwood, Radiosophy and Boston Acoustics provided engineering prototype receivers for the off-air demo in Washington of possible stations designations.

"The price of failure is much higher when you get into the OEM market."

Some broadcasters like the idea of a special button dedicated to the supplemental channels. Receiver makers believe OEMs are unlikely to find this cost-effective.

Buttons on the radio are expensive and the "real estate" is dear, committee sources said, adding that there are priorities "higher than HD Radio" when it comes to retooling a button for that purpose.

An OEM receiver maker who did

In August, Ibiquity Digital, Greater Media, Boston Acoustics and Radiosophy took part in a media display of the available HD Radios in Detroit in an effort to show automakers that HD Radio "is for real," as one source put it.

No clear timeline is in place for when the task group would turn findings over to the DAB Subcommittee or what form they would take. Results would not be seen in HD Radio multicast receivers until approximately the 2009 OEM model year, participants said; OEM makers have indicated they have completed 2008 designs.

Some wonder if this discussion isn't too late, thinking that by 2009 users will have become used to multicast tuning as it is today.

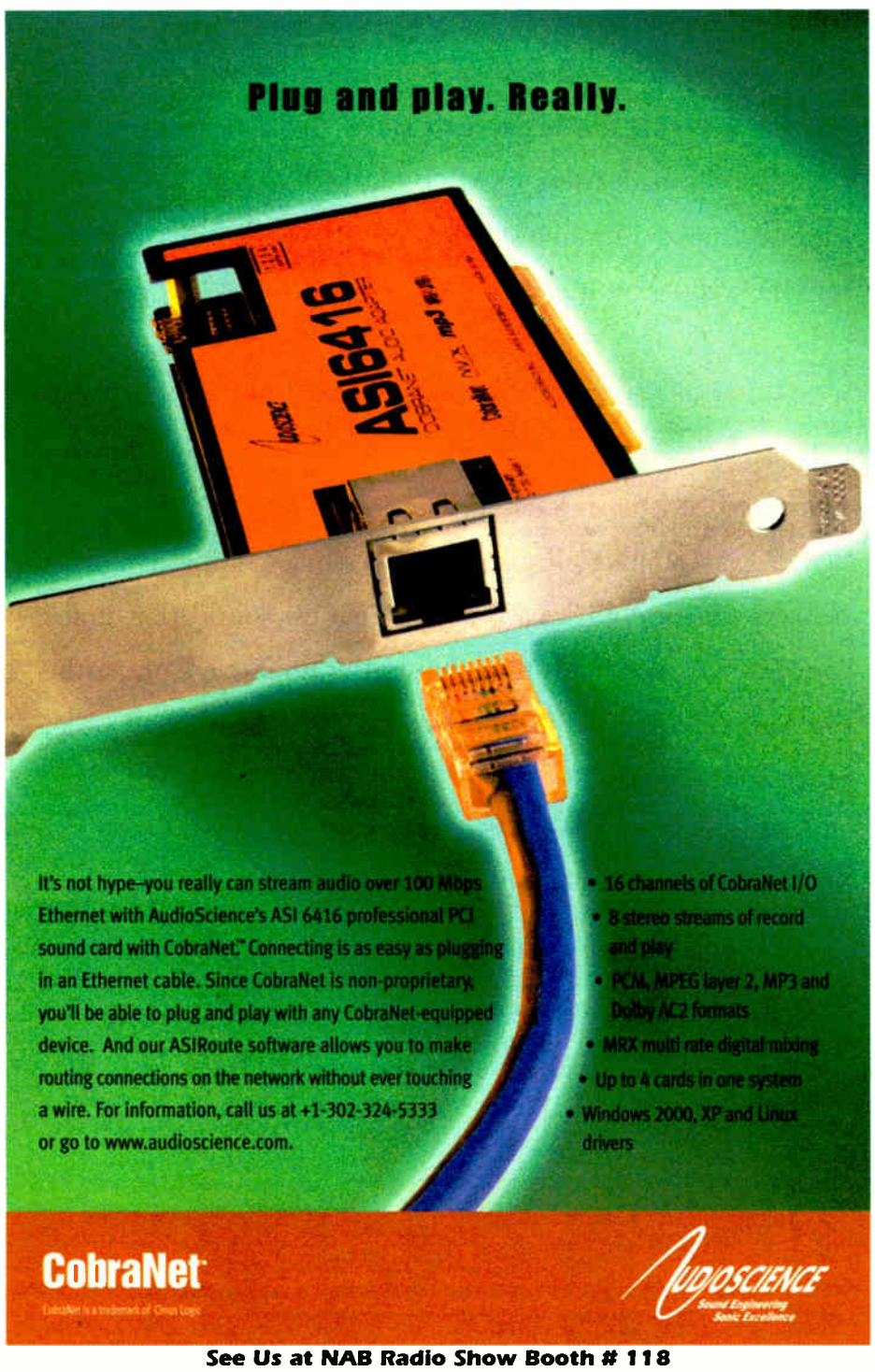
"Uncertainty about what is happening in this whole debate makes automakers hesitate. It behooves us to decide a path and go forward," one source said.

Approximately 60 people participated in the discussion at NAB, Smith said. The programmers and marketers represented radio groups that are members of NRSC. They were asked to fill out and return surveys on the topic. Whether those would be made public was unknown, Smith said.

Multicast Station Displays

Is one of these examples the style in which your station name will appear on future radios?

WXYZ HD-1
WXYZ HD1
98.7-1
98.7-HD1
WXYZ①
200.1



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▶ NEWSWATCH, continued from page 3

"SBE accreditation addresses commitment of the individual to the task of providing frequency coordination."

An "Accreditation Pledge," SBE said, "assures that consistent services will be provided."

For more Information and an application form, visit *www.sbe.org*.

Powell Joins Investment Firm

PROVIDENCE, R.I. Former FCC Chairman Michael Powell has joined Providence Equity Partners Inc. Reuters quoted CEO Jonathan Nelson saying Powell will help target and pursue new opportunities for Providence "in his areas of expertise."

According to the company Web site, the private investment firm specializes in equity investments in communications and media companies. Its target investment size per deal is between $20 million to $500 million; it counts radio and television companies as part of its portfolio.

HD Radio Offers Competition to Satellite

BOSTON Will HD Radio dampen automakers' love affair with satellite radio?

Car OEMs may cool a bit on satellite radio as the satcasters add more portables to their lineups and HD Radio becomes a factor in cars, according to a survey from New Strategy Analytics research. So automotive OEMs should be cautious about introducing satellite digital radio options, despite increasing adoption of satellite, the company stated.

It predicts the market for in-vehicle satellite digital radio in North America will increase from 5.2 million units in 2004 to 12.8 million by 2011, in terms of OEM and aftermarket shipments. XM and Sirius reported a combined total of 6.2 million subscribers at midyear.

Satellite radio growth won't automatically translate into the auto market, says Analytics, and growth in general will slow down toward the end of this year. In-vehicle satellite radio will face competition from portable satellite radio devices and HD Radio.

Heavy marketing for satellite radio for those car buyers who were given initial free subscriptions or a reduced price won't necessarily translate into 100 percent auto adoption, Analytics believes.

"XM and Sirius face competition from Ibiquity's HD Radio. However, Ibiquity now needs to shift focus from radio station upgrades to consumer system upgrades," stated Clare Hughes, analyst with the Strategy Analytics Automotive Multimedia & Communications Service.

"There has been significant investment in terrestrial radio station upgrade by Ibiquity; however this now needs to be translated into revenue."

In Other News

In other radio industry news:

dMarc, owner of Scott Studios and Computer Concepts, moved support employees for the Maestro automation product to a new office in Overland Park, Kan., near Kansas City. Sales and customer service are in Dallas at Scott Studios; dMarc headquarters is in Newport Beach, Calif. ...

Griffin Technology is taking orders for the $49.99 iFM, an FM tuner accessory for an iPod.

"With the flip of a switch users can now switch seamlessly between controlling their music library and listening to their favorite FM radio programming," the company says. The unit allows the consumer to record voice via the internal mic, or to record FM stations to the iPod. ...

Larry Bloomfield was named SBE's Educator of the Year. He publishes a technical online newsletter and conducts a road show called "Taste of NAB." In addition to TV and radio engineering experience, he has been an instructor at Southwestern College and Guam Trade and Technical School. The Broadcast Engineer of the Year is Ted Szypulski, director of engineering special projects for ESPN. ...

WorldSpace issued an initial public

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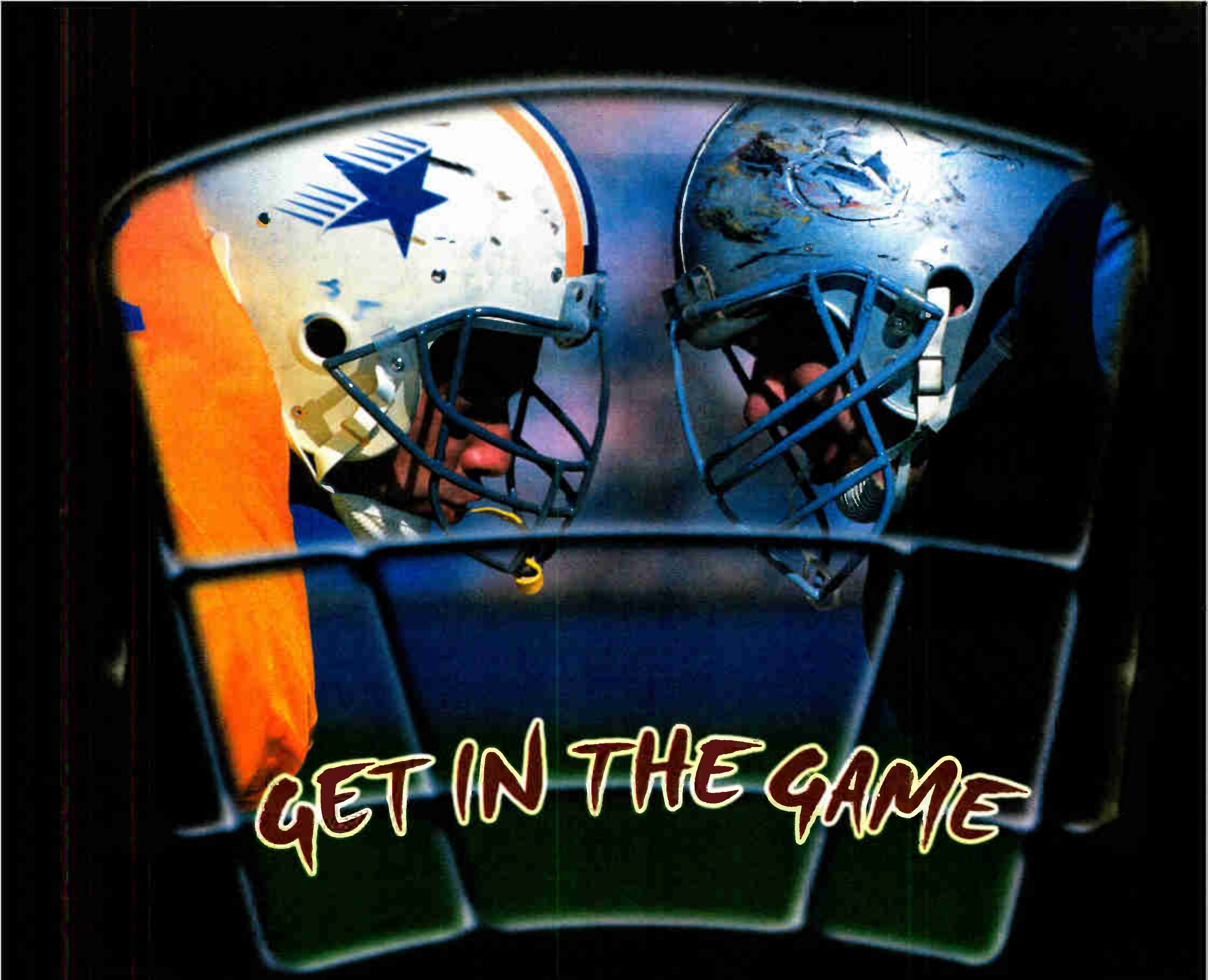
World Radio History



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World Radio History

Will Surround, HD Radio Get Along?

NPR and Stations to Test Surround Compatibility, Multipath Issues

by Leslie Stimson

In addition to pondering the future appearance of radio displays (story, page 1), broadcast engineering experts are looking deeper into surround sound as it relates to HD Radio, and NPR now is studying the issue.

An NRSC task group has been investigating the various surround encoding technologies to determine their compatibility with HD Radio. As reported here earlier (June 8, page 2), members heard a demo in May of the schemes offered by Dolby Labs, SRS Labs, Neural Audio and the "MPEG group," a combination of the Fraunhofer IIS/Agere and Coding Technologies/Philips proposals.

Fraunhofer developed MPEG AAC, hence the name MPEG group. Processing company Telos/Omnia/Axia also has aligned itself with this system.

In the May demo, participants asked how so-called "matrix" surround systems might affect a station's analog signal when surround-encoded bits are transmitted by stations operating IBOC in the hybrid mode; they also want to know if multipath could be an issue, according to Steve Fluker, co-chair of the task group and DOE of Cox Radio station WMMO(FM) in Orlando, Fla. Previously, the group had only considered the effect of the surround transmission on the digital signal, he said.

A matrix is a mixed system, said Fluker, in which the audio is upconverted in the production room from stereo to surround and has surround data embedded in it.

Stations would air the upmix on their digital and analog streams.

The surround technologies from Dolby, SRS Labs and Neural are considered matrixed systems. Neural says its system is not matrixed, describing it as watermarked; but for these tests it is being handled like a matrix system because the NRSC considers them similar.

The MPEG system is HD-only. "The MPEG surround (system) sends the data channel along with the HD Radio signal; that tells a receiver how to decode surround sound," Fluker said.

> **The issue is when we encode a song with surround sound and we play it through our automation system, the encoded mix will be on both the digital and analog signals.**
>
> — Steve Fluker

An advantage claimed by the MPEG group is that a signal transmitted on the analog stream would be conventional stereo and not unusually susceptible to multipath degradation, a task group source said.

"If you encode surround with a matrix system, you could introduce out-of-phase information into the stereo signal that would be a problem in the analog stream," the source said.

NPR is looking at the matter and hoping to report its findings to the group. Both Fluker and NPR made it clear these are not official NRSC tests.

Testing system accuracy

Jan Andrews, senior engineer for NPR, said the first phase is to test the systems of Dolby, SRS Labs and Neural, to see if degradation to the analog is as severe as some think it could be. "Nobody's tested it," Andrews said.

The matrix-type systems take the 5.1 surround sound from a recording or live performance and collapse it or "downmix" to stereo in production, using an encoder to create the downmix.

The mix typically is stored on a hard-drive automation system and encoded for surround sound so the station can broadcast the material. That "upmix" is broadcast on both the analog and digital signals and can be heard on receivers that decode surround sound.

Questions committee members are asking include: How accurate are the systems in reproducing the original audio? How do the downmixing and upmixing affect "listenability"? Can a station transmit its HD Radio signal in surround sound without damaging its analog?

"The issue is when we encode a song with surround sound and we play it through our automation system, the encoded mix will be on both the digital and analog signals," said Fluker.

In the second phase, NPR will subjectively compare the three analog/digital systems, then evaluate those and the digital-only MPEG system.

In August, NPR was assembling a test protocol that would use samples of different kinds of audio with light and heavy processing, sending it through a multipath simulator. The testing would be real world, said Andrews with encoding and decoding completed on hardware in the lab rather than only on software. Fluker said the source audio would use a standard 44.1 sample rate.

NPR, funding the tests with money from technology research and development initiatives handled by its Engineering and Operations division, also is planning to test interoperability of the surround systems.

Participants want to see what would happen, for example, if a station uses one surround system, say Dolby, with its transmitted signals, and a listener has a tuner that uses a different surround decoder, say SRS.

For the first phase of the testing, Andrews said, NPR planned to work with member stations WGUC(FM) in Cincinnati and KUVO(FM) in Denver. Although it's hard to predict when preliminary data from the tests would be available, it's possible some figures could be ready for public consumption by the convention of the Audio Engineering Society in October, Andrews said.

AES too

Concurrent with the NPR tests, the Cincinnati chapter of AES was planning subjective testing of the three matrix surround sound systems for early September in association with Sonic Arts, Fluker said. The AES would also share its findings with the NRSC, Fluker said.

A timetable for the task group to announce results or make a recommendation to the DAB Subcommittee was unclear. The group has leeway; it could choose to make no recommendation about which surround systems are compatible with HD Radio, or go as far as recommending a formal standard.

A receiver source told Radio World practicality is an issue with this topic. He questioned whether a receiver maker would license several surround technologies regardless of whether a customer would use them all.

◆ NEWSWATCH ◆

▶ NEWSWATCH, continued from page 2

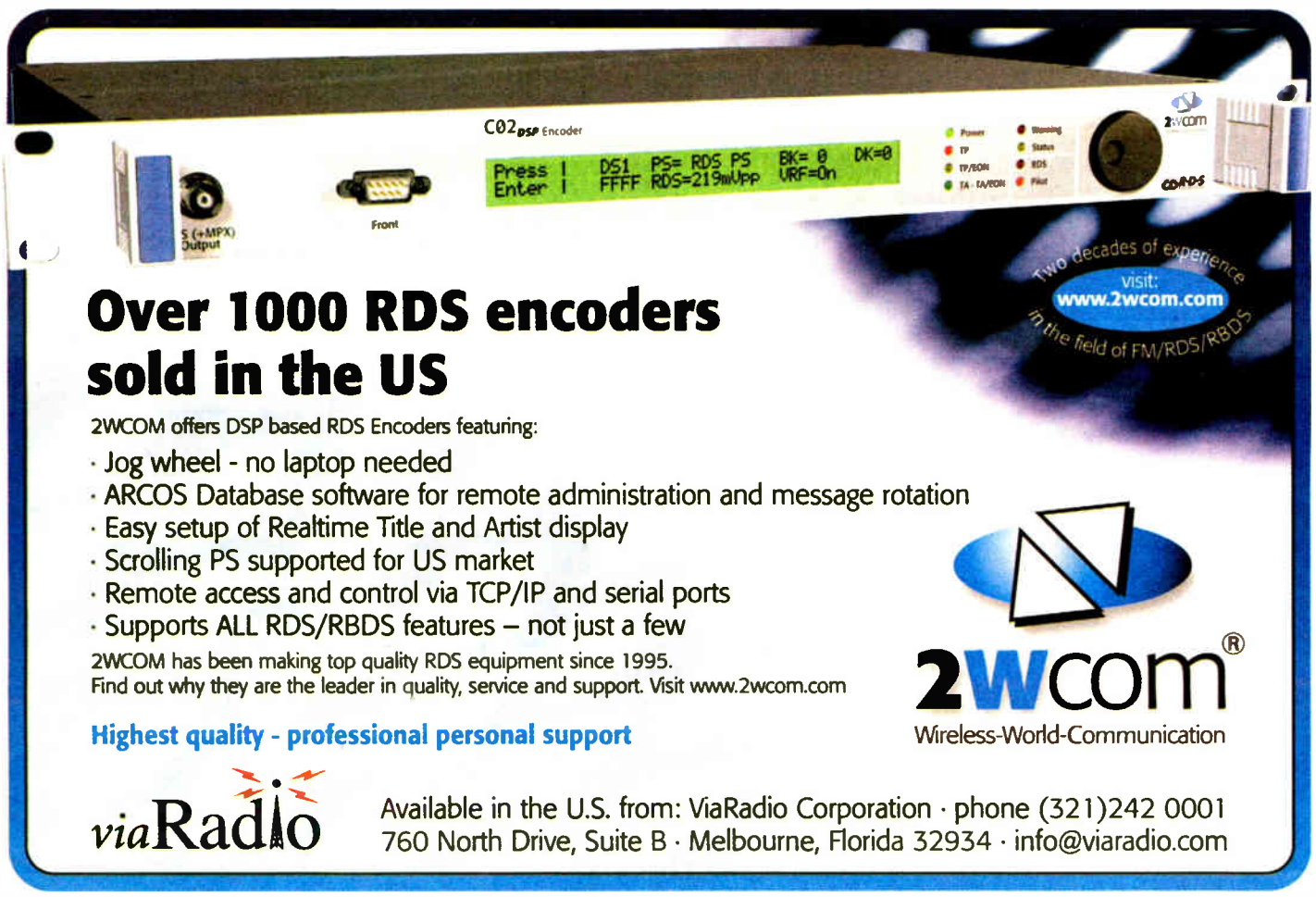
offering and trades on the NASDAQ National Market under the symbol WRSP. WorldSpace, headquartered in Washington, will soon move to Maryland. It has two satellites, AfriStar and AsiaStar, that can reach populous areas that include India, China and most of Western Europe. ...

RFE/RL will move from the center of Prague to the outskirts after 10 years in its current location, citing safety and technology reasons, Bloomberg reported. The move will take about two-and-a-half years and affect some 400 employees. Radio Free Europe signed a 15-year "build-to-lease" contract with a Luxembourg-based developer, according to a statement it released. ...

Senior **U.S. and Mexican officials** signed protocols they say will significantly reduce the chance of life-threatening, cross-border interference in critical radio networks.

The protocols cover the 380-399.9 and 406.1-420 MHz bands. A State Department spokesman issued a statement saying the accords will benefit federal first responders, federal law enforcement, military security networks, federal emergency management and other federal radio communication networks in the border area.

The two sides also are continuing talks about the introduction of digital radio and protecting Channel 6 TV from FM interference, according to the State Department.



World Radio History

The world's best-sounding POTS codec.

At Telos, we're obsessed with quality audio. We were the first to marry DSP with broadcast phone hybrids to achieve clean, clear caller audio. We invented Zephyr, Earth's most popular way to send CD-quality audio over ISDN. And now our DSP experts have built the **best-sounding POTS codec ever — Zephyr Xport.**

Instead of proprietary algorithms, we chose **MPEG-standard *aacPlus*®**, the same coding used by XM Satellite Radio, Digital Radio Mondiale, Minnesota Public Radio, Apple Computer and many others to deliver **superior audio at low bit rates.** (An optional ISDN interface lets Xport connect to Zephyr Xstream with Low-Delay MPEG AAC, or with nearly all third-party ISDN codecs using G.722.)

There's no need for a studio-side POTS line. Your studio's Zephyr Xstream receives Xport's POTS calls via its existing ISDN line, **eliminating the cost of a second POTS codec** and delivering smooth, clear digital audio to your listeners.

And Xport **makes unexpected modem re-training extinct** thanks to custom DSP algorithms that extract stable performance from even marginal phone lines. Xport gives you **surprisingly clean 15 kHz remote audio at bit rates as low as 19 kbps.**

No wonder clients tell us Zephyr Xport is the world's best-sounding POTS codec. But don't take their word for it — hear it for yourself.

Zephyr Xport: **It's all about the audio.**

Two-input mixer with sweetening by Omnia, switchable Phantom power, and send / receive headphone mix make life on the road easy.

Ethernet port isn't just for remote control: feed PCM audio right into the codec from any Windows™ laptop. Great for newsies on the go.

Xport's *aacPlus* and Low-Delay MPEG AAC deliver superb fidelity. G.722 coding enables connections with 3rd-party codecs, too.

Xport lets you easily send and receive audio using a cell phone headset jack. Gives a whole new meaning to the phrase "phoning it in."

Telos

AUDIO | NETWORKS

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World Radio History

'HD Radio Playbook' Promotion Tool Debuts

COLUMBIA, Md. Ibiquity Digital has replaced its HD Radio marketing book and CD with an interactive Web site. Called the "HD Radio Playbook," the site was designed by Ibiquity Digital and Media Arts & Sciences, an electronic media consultancy.

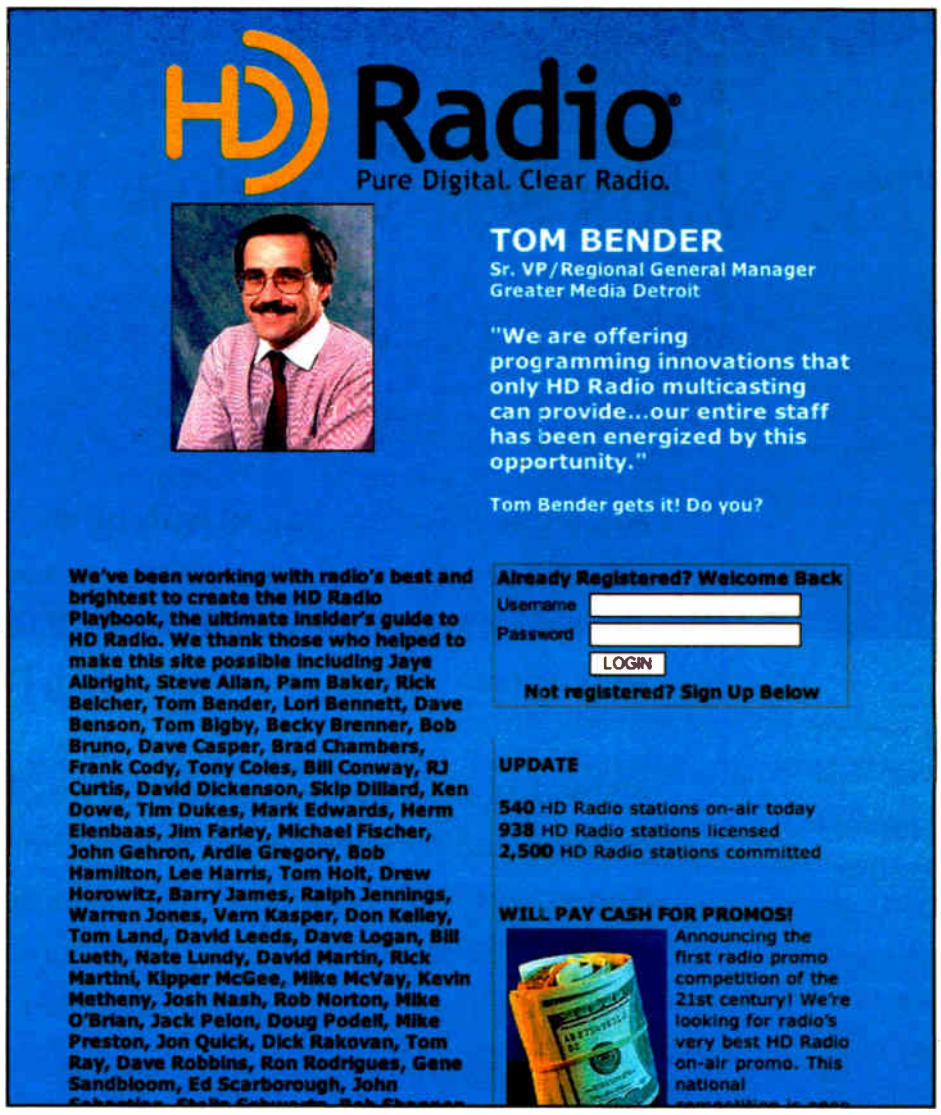
David Martin, chief executive officer of Media Arts & Sciences, said planning for the site began in January.

Ibiquity Digital President/CEO Robert Struble "wanted a site by radio people and for radio people. Everything's in there because radio wanted it."

sumer electronics retail environment, a retailer's profit margins shrink as a product becomes more mainstream, meaning broadcasters will need to drive demand for HD Radio. Larger retailers tend to wait to "get behind a concept" until consumers walk in the door and ask for it, he says.

White papers for downloading cover the audio delay necessary between the digital and analog signal and the data opportunities of HD Radio.

The "Toolbox" portion of the site helps users execute their promotions. Martin's company will update material



The names of several programmers consulted about the HD Radio Playbook site appear on its home page.

Using a password obtained from Ibiquity, stations promoting HD Radio have free access to the site.

Programmers gave input to Ibiquity about the site. The goal is that station employees can share ideas using the site, discussing their HD Radio promotion experiences.

For example, some stations are sending HD Radio liners and tags to be uploaded onto the site so that others can hear them. HD Radio logos used by various stations and photos of their decorated vans are available.

Portions of the site target various job types, such as general managers or PDs. Tips include checklists for a department head leading his or her first station meeting about an HD Radio conversion, updates on receiver availability and advice on how to approach retailers with promotion ideas.

For example, on the site, Bernie Sapienza, Ibiquity vice president of retail business development, states that based on the economics of the consumer electronics retail environment, a retailer's profit margins shrink as a product becomes more mainstream, meaning broadcasters will need to drive demand for HD Radio. Larger retailers tend to wait to "get behind a concept" until consumers walk in the door and ask for it, he says.

frequently, he said; Ibiquity is paying an undisclosed sum for creation of the site and its upkeep.

Using a password obtained from Ibiquity, stations promoting HD Radio will have free access. Martin said behavior on the site is being tracked, so his company and Ibiquity can keep tabs on what material is and isn't useful.

As an incentive to use the site, Ibiquity is sponsoring an HD Radio promo contest with a total of $15,000 in cash prizes. Awards will be given out for best AM and FM promotions, best copy, a writers' award and an independent producer award. The Best in Show award is $10,000; other winners will receive $1,000. Winners will be announced at the NAB Radio Show.

The site is *www.hdradioplaybook.com*.

— Leslie Stimson

FCC Regulatory Fees Rise 2.6%

FCC regulatory fees increased 2.6 percent for 2005, to more than $280 million for all the industries the agency regulates. For broadcasters, the fee increases ranged from about 1 percent for some Class A AMs to 14 percent for certain VHF TV stations. For now, the fees apply only to analog stations, not digital.

FCC regulatory fees were due to Mellon Bank in Pittsburgh by Sept. 7. Payments after Sept. 7 would be assessed a 25 percent late fee.

Radio fees increased across the board from a low of $25 to a high of $400 over last year.

This year's fees are projected to total more than $280 million; 2004's total was projected at $273 million.

The U.S. Treasury has told the commission it may reject credit card payments for amounts of $100 million or more. If you owe that much, use a check, money order or Fed Wire payment methods.

The FCC has begun using a "red light" flagging system designed to prevent it from granting applications to those who have not paid their regulatory fees.

— Leslie Stimson

World Radio History

HIGHER DEFINITION

Orban's new flagship and the next step beyond the 8400, the new, all-digital 8500 offers major improvements: twice the sample rate, twice the DSP horsepower, and built-in HD Radio/digital radio/netcast processing with 20 kHz bandwidth.

The 8500's competitive sound takes 8400 version 3.0 sonics to the next level. The 8500 will import and run any 8400 preset, so anyone with carefully custom zed 8400 user presets can upgrade to the 8500 without missing a beat. For HD Radio broadcasters, a built-in, defeatable 8-second analog-channel delay lets you use the 8500's built-in stereo generator and patented "Half-Cosine Interpolation" composite limiter to maintain full loudness on your analog channel.

All processing structures have about 4 milliseconds less delay, making headphone monitoring even easier for talent. For the most critical off-air monitoring requirements, you can even use one of the new "ultra-low latency" presets with only 3 milliseconds of delay.

Ethernet is now built-in. Of course, you can also control the 8500 via modem, serial connection, GPI, external RS-232-interfaced automation, or internal clock-based automation with Internet time sync—the 8500 is always easy to integrate into your facility, regardless of complexity. And we've retained the 8400's famous ease-of-use that makes it easy for you to brand your sound by creating your own custom presets—even if you're not an audio processing expert.

Ready for higher definition?

No matter what your audio processing challenges may be, Optimod-FM 8500 is ready when you are.

See us at NAB Radio Show Booth # 710

orban/crl www.orban.com

Introducing Optimod-FM 8500

COOL STUFF AWARD
Radio World 2005

Orban/CRL Founder and VP of Engineering Bob Orban (left), and Orban/CRL President, Chairman, and CEO Jay Brentlinger (right), receive *Radio World's* "Cool Stuff" Award for the new Orban Optimod-FM 8500 audio processor at the National Association of Broadcasters 2005 in Las Vegas.

World Radio History

Norway Looks at DRM Options

by Lawrie Hallett

OSLO, Norway A public broadcaster in Norway — Norsk Rikskringkasting, or NRK — is evaluating the Digital Radio Mondiale technology as part of its plans to migrate from analog to digital delivery platforms.

In May, NRK began DRM trial broadcasts from its Ingøy Kringkaster transmission station in the northern part of the country. That station boasts a 1,187-foot mast. Its transmissions cover the Barents Sea area, including the Svalbard archipelago, and parts of the Norwegian mainland.

Evaluators reviewed transmission system performance and mapped DRM coverage achieved with mobile and stationary receivers.

Given the size of Norway and its dispersed population, DRM has the potential to provide wide-area coverage at a lower cost per head than equivalent Eureka-147 DAB coverage, according to observers.

The trials replaced normal AM programming, such as the NRK national news, current affairs and general entertainment network.

However, to ensure that weather reports, news and local programming were not disrupted, the DRM output occasionally was replaced by normal AM transmissions, typically for five minutes at the top of each hour.

Given the size of Norway and its geographically dispersed population, DRM has the potential to provide wide-area coverage at a lower cost per head than equivalent Eureka-147 DAB coverage, according to observers here.

This is particularly true in remote and mountainous areas where a network of DAB transmitters might be required to achieve coverage similar to that delivered by a single long- or medium-wave facility.

Digital-only outlets

However, while NRK is exploring its DRM options, it is also looking to boost Eureka-147 DAB by making some of its specialized channels digital-only outlets. By shutting down existing FM relays of these channels, the broadcaster hopes to both encourage DAB receiver uptake and to save on transmission costs.

Services such as a 24-hour news channel, classical music service and a youth network, which broadcast on FM analog as well as on DAB in major cities, will gradually become digital-only during 2006 and 2007.

NRK will phase out analog services as DAB network coverage is improved. NRK's folk music archive, for example, is a digital-only offering.

Meanwhile, commercial interests are beginning to establish themselves on DAB with the February launch of a digital-only national commercial talk station.

According to the NRK Web site, DAB signals reach about 70 percent of the Norwegian population of x many people; this will increase to more than 80 percent over the next couple of years.

Current concessions

Looking beyond that, the current licenses for two national commercial radio services expire in 2014. If DAB and other digital technologies are established by then, the 2014 date would be a target for most radio services to complete their migration to digital.

Given the additional costs involved, commercial and public-service broadcasters alike apparently do not wish to pay for simulcasting analog and digital output for any longer than is necessary.

The estimated total of DAB units sold is around 6,000, while Norwegian consumers typically purchase some 800,000 analog receivers each year, according to radio marketers.

As NRK and commercial broadcasters publicize the technology more, however, they're encouraging CE chains to better promote receivers.

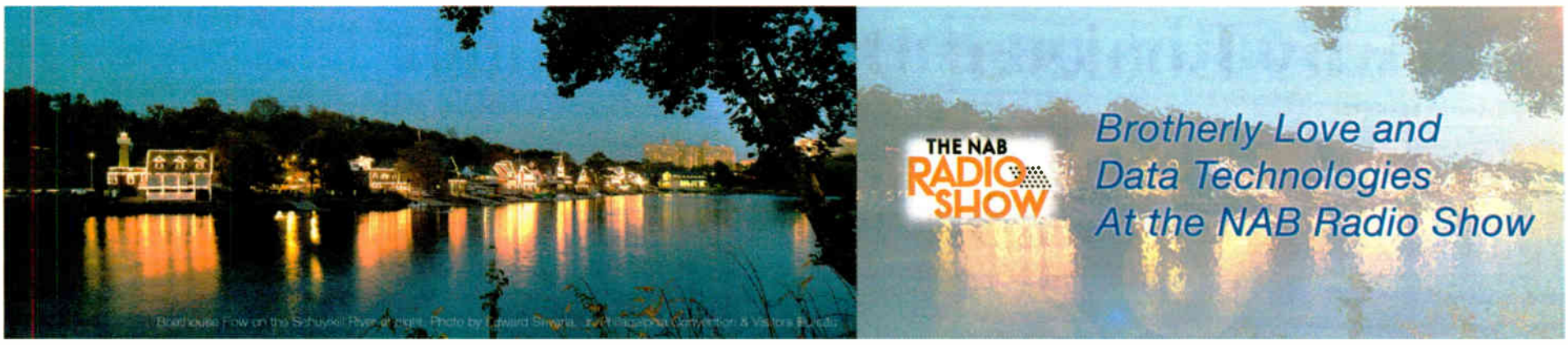
Figures for DAB sales in 2005 will not be available before early 2006, but if other markets in Europe are anything to go by, sales this year should eclipse those of 2004, according to DAB marketers.

In addition to its commitment to DAB, NRK is putting more resources into the expansion of its Web presence. Earlier this year, the corporation began making some of its programming available as podcasts on an experimental basis. NRK also is making some material available for download in 5.1 surround sound.

Time-shifted listening is available on the NRK Web site, offering visitors the opportunity to listen to streamed programs up to three weeks after the original broadcast date.

See Us at NAB Radio Show Booth # 918

World Radio History



New Ways to Put Bandwidth to Work

Technical Sessions at NAB Radio Show Explore the Ramifications of Digital

by Carl Lindemann

Technical workshops at this month's NAB Radio Show in Philadelphia reflect the digital transformation sweeping over some stations and being pondered by others.

On the engineering end, it's not just about flipping a switch to bring the familiar analog AM/FM medium into the digital domain. Getting the sound and signal right requires rethinking.

D vs. A

Remember how CDs sounded different from LPs when they arrived in the mid-1980s? Pro audio professionals had to recalibrate to recapture the classic "sound" with new technology.

The Thursday afternoon session "Processing Audio for AM, FM and Digital Radio" aims to help radio engineers up and over a similar learning curve. Andy Laird, vice president and chief technology officer of Journal Broadcast Group, will cover basics, and Frank Foti, president of Omnia Audio, will expand on them.

"There is no 'standard' for audio processing other than not to over-modulate," said Laird. "Understanding the elements available and how they interact is the basic foundation for building a signature sound. It's like mixing paint. You need to know what colors to mix to get the right shade you desire."

Laird's presentation will stack audio examples created by different types of equipment or elements within a system to demonstrate how they can help or hurt each other while creating a "sound."

Foti said he will explore differences between the new "medium" and familiar analog audio. For instance, bandwidth can be as wide as 20 kHz, and there is no precontend with, just as "wow and flutter" concerns of turntables once gave way to the "jitter" of CDs. Now, instead of clipping, audio engineers work with look-ahead limiting that brings its own distinct sound. Also, harmonic distortion is traded for intermodulation distortion or IMD, which can be controlled by applying various techniques.

©NAB

The Radio Show Floor in 2003

emphasis in the transmission chain. According to Foti, this allows the presence and high-frequency spectrum to sound open and clean.

Also, engineers have new qualities to

For Foti, getting in-depth with the new dynamics of digital audio processing for radio is essential; but there is no cure-all. Each format, whether classical or heavy metal, requires individual attention to what is as much an art as a science, he says.

"With HD Radio stations lighting up every day, we're still on the front end of the learning curve. Audio processing will play a vital part in the successful deployment of HD Radio."

Tomorrow today

The transition isn't just about emulating existing services.

The Friday morning workshop "Data Technologies and Applications for Digital Radio" is led by Mike Starling, NPR's vice president of engineering, and Joe D'Angelo, iBiquity Digital's vice president of advanced services. It will lay out parameters

See TECH SESSIONS, page 22 ▶

Time Is Money. Make More.

COOL STUFF AWARD
Radio World
2005

What if you could make extra minutes when you need them?

You could put back the LOCAL features your listeners want. Make live events happen on YOUR cue. Drop breaking news into network shows, with no loss of content. Create extra ad avails when needed. **Audio Time Manager** gives you completely new control over time, so you can do these things and more. With audio quality so good, listeners won't know you're using it. Can you press two buttons? Congratulations – you now control time.

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World Radio History

100+ Booths on the Exhibit Floor

The following are exhibit booth numbers at the NAB Radio Show in Philadelphia. The list was provided by show organizers and was current at press time.
Late registrants may not be listed. Check your on-site program for changes. Highlighted booths are paid advertisements.

615 Music Library	308	Arbitron	419
AEQ	216	Armstrong Transmitter	402
Air Force Recruiting	306	Army National Guard	607
Ando Media LLC	922	Arrakis Systems	304
APT- Audio Processing Technology	208	AST (Application Science & Tech.)	613

See Us at NAB Radio Show Booth # 910

ATA	702	Media Monitors LLC	207
ATI - Audio Technologies Inc.	819	Media Professional Insurance	404
Audemat-Aztec	116	Megatrax	908
AudioScience Inc.	118	Moseley Associates Inc.	506
Belar Electronics Lab	106	MUSICAM USA	200
BIA Financial Network	505	National Weather Service	608
Boost Communication	212	Nautel	719
Broadcast Electronics Inc	319	Non-Stop Music	218
Broadcasters General Store	112	Omnirax	122
Burk Technology	502	OMT	707
Burli Software Inc.	120	Orban/CRL	710
Business TalkRadio Network	914	Practical Promotions	811
CMBE	602	Precision Communications	928
Coaxial Dynamics	302	Preston-Patterson	100
Colette Vacations	309	Promo Only MPE	906
Communication Graphics Inc.	912	Propagation Systems Inc.	902
Comrex	508	Prophet Systems Innovations	619
Continental Electronics	513	Radian Communications Services	102
Continental Vista Systems	211	Radio Advertising Bureau	1023
Control Concepts	203	Radio Music License Committee	1024
Dielectric Communications	409	Radio Systems, Inc.	713
dMarc/Scott Studios	717	RADIO WORLD	1008
Dolby Laboratories	805	ENCO Systems Inc.	108
Energy-Onix	405	ERI-Electronics Research	310
Federal Communications Commission	1022	Fibrebond Corp.	305
Harris Corp.	519	HarvestINFO	708
iBiquity Digital/HD Radio	406	Inovonics Inc.	509
IVP New Media	926	Jampro Antennas/RF Systems Inc.	511
Kelly Music Research	1001	Klotz Digital Audio Sys.	813
LARCAN USA Inc.	205	LEA International	606
Linear Acoustic Inc.	206	Liquid Compass	104
Logitek Electronic Systems	110	Radiosophy	303
		RCS	918

Now one year old, Radio World Engineering Extra is an exciting new addition, exploring "deep tech" subjects, and written by engineers for engineers. Also: Now is the time to reserve your ad space in the 2006 Radio World Source Book & Directory.

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Station of the Year?

NAB Marconi Radio nominees:

Major-Market: KFI(AM) Los Angeles; WEEI(AM) Boston; WHUR(FM) Washington; WPHI(FM) Philadelphia; WTOP(AM) Washington

Large-Market: KIRO(AM) Seattle; KQQL(FM) Minneapolis; KSTP(FM) Minneapolis; WSB(AM) Atlanta; WSTR(FM) Atlanta.

Medium-Market: WDBO(AM) Orlando, Fla.; WKUS(FM) Norfolk, Va.; WQOK(FM) Raleigh, N.C.; WSM(FM) Nashville, Tenn.; WTCB(FM) Columbia, S.C.

Small-Market: KRCH(FM) Rochester, Minn.; WCIZ(FM) Watertown, N.Y.; WIKX(FM) Punta Gorda, Fla.; WJBC(AM) Bloomington, Ill.; WLEN(FM) Adrian, Mich.

World Radio History

Exhibit Hours

Wednesday, Sept. 21	5-8 p.m.
Thursday, Sept. 22	8:30 a.m.-3 p.m.
Friday, Sept. 23	8:30 a.m.-3 p.m.

Roll a Sign, Div. of Reef Industries Inc.	503
Sabre Towers	706
Safe Assured	605
Shively Labs	612

SIERRA AUTOMATED SYSTEMS 504
The Rubicon SL Radio Broadcast Console Control Surface is for the smaller-market station or less-demanding studio. Like its bigger brother, Rubicon, the "SL" offers complete integration with the SAS 32KD and the SAS Connected Digital Network, as well as stand-alone operation with the new upgraded RIOLink Mixer/Router.

Also shown: Rubicon Broadcast Console Control Surface; 32KD Digital Audio Mixer/Router; RIOLink Remote I/O and local Audio Mixer/Router.

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Fax: (818) 840-6751
Web Site: www.sasaudio.com
E-mail: radio@sasaudio.com

S.W.R. Inc.	407
SMI	924
Spark Network Services, an AdvancedTele.com Co.	603
SRS Labs Inc.	410
Stainless	604
Statmon Technologies Corp.	704
Superior Electric	609
The Media Audit	703
TicketsNow	807
Tieline Technology	817
Traffic.com	202
TrafNet	904
UN Minutes/UN Foundation	307
Valcom Limited	910
V-SOFT Communications	403
Westar Music	815
Wheatstone Corp.	311

WIDEORBIT 801
WO Traffic for Radio is being introduced at NAB Radio. Come see why more than 300 TV stations, cable nets and radio stations have converted to WideOrbit Traffic Sales and Billing solutions.

WO Sales+ gives AEs and sales management the information and workflow necessary to increase revenue and profit.

WO Promo optimizes the placement of promotional spots to maximize impact. WO Promo increases the efficiency of your inventory to increase profit while decreasing wasteful under- or over-promoting of programs.

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WireCAD	213
WireReady	916
ZICAM	902

Popular local air personality Ben Franklin, host of the public radio show 'Snap, Crackle, Pop: How to Fly a Kite in Bad Weather,' showed up last time and might be seen again.

This is your program material and data.

This is your current STL.

Looks like you've got a problem.
Big Pipe is your solution.

Big Pipe is not just another studio-transmitter link. With scalable, bidirectional capabilities up to a whopping 45 Mb/s, you can interchange analog and digital audio, HD Radio data, Ethernet, serial data, video, and telephony via a wireless or wireline path. Scalable, flexible, and reliable, Big Pipe works just as well for studio facility interconnects and many other media transport needs. Because it comes from BE, you know that Big Pipe is designed for the realities of radio, including tight budgets and rock solid performance.

Total Radio GUARANTEED
Program Generation & Audio Management | Data Generation & Management | Transport | Transmission

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See Us at NAB Radio Show Booth # 319

World Radio History

Philadelphia Phans Phind Phun

by Jackie Broo

It's not easy being the cradle of American democracy.

Think of Philadelphia and you picture guys in wigs, short pants and silk stockings. In the past, Philadelphia has suffered from an image problem, at least if you're looking for trendy nightlife and entertainment. But that's changing. In 2005 Philly is putting the "PH" back in fun with plenty of food and entertainment.

And for those of us who love history, it's as good as ever.

If you're looking for things to do beyond the official events of the NAB Radio Show, or plan to stay an extra day or two, here are some ideas.

Philly Phacts

Philadelphia was founded in 1682 by English Quaker William Penn. Quakers were known for their tolerance of religions and ethic groups. The town eventually became known as "The City of Brotherly Love" because of this openness.

King Charles II gave Penn land that included 1,280 acres between the Delaware and Schuylkill Rivers. Penn imagined a "green countrie towne" and his surveyor came up with a grid pattern that included five public squares, all still in existence. The city today is home to the Liberty Bell and Independence Hall, where the Declaration of Independence was signed and the Constitution written; it retains its character as a waterfront and naval community even as promoters also point to its more recent renaissance and a reputation as a city of restaurants. The city is the fifth-largest in the country and second on the East Coast. For Arbitron it is Market No. 6, with a Metro 12+ population of 4.35 million.

Musical Scene

The city has been home to musical greats like Dizzy Gillespie, Frankie Avalon, Teddy Pendergrass, The O'Jays and Patti LaBelle. Clubs continue to crank out the music.

Leading the pack for many club hoppers is Warmdaddy's (4 S. Front Street, 215-627-8400), a place to kick back at the end of the day and listen to live blues and jazz. Other clubs of note are **Chris' Jazz Club** (1421 Sansom Street, 215-568-3131); **Zanzibar Blue** (200 S. Broad Street, 215-732-4500); **Ortlieb's Jazzhaus** (847 N. Third Street, 215-922-1035); **Shampoo Dance Club** (Willow between 7th & 8th Ave., 215-922-7500); and **Tragos** (38 S. 19th Street, 215-636-9901).

Sports Central

Philadelphia is a sports fan's paradise, with major sports teams in baseball, football, basketball and hockey.

The football Eagles host the Raiders on Sunday Sept. 21. The baseball Phillies are on the road during the Radio Show, and return the following Monday to host the Mets.

As a sports-crazy town, the city has its share of sports bars. Grab a bite to eat at **McFadden's Restaurant & Saloon** (11th St. and Pattison Ave., 215-928-0669) in the Phillies' new ballpark.

Also check out **Buffalo Billiards**, 118 Chestnut Street, 215-574-7665; **Cavanaugh's**, 119 S. 39th Street, 215-386-4889; **Champions Sports Bar**, 1201 Market Street, 215-625-6066; **O'Neal's**, 611 South Third Street, 215-574-9495; **Reunion Sports Bar**, Holiday Inn Independence Mall, 4th and Arch Streets, 215-923-8660; and **Tony Luke's Beef and Beer Sports Bar**, 26 East Oregon Ave., South Philadelphia, 215-465-1901.

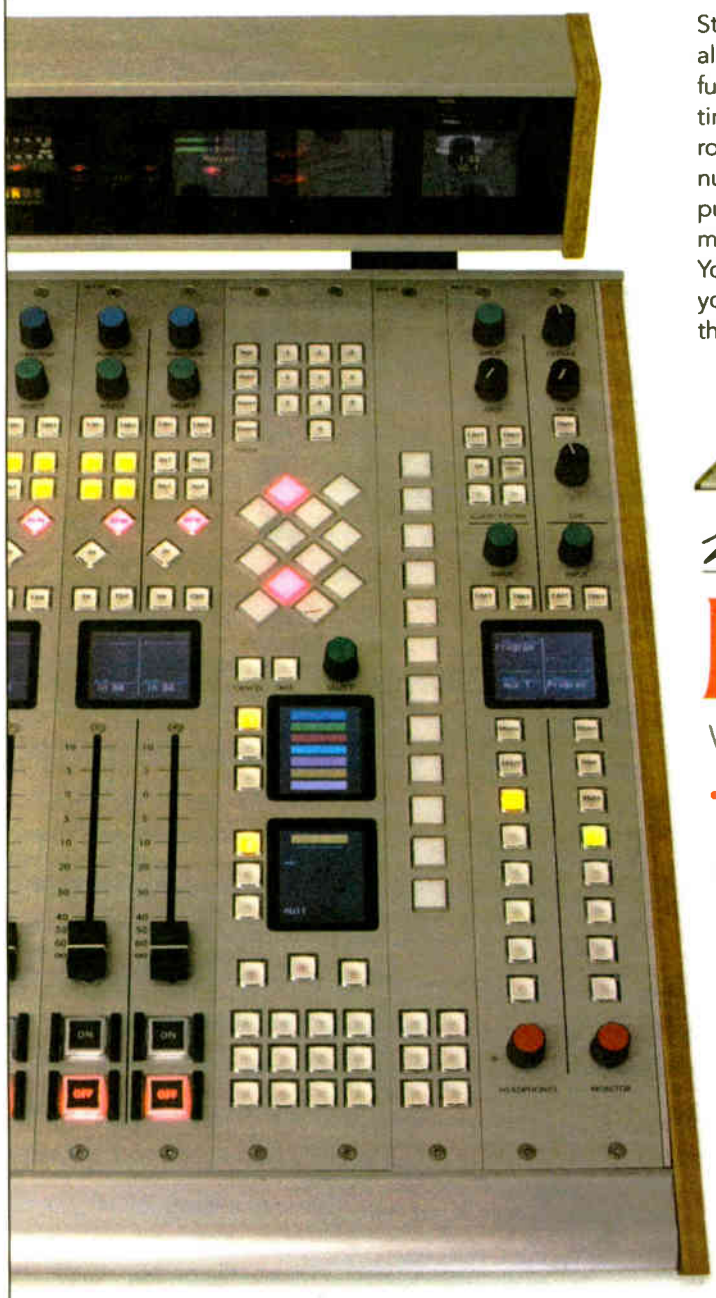
The College of Physicians houses the
began with 2,000 specimens donated
in the United States who sought
the use of

Junk Capital

Junk food aficionados rejoice. Philadelphia could be the junk food capital of the world. It boasts perennial favorites such as cheesesteaks, Tastykakes (**Tastykakes Baking Company,** 29th & Allegheny Ave., 800-33-TASTY), peanut chews, pretzels (**Philadelphia Soft Pretzels Inc.,** 4315 N. 3rd Street, 215-324-4315), hoagies (**Campo's Deli,** 214 Market Street, 215-923-1000 and **Primo Hoagies**, 21st and

See THINGS TO DO, page 21 ▶

How to build the perfect console.



Start with a flexible routing system that can accommodate all of your facility's audio distribution, along with intercom functions, EQ and dynamics processing, profanity delays, timers, and more. Next, select the right frame size for the router's control surface. Populate the frame with the number of faders you want, along with programmable pushbuttons, countup/countdown timer controls, and meter bridge with extra graphic displays. The result? Your console, exactly as you want it, with the functionality your talent craves and a sleek design that complements the studio perfectly.

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Where art meets technology

- Multiple frame sizes allow configuration of systems ranging from 2 to 24 faders
- Support for 16-character source names, allowing you to precisely identify a source rather than guessing on unintelligible abbreviations
- Full color LCD screens on each module that provide source information, meters, clocks, timers, delay information, text messages and more
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Console Router Systems

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World Radio History

Things to Do

▶ Continued from page 20

Chestnut Streets, 215-463-8488), cream cheese and America's first successful bubble gum, Dubble Bubble, whipped up here by Walter Diemer of Fleer Co.

Phat City

Forget the calories, forget the fat content. The Philly cheesestake is the king of "steak" sandwiches. A fresh-baked Italian sub roll stuffed with thinly sliced rib eye steak, cheese (or Cheez Whiz) and fried onions is a little bit of heaven on earth.

The king (and some say creator) is **Pat's King of Steaks** in heart of south Philadelphia at 237 Passyunk Ave.

Other Places to Eat

Barbecue fans should be on the look out for **Sweet Lucy's Smokehouse** (7500 State Road, 215-287-1356). The former lunch truck has evolved into a proper sit-down joint for eating barbecue cooked from scratch in a hickory wood-burning pit.

Fine dining is alive and vibrant in the City Center and is led by the award-winning **Le Bec-Fin** (1523 Walnut Street, 215-567-1000), Philadelphia's premier French restaurant, and the Food

Edward Savaria Jr./Philadelphia Convention & Visitors Bureau

Mütter Museum, a collection that by Dr. Thomas Mütter, the first doctor to teach medical students through real specimens.

Channel's Iron Chef Japanese namesake, **Morimoto's** (723 Chestnut Street, 215-413-9070). Other City Center restaurants include **Alma De Cuba** (1624 Walnut Street, 215-988-1799), **Brasserie Perrier** (1619 Walnut Street, 215-568-3000), **Davio's** (111 South 17th Street, 215-563-4810); **Tangerine Restaurant** (232 Market Street, 215-627-5116), **Roy's - Philadelphia** (124-34 South 15th Street, 215-988-1814), and **Shula's Steak House** (Wyndham Philadelphia at Franklin Plaza, 215-448-2700).

Stop, Shop and Drop

Grab some plastic and head out to Philadelphia's shopping venues including the upscale shopping district centered on 17th and Walnut Streets, factory outlets and street vendors. Philadelphia shows its love to shoppers by not charging tax on clothing in stores.

It's not just guys in wigs, short pants and silk stockings — although Philly has those too.

Jeweler's Row, bounded by Walnut, Chestnut, Seventh and Eighth Streets, includes the second-biggest concentration of diamond sellers in the United States after Manhattan's West 47th Street. If none of the 300-odd jewelry shops have what you are looking for, you can browse the stylish, individually owned clothing and antique furniture shops in nearby Old City. The most original shops are clustered between Second and Third and Arch and Walnut Streets.

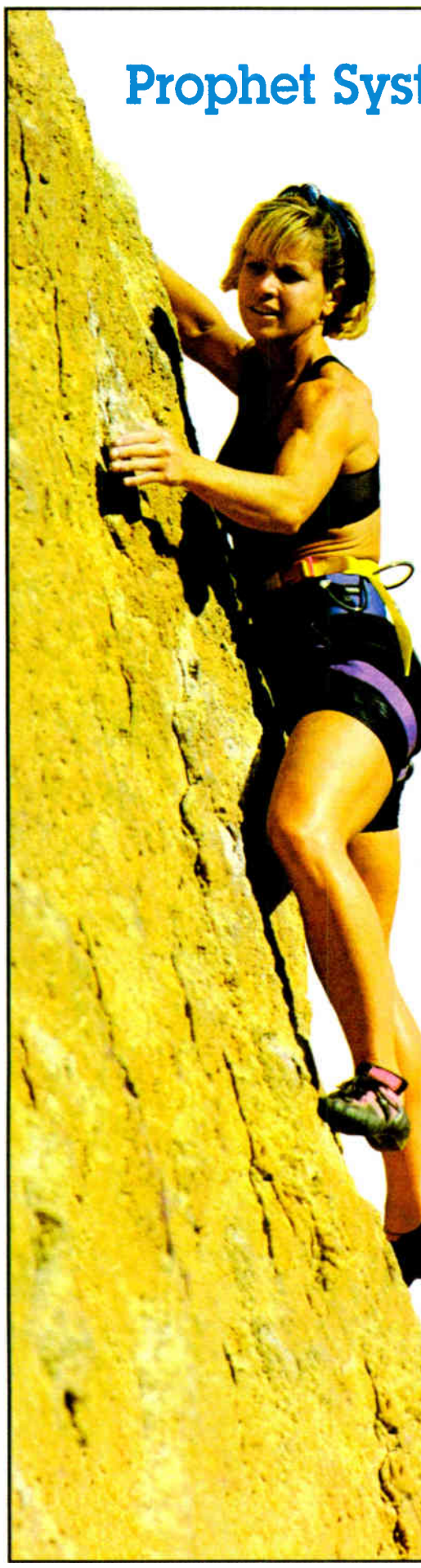
Rittenhouse Square features an area of beautiful boutiques, salons and restaurants, including al fresco brasseries that look out onto the greenery of a park.

Guys in Wigs Again

No, we're not talking about a drag queen show. Philadelphia is the home of the Independence National Historical Park, where the first Continental Congress was held, the Declaration of Independence was signed and the Liberty Bell rang out. (The bell dates to 1753; the crack had shown up by 1846.) At the National Constitution Center in the Park, buy a ticket to view a live performance of a costumed 1776 actor and access to interactive displays for a fun crash course in history.

Philadelphia is a city of firsts. In addition to being the reputed birthplace of the American flag, stitched by Betsy Ross, the city was the site of the first presidential mansion. It's home to the first public zoological gardens, founded by Benjamin Franklin (who would have been 300 this January) in 1874, and the first daily newspaper, which rolled off the presses

See THINGS TO DO, page 22 ▶



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World Radio History

Tech Sessions

▶ Continued from page 17

of what's possible with bandwidth that's becoming available for broadcasters to innovate applications, services and business models.

One of the highlights of Starling's 16-year career at NPR, he said, was the pioneering "Tomorrow Radio Project" field test on supplemental audio channel broadcasting, conducted in 2003. Multicasting on SACs is just the beginning of the new services possible as digital radio offers a convergence of the traditional audio delivery service and interactive media, he believes.

"Extended hybrid bits are going to be invaluable components of the service activities of radio stations in the future," he said. "It won't happen overnight; but datacasting applications, conditional access — i.e., subscription services — integrated timeshift technology (TiVo style radio) and ultimately return channel services will increasingly become important activities for radio stations.

"We may logically evolve from the core station operations into 'radioplexes' that offer multiple services as revenue generators to maintain and strengthen the free over-the-air local broadcast service."

IBiquity's D'Angelo sees a broad horizon and, with Starling, plans the workshop as an opportunity to brainstorm.

"The exciting thing here is that the infrastructure has advanced in front of the clear business opportunities. We'll look to the future by extending existing business models and be open for the unexpected and as yet unimagined," said D'Angelo.

The intrusion of the Internet, podcasting and satellite puts radio professionals in a situation where maintaining status quo isn't savvy, he said. Moving forward offers a chance not just to protect what's left of radio's traditional turf but also to beat new competitors at their own games. The workshop will map out examples of innovation in Europe and elsewhere.

"Satellite radio is beginning to leverage localism, which is a serious threat," he said. "But we can leapfrog past them with the enormous bandwidth digital radio brings. In the New York metro area alone, radio has 8 megabits of bandwidth that can form the foundation of the emerging digital economy."

Another major shift in the migration to digital is covered in "Measuring Broadcast Signals," led by David Maxson, managing partner of Broadcast Signal Lab, on Friday morning. Aside from ensuring FCC compliance, how can engineers be sure that they've maximized their digital signal?

To the max

Maxson points to a key difference between digital and analog signals that requires engineers to rethink spectrum analyzer techniques.

"The power spectral density of AM and FM signals is focused in the center of the channel, which makes it relatively easy to prevent out-of-band emissions and to measure them," he said. "Digital signals, however, have greater power spectral density across their bandwidth. Their energy is spread evenly out to the band edges."

The upshot is that digital calls for new techniques and greater attention to measurement. IBOC adds another level of complexity as a hybrid of digital and analog.

Other technical events at the NAB Radio Show this year include a two-part workshop on "AM Directional Antennas in a Digital World" presented by Benjamin Dawson, president of Hatfield and Dawson, and Ron Rackley, partner in du Treil, Lundin and Rackley.

NRSC meetings and SBC certification exams are also scheduled.

For information see www.nab.org.

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Things to Do

▶ Continued from page 21

in September 1784. Johann Behrent constructed the first American piano here in 1775, and Philadelphia was home to the first computer, ENIAC, which booted up in 1946.

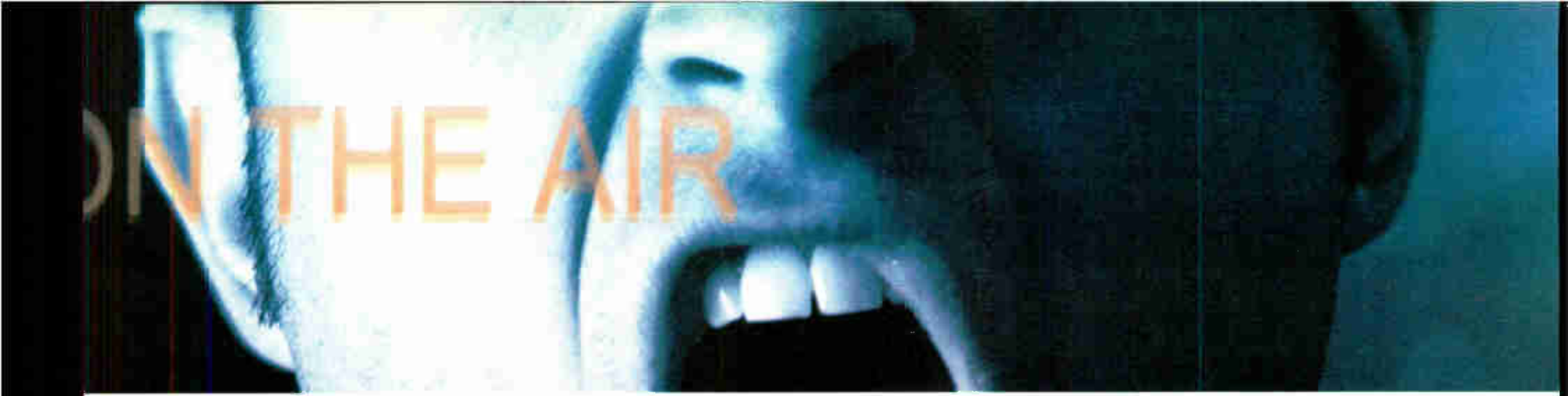
National Liberty Museum/Philadelphia Convention & Visitors Bureau

The 20-foot glass chandelier Flame of Liberty was created by Dale Chihuly. The National Liberty Museum describes itself as the first institution to correlate freedom with glass for the purpose of protecting society from violence. It houses paintings, bronzes and glass sculptures to represent the fragile nature of liberty.

Other firsts include the country's first public grammar school, public library, life insurance company, volunteer fire department, hospital, medical and dental schools, university, mint, municipal water system and zoo.

And military history buffs should not miss the retired, mighty battleship USS New Jersey, just across the river in Camden.

World Radio History



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World Radio History

Radio Seeks a Rebound at Show

Below is a thumbnail overview of sessions and events at the NAB Radio Show in Philadelphia. To register visit www.nab.org and click on the convention icon.

WEDNESDAY SEPT. 21

8 a.m. – 1 p.m.: "AM Directional Antennas in a Digital World, Part I"

8:30 – 11:30 a.m.: "Broadcast Financing 2005: Radio on the Rebound," presented by Dickstein Shapiro Morin and Oshinsky

9 a.m. – 1 p.m.: NABEF Career Fair

1 – 2 p.m.: "Awesome Station Culture ... No Matter Who You Work For"
1 – 2 p.m.: "Bob, Ted, Jack & Alice"
1 – 2 p.m.: "Great Presentations = Great Sales"
1 – 2 p.m.: "Future of Radio"
1 – 2 p.m.: "What PPM Means to Your Radio Revenues"

2 – 5 p.m.: NRSC Meetings

2:15 – 3:15 p.m.: "Hispanic – Maximizing Your USP: Selling the Value of Your Audience"
2:15 – 3:15 p.m.: "Radio's 'Idea Virus' Incubator: Fighting Back with Radio's Positive Message"
2:15 – 3:15 p.m.: "Fine-tuning Radio's Image"
2:15 – 3:15 p.m.: "Your Radio Station Website: The Newspaper of the Future?"
2:15 – 3:15 p.m.: "Tech that Helps, Tech that Hurts"

When panelists talked about IBOC at the 2003 Radio Show, 280 stations had licensed HD Radio and 55 were on the air. In August of this year, the numbers were 890 and 460 respectively.

3:30 – 4:45 p.m.: Programming Executive Super Session with Beverlee Brannigan, Bob Moody, Jimmy Steal, Bill Tanner and Doc Wynter

5 – 7 p.m.: Opening Reception

5 – 8 p.m.: Exhibit Hours

THURSDAY SEPT. 22

7:30 – 8:45 a.m.: FCC Breakfast

8 a.m. – Noon: "AM Directional Antennas in a Digital World, Part II"

8:30 a.m. – 3 p.m.: Exhibit Hours

9 – 10:15 a.m.: Keynote Address by Seth Godin, author of "Permission Marketing" and founder of Yoyodyne

THE NAB RADIO SHOW

10:30 – 11:45 a.m.: "HD Radio for PDs"
10:30 – 11:45 a.m.: "Radio: Maximizing Future Growth"
10:30 – 11:45 a.m.: "The 411 on 911 Emergencies"
10:30 – 11:45 a.m.: "Secrets to New Radio Marketing"
10:30 – 11:45 a.m.: "The Gen X, Y and Next Exec: Radio's Future Has Entered the Building"
10:30 – 11:45 a.m.: "Regulatory Hot Topics: LPFM & FM Streamlining"

Noon – 1:30 p.m.: "The Changing State of Talk Radio"
Noon – 1:30 p.m.: "PPM Data from Houston: Answering the Industry's Questions"

1 – 3 p.m.: "Processing Audio for AM, FM and Digital Radio"

1:30 – 2:45 p.m.: "Group Executive Super Session" with Ed Christian, John Hogan, Joel Hollander, Mary Quass and Charles Warfield

2:30 – 4:30 p.m.: Live Remote: "Dick Robinson's American Standards by the Sea"

3 – 6 p.m.: SBE Certification Exams

3 – 4:15 p.m.: "What Technologies Keep You Up at Night?"
3 – 4:15 p.m.: "Urban — Maximizing Your USP: Selling the Value of Your Audience"
3 – 4:15 p.m.: "Blockbuster Promotions on an Art Film Budget"
3 – 4:15 p.m.: "PPM for PDs"
3 – 4:15 p.m.: "Radio's New Advantages: Emotion, Impact and R.O.I., Too"
3 – 4:15 p.m.: "Hispanic Radio: Hola From Topeka"

6 – 6:45 p.m.: NAB Marconi Radio Awards Reception

7 – 10 p.m.: NAB Marconi Radio Awards Dinner & Show with Delbert McClinton and Kidd Kraddick (ticket required)

FRIDAY SEPT. 23

7:30 – 8:45 a.m.: Legislative Breakfast: Politics With Mark Plotkin

8 – 10 a.m.: "Data Technologies and Applications for Digital Radio"

8:30 a.m. – 3 p.m.: Exhibit Hours

9 – 10:15 a.m.: "Risk Takers Who Lived to Tell About It"
9 – 10:15 a.m.: "I Need Help — Don't Laugh 101"
9 – 10:15 a.m.: "Competitive Media Update: Winning Against Newspapers"
9 – 10:15 a.m.: "Less Is More ... or Less"
9 – 10:15 a.m.: "Brand Extensions: You Can't Just Phone It In"
9 – 10:15 a.m.: "Beyond R.O.I. — Measuring, Sourcing and Tracking Radio"

10:30 – 11:45 a.m.: "Morning Shows: Now What?"
10:30 – 11:45 a.m.: "Selling Radio in a Digital Age"
10:30 – 11:45 a.m.: "Playing Nice in the Sandbox"
10:30 – 11:45 a.m.: "Now Producing Ratings: NPR's Audience Growth"
10:30 – 11:45 a.m.: "I Need Help — Don't Laugh 102"
10:30 – 11:45 a.m.: "Steering Clear of FCC Fines & Forfeitures"

Noon – 1:30 p.m.: NAB Radio Show Luncheon with Randy Jackson and John F. Dille III (ticket required)

1:45 – 3 p.m.: "Three Who Get It"

1:45 – 3 p.m.: "Profiting from New Technology: Ideas from Around the World"

World Radio History

BSW Exclusive!! NEW!!

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CDR420PKG List $1,649.95 **LowestPrice only $1,199.99!**

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Behringer UB FX Series Portable Mixers NEW!!

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World Radio History

Fishing Focus in FM, MW Debate

by Bernd Trutenau

One in a series of occasional stories about radio beyond the United States.

TÓRSHAVN, Faeroe Islands
Given that many citizens of this archipelago — located between the Norwegian Sea and the North Atlantic Ocean, halfway from Iceland to Norway — make their living fishing, it is no surprise that those at sea make up an important audience for Útvarp Føroya.

Every day, several thousand listeners tune to the ÚF home service from the Faeroese territorial waters or further afield in the Atlantic.

In March, when the ÚF medium-wave transmitter suddenly fell silent after a technical fault, a public discussion started about who is responsible for maintaining the national transmitter network.

Extensive network

ÚF is a public-service broadcaster financed by state money and advertising. Faeroese listeners on shore and aboard ships in the North Atlantic can hear its programs on FM and on medium wave. The territory has a population of 47,000.

Since the mid-1990s, private stations have launched in the Faeroe Islands, too. There are two independent broadcasters, commercial Rás 2 and religious station Lindin. Both broadcast on FM to all parts of the archipelago.

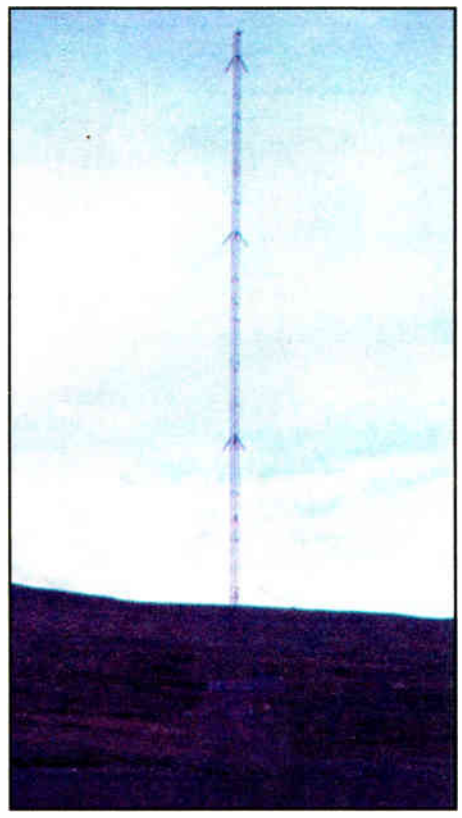
Faeroese stations have limited broadcasting time; the stations close down for the night at around 11 p.m., a bit later on weekends.

Traditionally, Føroya Tele, the Faeroese telecommunications administration, has been responsible for the installation and maintenance of the ÚF transmission network.

The main transmitters are a 5 kW unit at Tórshavn, and 3 kW transmitters at Klaksvík and Hesturin on the island of Suðuroy, as well as 12 smaller relays of 500 W and less.

For decades, ÚF has also been available on medium wave from a 5 kW transmitter in Tórshavn. In order to provide a better service for Faeroese fishermen and sailors, the Faeroe government decided in the late 1980s to finance the construction of a new, powerful medium-wave transmitter.

ÚF acquired a 200 kW Brown Boveri transmitter and installed it at Akraberg.



The Akraberg Medium-Wave Tower Site

The new outlet entered service in 1990, and it performed better than expected; however, the results were two-sided.

On the one hand, the coverage area increased considerably. On the other, the operational costs turned out to be greater than expected.

This raised questions about whether or not the energy costs could justify a full-power operation. After investigating the coverage area, it was decided to reduce the regular output power to 100 kW.

Even with 100 kW, coverage was satisfying. The 531 kHz frequency ensures good ground-wave coverage across the waters. Crews on Faeroese ships reported fair reception as far away as the Barents Sea and the east coast of Canada.

In mid-March, after 15 years of operation, the transmitter suddenly went dead. The main tube had failed, leaving the Faeroese fishing fleet without radio from home.

Moreover, Føroya Tele reported that because the Brown Boveri brand is no longer marketed and spare parts are not readily available, it could take up to six months to repair the transmitter.

ÚF moved quickly and made its newscasts available for transmission via Tórshavn Radio, the national maritime shortwave station. But this would only be an interim solution.

Tórbjørn Jacobsen, a member of the Faeroese parliament, initiated a discussion on responsibilities for the transmitter failure. He accused Føroya Tele of not conducting regular maintenance that could have ensured a longer lifetime for the tube.

Jacobsen urged a discussion on responsibilities for the transmitter network, and asked the parliament to consider a status change. Instead of administration by Føroya Tele, the responsibility for the network ought to shift to the ministry of culture, which is also responsible for ÚF, he said.

In March, when the ÚF medium-wave transmitter suddenly fell silent after a technical fault, a public discussion started about who is responsible for maintaining the national transmitter network.

Jacobsen also questioned whether a medium-wave transmitter was necessary at all. He proposed instead enlarging the FM network to include the surrounding waters in its coverage. Such an expansion would cost 1 million Faeroese króna, or about $164,000 U.S.

The islands rise 800 meters above sea level and tall masts with directional FM antennas could cover large distances across water. But the physical limits for FM signals would exclude listeners on ships farther out in the Atlantic.

Also, at greater distances from the shores, FM frequencies would be subject to interference from stations in other countries, especially under conditions of tropospheric inversion.

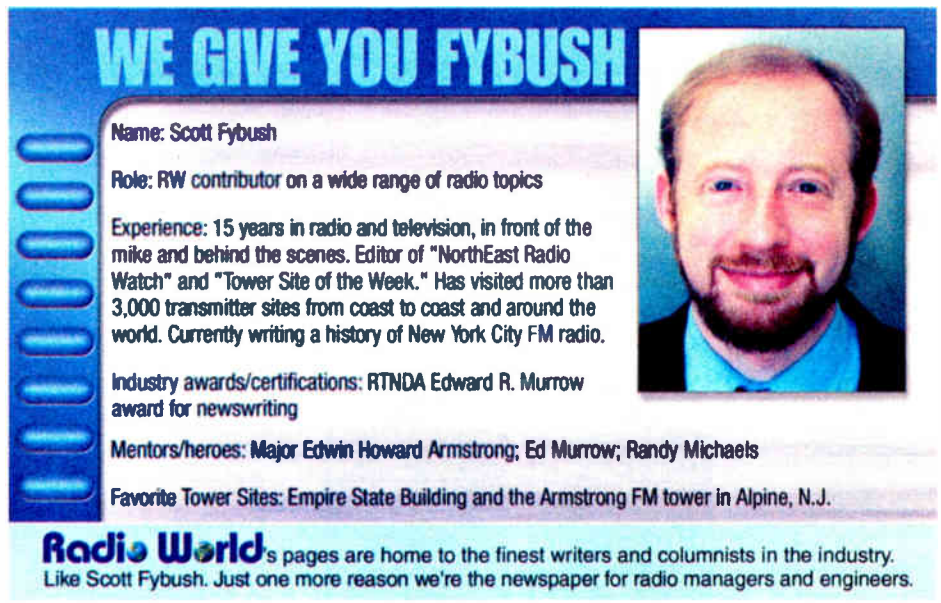
Immediate action

Faced with public discussion and possible consequences for the company, Føroya Tele decided to take immediate action. It found a new tube in France, which arrived in Tórshavn on March 20. Soon thereafter, the transmitter was on the air again.

The parliament decided not to follow up the proposals by Jacobsen for a refurbishment and expansion of the FM network. The medium-wave system at Akraberg will thus remain the main transmitter for the audience at sea.

It will operate at 100 kW, rising to the full 200 kW during the main newscasts three times daily.

Bernd Trutenau is a freelance media journalist based in Vilnius, Lithuania.



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The Useful Life of Broadcast Equipment

by Tom Vernon

How long does broadcast equipment last? Until a few years ago, the answer usually was until it was physically worn out, which could be 30 years or more. Today, some stations toss equipment when it becomes obsolete or fully depreciated, long before it is worn out.

Some gear is simply uneconomical to repair. There are differing opinions on this topic. In an age of rapid obsolescence, managers need to understand these perspectives on useful equipment life, how long to hold on to gear and when to get rid of it.

Your old is my OK

What is obsolete?

Brad Harrison, director of international sales for Wheatstone Corp., says it depends on whom you ask. "Obsolete in one station's view is perfectly OK in another operation."

The demand for broadcast gear extends beyond the large groups in the United States, he said. Smaller non-group stations, educational operations and broadcasters in third-world countries make up a significant portion of the equipment market.

"Large group operations in the U.S. usually demand the latest in networked consoles and make more frequent purchases; but these other customers are looking for very simple, basic digital and analog consoles. For them, getting 10 to 15 years of use from a console would be reasonable."

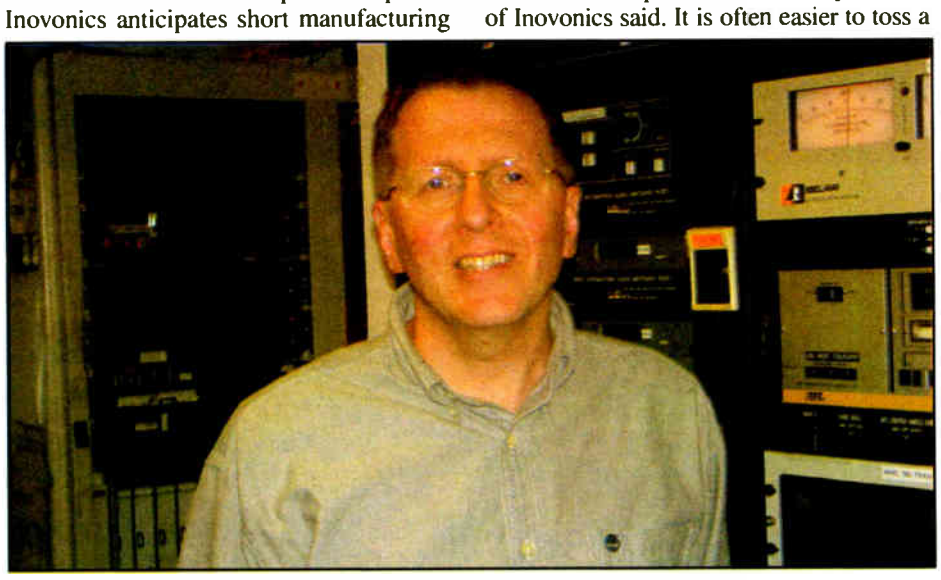
Supporting equipment over its useful life is becoming a challenge for equipment manufacturers. Jim Wood, president and chief engineer of Inovonics, said the company gets a surprising number of calls requesting parts and support for gear it made over 20 years ago.

"We're usually able to help those folks out. Ironically, the problems are in supporting the newer digital products for a useful life of five or more years."

Wood said companies like his often are at the mercy of parts manufacturers, who are notorious for discontinuing production of key components like RAM and DSP chips in short order. There are no sure fixes for this problem, but precautions go into the equipment design process.

"Our Omega processor is designed with no DSP chips. The microprocessor board is multiple-sourced, and all of the intelligence that runs the processor is in the software. No firmware chips are used."

In the case of inexpensive parts, Inovonics anticipates short manufacturing cycles and purchases extra stock at the time of production.



Dave Morgan says the oldest gear at his plant is a Collins 830F, although it's no longer on the air. 'As long as it meets our needs, we keep equipment going.'

The theme of parts availability was echoed recently when Orban/CRL announced it would terminate support for certain older Circuit Research Labs models.

"In servicing very old equipment that has become obsolete because of technological improvements, we feel we are doing our customers a disservice by keeping outdated equipment working long past its useful life," Customer Service Manager Scot McDougal stated in the announcement, saying parts unavailability had made service of some units impossible.

Complex

High-tech broadcast gear can often be a victim of its own complexity. Space and economic considerations frequently make surface-mount technology necessary. Tech manuals for this equipment usually don't discuss troubleshooting and repair, as this gear is not field repairable.

"In many cases, it's not even cost-effective for us to repair it at the factory," Wood of Inovonics said. It is often easier to toss a defective board and install a new one.

"It's reaching the point where some professional broadcast gear is becoming throw-away technology."

For some smaller groups, the useful life of broadcast equipment is as long as you can make it last. Dave Morgan, director of engineering for family-owned Sinclair Communications, says save-or-scrap decisions are based on the bottom line, rather than tax depreciation schedules.

"Sinclair has several transmitters that date from the '70s, and one from the '60s. We run them until parts are no longer available or factory service is discontinued." He estimated the cost of a new 50 kW transmitter at around $175,000, a significant investment particularly for a smaller operation.

Morgan and his staff regularly rebuild consoles and cart machines to get the maximum life possible out of their gear.

"As long as it meets our needs, we keep equipment going. It might be nice to have the latest gear, but listeners usually can't hear the difference, and that's an important consideration."

There are some situations where the purchase of new equipment makes sense. Morgan cites an instance where unreliable T1 service combined with prohibitive cost made the upgrade to a digital STL system attractive. "In the long run, a digital system was the cheaper alternative." Also a consideration is that older gear may not readily accommodate modern needs, as in a 25-year-old console that lacks mix-minus or expandable inputs.

Service plans

Time is also a precious commodity. Time management at the repair shop gets special consideration, and the logistics of getting broken gear to a central location for repair are a factor.

"Our bench technician is often overworked, so it makes sense to contract out for repair of our Denon CD players and send Telos Zephyrs back to the factory when they develop problems," Morgan said. Taking a larger perspective, he added, "Money saved in engineering can be invested in other parts of the company, or used to enhance the bottom line, and that helps all of us."

While transmitters and studio gear have a long life, computers and peripherals seem to be in and out in a flash. Richard Doll, President of D.A.V.I.D. Systems in Virginia, said, "Workstations have a life cycle of around three years, servers last a bit longer." He said it is usually not worthwhile to service older computers to the board or component level.

Networking gear can go longer than three years, although Doll said that when facilities are moved, the system is usually upgraded from 100 MB to 1 GB.

He also said computers are one item where stations frequently purchase service plans.

"Typically we see stations upgrading to a three-year warranty with a guaranteed response time of four hours." These plans are provided by the hardware manufacturer and provide for maintenance and repairs to be completed on-site.

From an accountant's perspective, the useful life of equipment is based on amortization schedules. Jeff Rutan, controller for First Broadcasting Investment Partners, cited some differences.

"Towers typically have a 39-year schedule, transmitters and studio equipment can be depreciated over five or seven years, and computers are usually on a three-year cycle." Once equipment is fully depreciated for tax purposes, it may be disposed of, or donated to a non-profit organization for an additional tax write-off.

An across-the-board belt tightening seems to have resulted in fewer stations disposing of equipment after it is written off, opting instead to improve their cash flow.

Holding on to old equipment has a downside, Rutan cautions. "Risks include increased operating and maintenance costs, plus the possibility of lost revenue from being off the air."

He said depreciation schedules occasionally are changed by the IRS. In 2004, for example, a bonus depreciation deduction was created to encourage capital expenditures.

There are no universal truths about the useful life of broadcast equipment. Managers need to consider several factors when making purchase and maintenance decisions including type of equipment, likelihood of a facility move, the technical sophistication of the audience and corporate-wide policies on equipment disposal and donation.

How long do you keep equipment at your station? Write a letter to the editor at radioworld@imaspub.com.

World Radio History

Buyers and sellers may send project news to radioworld@imaspub.com.

WMIT(FM) said it was the first Christian station in the Carolinas to adopt HD Radio. Chief Engineer Mike Dwinell oversaw the project for 106.9 the Light, which was founded by Billy and Ruth Graham.

The station bought a **Harris** M3HD transmitter system, **Bird** Wattmeter, **Neustar** and **Omnia** 6EX processors; it upgraded its analog exciter to a Harris Digit CD. The station is using its Harris Intraplex STL system to carry AES/EBU audio and bi-directional data and telephone. It is air-combining using its aux ERI six-bay antenna. ...

The Shreveport Bossier City facility for **Cumulus** in the new Louisiana Boardwalk is complete

Wheatstone said Cumulus is using Audioarts D75 consoles for eight of the nine studios serving five stations. It purchased prewiring and Wheatstone Preference studio furniture, with custom cherry trim. ...

Supplier **ERI** says Christian organization **EMF Broadcasting** built and signed on a new K-Love Radio Network facility serving southeastern Idaho. KLRI(FM) is licensed to Rigby. The transmission facilities feature an ERI 190-foot self-supporting tower with a Lambda Optimized Antenna Mounting Structure and 12-bay, half-wave spaced, vertically polarized, ERI P300 Series FM antenna. Skip Bushell is manager of broadcast construction for EMF. Tower and antenna installation were by Colton Tower Consultants. The antenna and tower were by ERI. KLRI operates on 89.5 MHz with ERP of 78 kW. ...

AEQ said it landed its first U.K. customer for the digital BC2000D console. **Globecast UK Ltd.** took delivery; it is a subsidiary of France Telecom. The board will be used in Globecast Radio's new central London studio in the ITN Building. ...

Broadcast Electronics won a contract to provide 42 FM transmitters to the largest TV/radio operator in Hungary, Antenna Hungaria RT. The order includes FM 5C 5 kW solid-state transmitters and FXi 250 digital FM exciters.

Separately, BE said **KUT(FM)** in Austin, Texas, ordered an HD Radio system and plans to begin multicasting a supplemental audio channel and PAD by year-end. It will feed HD Radio into a separate three-bay ERI antenna. Dana Whitehair is manager of technical services.

KMTX Inc. in Helena, Mont., purchased an FMi 106 transmitter package. The chief engineer is Shawn Ketchum.

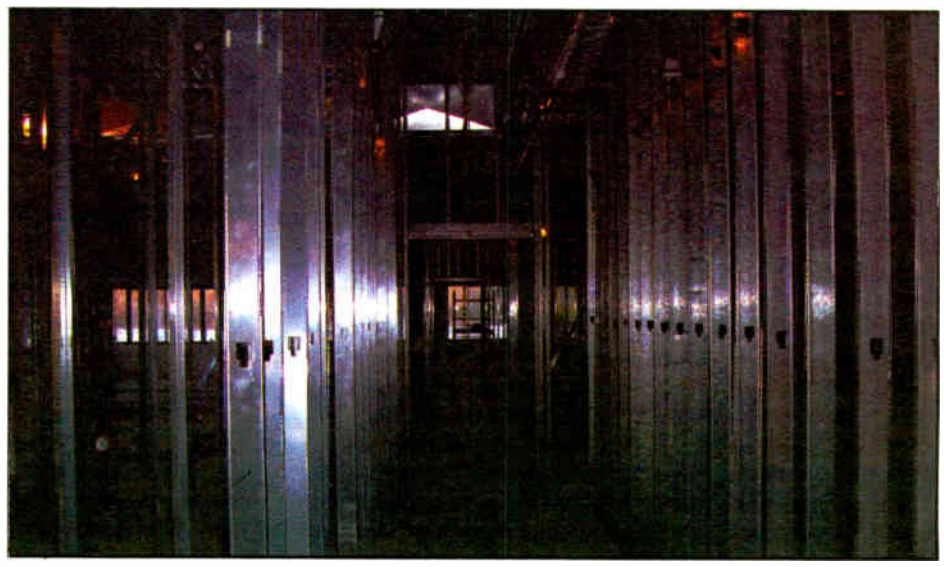
BE said **Findlay Publishing** ordered an AudioVault digital audio system that will connect seven stations in two states. The group will upgrade its AV100s to a Vault2 platform.

And the Stabilization Force for Bosnia and Herzegovina, **SFOR**, acquired BE transmitters and is using them to establish 10 stations for Radio Mir, a network that promotes national unification. SFOR is led by NATO. The most recent order was for three transmitters plus two digital FM exciters. ...

Omnirax said it has taken orders for its Innova line of broadcast furniture for a number of projects. They include rooms for **Infinity, San Francisco**; **KKIQ(FM)** in Pleasanton, Calif.; **Westwood One**, New York; **WGLY(FM)** in Essex Junction, Vt.; **KZYR(FM)** in Avon, Colo.; and **KSKA(FM)** in Anchorage. ...

Klotz Digital said it has sold a 16-fader Aeon radio on-air console to the NBA's **New Orleans Hornets**.

The supplier said the console will allow the Hornets' broadcast facility to have more simultaneous channels in direct access. Lew Shuman is director of broadcasting for the Hornets. Klotz said more than 100 Aeons have been installed since the product was introduced last December.



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World Radio History

Mystery Cable — Identified!

by John Bisset

Our picture of a "mystery" cable in the Aug. 17 column brought back a lot of memories. Many replies saw through my comment of using the adapter as a permanent fix for someone's audio gear. The secret was the little tab on the "AC" plug.

Jerry McCarty at the University of Michigan says he actually never saw one of these, but he was familiar with remote mixers that used twist-lock connectors for the audio. This was before XLRs were standardized. Jerry also had seen adapter cables advertised for sale into the 1970s.

He did some searching but had just about given up when he came across an online copy of a 1969 instruction manual for a Shure M62V level controller on the electronics portion of the site *www.free-infosociety.com*.

In the accessories section of the manual is a reference to an A68C adapter kit, which contained, among other things, a twist lock-to-XLR cable. So while the cable looks bizarre by today's standards, Jerry writes that it was a lifesaver for surprises at a remote.

McCarty can be reached at *microtv@umich.edu*.

★ ★ ★

Dennis Gilliam, chief at FM stations KJZZ/KBAQ in Phoenix, writes from a different perspective.

He has the "other end," a 1940 Western Electric 22B Portable Mixer. This equipment used the three-pin twist lock for mic inputs.

So the answer was an "RCA-to-twist lock" as an input cable for a PA system or tuner.

Dennis can be reached at *dennis.gilliam@riomail.maricopa.edu*.

★ ★ ★

George Waters, an engineer in Florida, had yet another take. He thinks he sees a ground pin on the "AC" end. If that's the case, he postulates that the pin is connected to the sleeve of the RCA connector, and there is no connection to the center pin of the RCA, or to the AC itself.

The purpose would be to supply a ground to a piece of equipment that has no ground, such as the many pieces of consumer audio equipment that only use two-pin AC plugs. Interesting!

George writes that he's reminded of an audio amplifier and accessory tuner that he owned in the 1950s. Each was built on an open metal chassis, with the tubes plugged in on the top surface. The tuner got its power from the amplifier via a plug-in connector.

For some reason, perhaps to save pins or avoid ground loops, the power connector carried DC power only. The ground return was the RCA audio connector, which carried the audio from the tuner to the amplifier.

George found out the hard way when he unplugged the audio cable to reroute it, then put his other hand on the chassis to steady it as he plugged the connector back in.

See POINTS FOR YOU, page 32 ▶

Fig. 1: It looks weird, but it was a lifesaver for surprises at remotes.

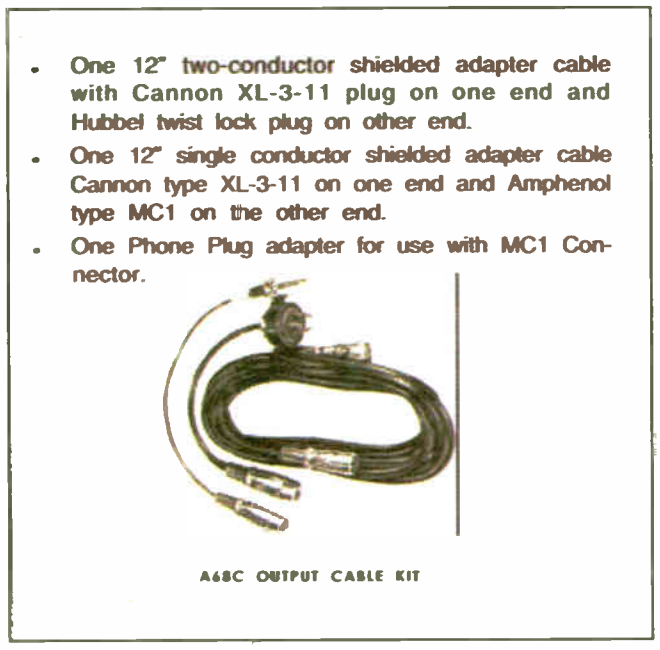

Fig. 1A: Image from M62V manual, dated 1969.

Fig. 2: Your points are never lost with the FIM-4100.

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StudioDrive shown with optional Desk-Mount Kit.

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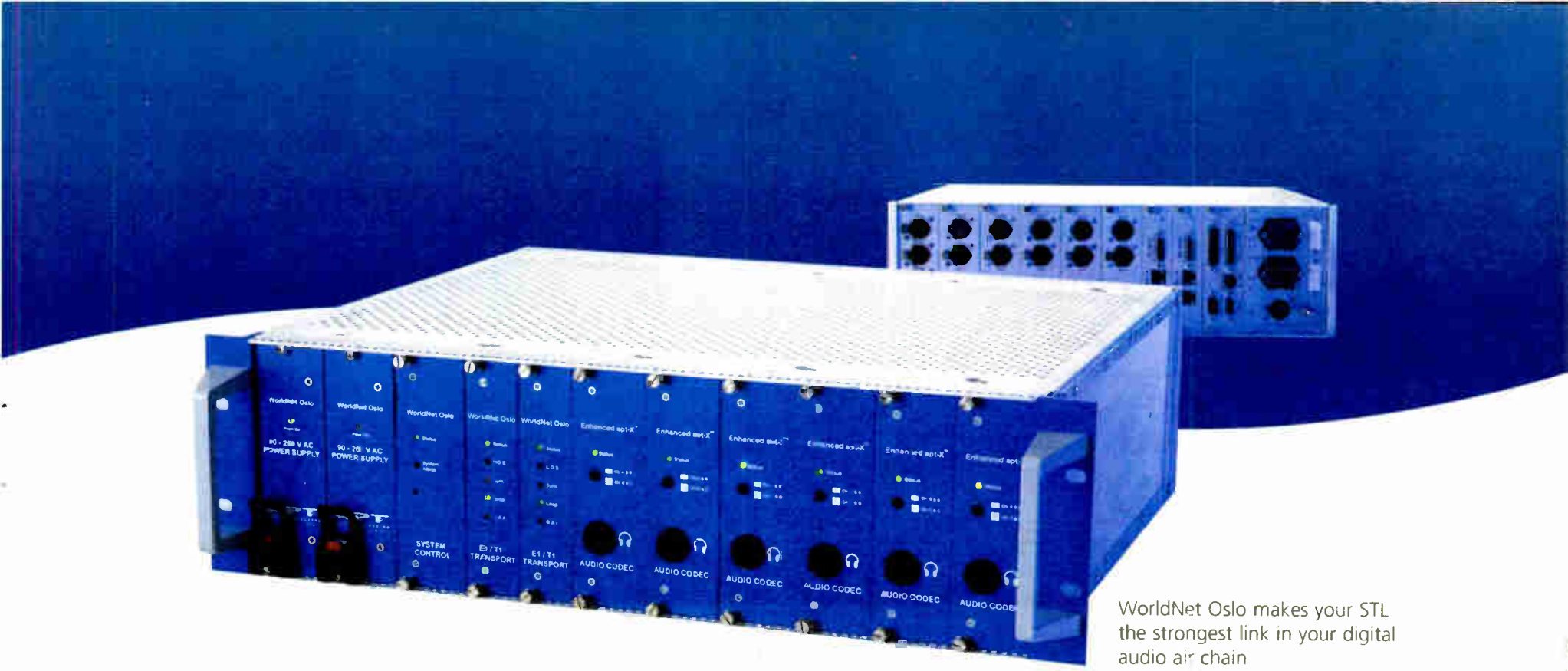

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World Radio History

Points for You

▶ Continued from page 30

Waters can be reached at *grg999@gmail.com.*

★ ★ ★

Gordon Carter, chief at Chicago's WFMT(FM) and the WFMT Radio Network, urges readers to think older.

He remembers when the twist locks were used for mic connectors, too. He adds that the adapter cable could have been used to adapt a line-level source, like a consumer tape machine, into the mic input. Gordon writes that there might be a couple of resistors under the tape, making a simple "L" pad, to reduce the level! He's at *gcarter@wfmt.com.*

Ben Dawson was the first to identify the connector properly as a three-terminal 'Hubbell twist lock.'

Fred Shetler from Port Royal, Pa., correctly identified the connector as a three-prong twist lock, adding that it could never fit in an normal AC outlet. He also saw the connector used as a mic connector many years ago.

When he was working for WDAD(AM), the Collins 12Z Remote Amp had the connectors modified to the twist-lock style. All the station mic cables had this style connector also.

Fred adds that he did the church remotes for years and used them every Sunday.

★ ★ ★

And Ben Dawson, principal engineer at Hatfield and Dawson, weighed in, remembering at least two kinds of "twist-lock" connectors, one the type seen in Fig. 1, another that had a barrel/cavity with the connections on the sides. Both kinds, he said, were used as audio connectors.

Fig. 3: Front-panel display of the FIM-4100

Ben was the first to identify the connector properly as a three-terminal "Hubbell twist lock." He writes that not only were they occasionally encountered as microphone connectors in old studio and semi-permanent remote installations, they were used along with Cannon "P" connectors and even three-terminal Jones plugs. He thinks the cable may be a relic from a poor soul in the 1950s or '60s who was trying to get some awful Webcor or Tandberg radio to put out audio in his antique production room.

Ben adds that getting to or from a 50-ohm low-level input/output to Hi-Z RCA pin plug is a little odd but not unreasonable. Remember that Motorola — and Moseley, when it remarketed chassis it bought from Motorola — used RCA pin plugs for 950 MHz RF connectors!

The RCA pin plug is one of the finest examples of cost-effective design Ben's ever seen, and he still hates them. Dawson can be reached at *dawson@hatdaw.com.*

★ ★ ★

The last quarter will be here before you know it. Now is the time to start your wish list for capital improvements.

If you handle AM stations, particularly directionals, here's a product you must consider. It's a new AM Field Strength Meter, Model PI-4100, manufactured by Potomac Instruments; it earned a Radio World "Cool Stuff" Award this spring.

Potomac has ended the problem of finding monitor points. It combined GPS, compass, self-calibration, digital tuning, and data acquisition and storage capability. This last feature anticipates the future acceptance of e-filing of data by federal regulatory agencies.

An expanded view of the screen is shown. You can get a PDF of the data sheet by heading to *www.pi-usa.com.*

★ ★ ★

A reminder: Don't forget about entering our do-it-yourself circuits contest. We've got engineering-themed T-shirts to be awarded to the three best "home brew" circuit projects, courtesy of the NAB Store.

Your submission can be an equipment modification that improves performance or a bread-boarded circuit that solved a problem at your stations. E-mail or fax your entry using the information below. Be sure to include a clear drawing of the schematic, a high-resolution digital picture of the device, a parts list and a description of what the circuit does.

It's an opportunity to put a few bucks in your pocket, a shirt on your back and credit toward SBE recertification on the books.

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

MARKET PLACE

Translator Monitor 2000 Is First Product of Crown/AIRSIS Partnership

A new distribution agreement means Crown Broadcast will be able to offer the AIRSIS transmitter and translator product line to its customers.

Crown Broadcast/International Radio and Electronics Corp. and AIRSIS Inc. announced the non-exclusive distribution deal. Crown Operations Manager Cleo Betts made the announcement with Alan Remen, AIRSIS vice president of business development.

The first product offered under the agreement is the Translator Monitor 2000, which allows an engineer to monitor and control a Crown transmitter/translator network via satellite and the Internet. The system monitors and sends alerts based on the customer's parameters; it receives diagnostic and operational commands such as turning transmitter on/off; and occupies one rack space.

Communication is via Internet or any land-based or cell connection for alerts. Crown said the system does not need phone connections, satellite dishes, Web interface modules or a PC in the tower.

Also offered is a monthly Web service that lets users manage the transmitter network. Sensor signals send data, reports and alerts via the Web to station personnel.

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World Radio History

Tour Tower Sites Coast to Coast, Virtually

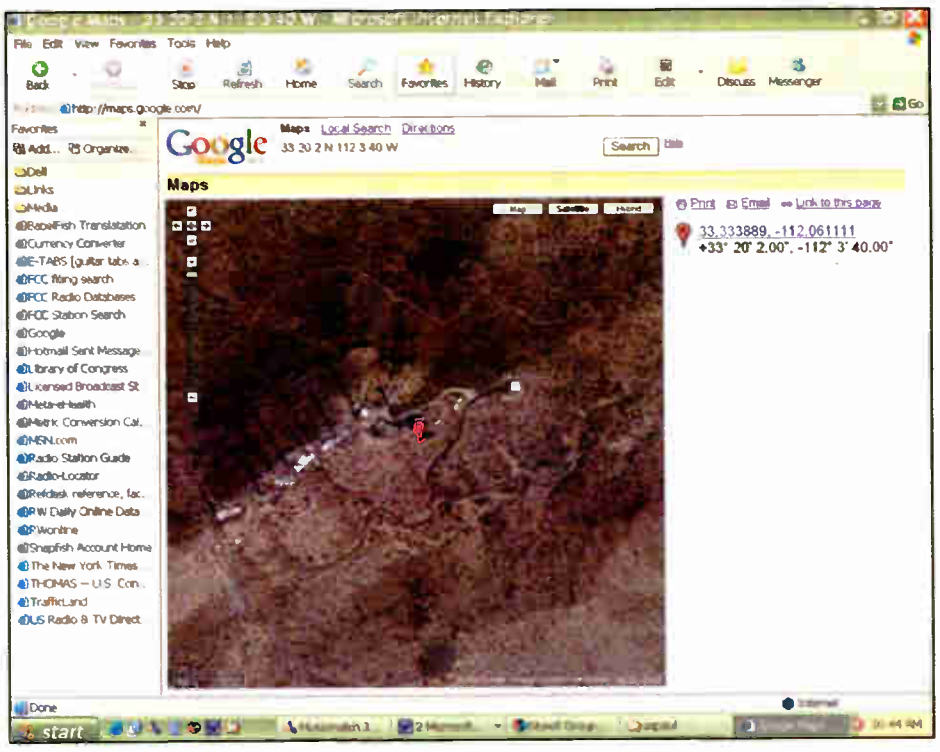
by Scott Fybush

I admit it. I'm addicted to traveling to tower sites.

And I've got a good excuse — something about needing new pictures for my Tower Site Calendar and for Tower Site of the Week at *fybush.com*. But even so, all that time on the road and in the air gets pretty draining after a while.

So when the radio message boards began buzzing about a new, less strenuous way to see some of the greatest sites in radio, I was ready.

The magic carpet comes to us courtesy of Google, which quietly launched a new mapping site, Google Maps, at *maps.google.com* a few months ago. The maps were neat, but the fun really began when Google added "satellite" images to its arsenal after buying an imaging company called Keyhole.



A view from above of South Mountain, serving Phoenix, from Google Maps. Note the shadows of broadcast tower shadows stretching up and to the left.

Click and go

Here's how it works: as long as you know the coordinates of the station you're searching for (and if you don't, a search site such as *www.fccinfo.com* will pull them up), you can enter them into the search field at *maps.google.com* just like this: 40 45 10 N 74 6 15 W. Try it.

Neat map, huh? But wait. Go ahead and click on the "satellite" tab at the upper right corner of the screen, and behold. You're now looking at the three-tower site of WMCA(AM) in the swamps of New Jersey from high above.

Go ahead and zoom in, using the zoom bar on the left, and you'll end up with a magnificent view of the old Truscon towers and the catwalk that leads out from the transmitter building.

Go just to the northwest, across the New Jersey Turnpike, and you'll see the remains of the old WNEW(AM) two-tower site, abandoned in the shallow water since the station (now WBBR) moved to a new site a few miles to the north in 1967. (And you won't have to sit in Jersey traffic to get there; just punch in "40 48 39 N 74 2 24 W" to see what that site in Carteret looks like from above!)

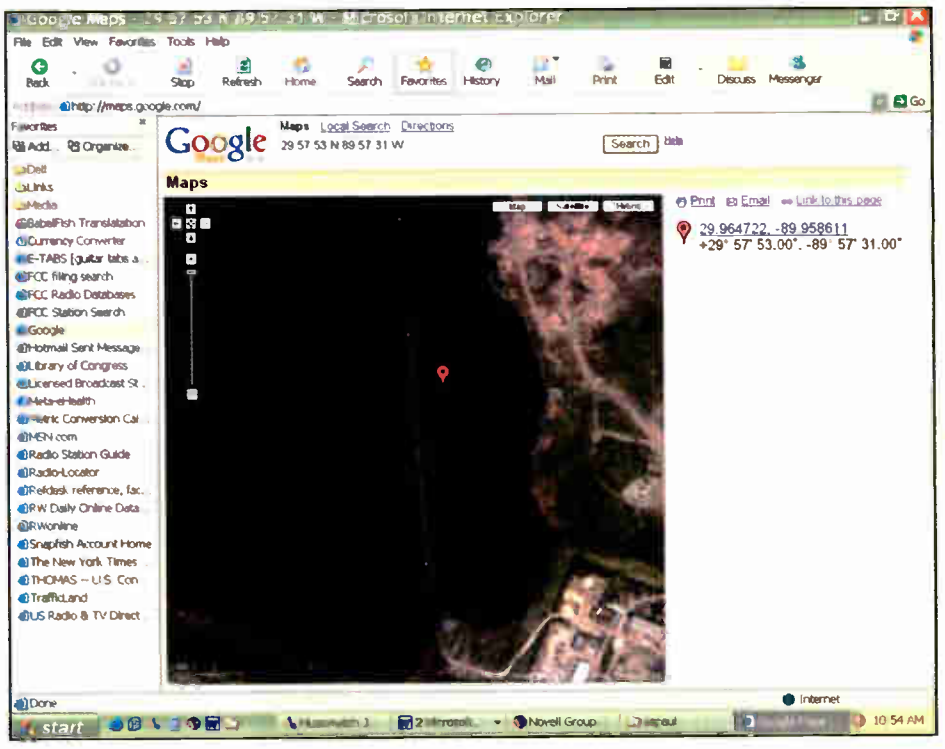
Click on the "Hybrid" command, and the image will be overlaid with map information.

Six to try

Having fun yet? We're just getting started. Here are a few more destinations for the discerning, yet lazy, radio tourist:

42 1 39 N 83 20 42 W — Strange alien land works? Nope — it's a modern, computer-designed AM directional array, this one belonging to WXYT(AM) Detroit, with nine towers.

29 57 53 N 89 57 31 W — Another watery site, this one down Nawlins way — the four towers of WTIX(AM), to be exact.



The four towers of WTIX(AM) in New Orleans.

33 20 2 N 112 3 40 W — Doesn't look too impressive, until you zoom in and see the shadows from more than a dozen FM and TV towers. Zoom out a few times and you'll see that we're high above South Mountain, which is itself high above Phoenix, Ariz.

42 16 44 N 70 52 34 W — A sentimental site for me, since this is the first big station I ever worked at — WBZ(AM) in Boston. But it's a neat transmitter site, too, with two tall towers rising from the little peninsula of Hull, Mass., and nothing but salt water between that site and downtown Boston, 20 miles northwest. (The big open area south of the two towers used to be home to Westinghouse's WBZ shortwave station — and can you pick out the residential-style transmitter building from above?)

37 31 35 N 122 6 2 W — Here's one for the West Coasters: it's the three-tower array of KGO(AM), San Francisco, alongside the Dumbarton Bridge on the east side of the bay. It's just one of several nifty sites in the Bay Area — look along the tollbooths on the east side of the Bay Bridge, a few miles north, to spot a few more.

42 0 42 N 88 2 7 W — Our final stop on this tour needs no identification — literally. Take a look for yourself, and you'll see that this legendary 50 kW voice of the Midwest has thoughtfully spelled out its own call sign in painted rocks on the ground just west of its tower. (And follow the road south from this site about two miles to see another 50 kW station from this windy city, too.)

Now, nothing can compare to actually visiting these sites in person. And there are some limitations to what Google Maps can do. It's not great on skinny towers, especially if the photo was snapped at a time when the sun was high in the sky and nothing was casting much of a shadow. It's also not complete; outside major cities, the images on display are often low-resolution ones that can't quite resolve a tower site.

Nothing can compare to visiting in person; but Google Maps lets you take a fun virtual tour of tower sites.

It's a work in progress, with the promise of more hi-res images on the way. I've also heard that some sites show up better on other mapping sites, such as *terraserver.com*, so it's worth clicking around.

What are *you* finding on the mapping and satellite sites? Share some of your favorite coordinates with us at RW, and we'll publish another "virtual tower tour" in a future issue. E-mail me at *scott@fybush.com*.

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World Radio History

ROOTS OF RADIO

When Broadcasters Went to War

The Late Jack Kruschen Recalled What It Was Like To Help Establish the Armed Forces Radio Service

by Bill Ryan

The year 1942 was pivotal for the United States, with the Japanese controlling most of Southeast Asia, and the Nazi and Italian war machines occupying virtually all of Europe.

American factories had geared up for war; millions of men were inducted into the armed forces. They were given basic training at dozens of camps, preparing for duty in this country and overseas.

In the early days of wartime, several small radio stations were established by servicemen in various military outposts. Their success prompted the creation of the Armed Forces Radio Service in May of 1942 by the War Department, predecessor to the Defense Department, as a means of entertaining and informing military personnel on base or shipboard.

On the scrounge

Switch to California's Mojave Desert, where soldiers were being trained for combat in the harshest conditions. Enter Jack Kruschen at Fort Knox, Ky. The Canadian-born U.S. Army private had been a radio actor and announcer in Hollywood. Kruschen knew his way around Hollywood and he had the confidence of AFRS brass. His superiors ordered him to set up a radio station at Camp Young.

The little station would serve as the model for the AFRS operation as it expanded. Development of AFRS programming began with Kruschen there.

"If I described leaving Fort Knox in freezing weather and arriving at the Indio, Calif., railroad station in 120 degrees, that was my first taste of the Army's Desert Training Center," Kruschen said in a 1984 interview with the Society to Preserve and Encourage Radio Drama, Variety and Comedy.

"There was a small building, probably about 10 x 14. We had a Signal Corps transmitter on the broadcast band, a Collins mixer with two remotes and two in-studio positions — two actual microphone pots for the studio and a recording pot and a 16-inch table with a lathe-type recorder. We were licensed as an experimental station."

Kruschen said he began with one microphone but managed to "scrounge" three more — "Don't ask me how, for the statute of limitations is still on for anything taken from the services," he said in the SPERDVAC interview, which is part of the organization's audiotape library.

"We used carrier wave, with the transmitter hooked into the camp's power and telephone lines. We were sometimes heard in Palm Springs, about 30 miles away.

"I had no records, and a license to broadcast as long as I could without killing myself. I developed the 'quick trot,' which got me to the latrine after I turned on the transmitter in the morning. I played the 'Star Spangled Banner,' then read some news I had copied from sources that I would listen to, then ad-lib through the morning."

Photos courtesy Kruschen family

An photo circa 1942 of Jack Kruschen reading news in his Camp Young control room in the California desert. Note the RCA microphone and windup alarm clock.

It wasn't long before Kruschen had all the records he needed, through friends at Hollywood's Music City stores and the new Capitol Records Co. He later received the NBC (RCA) Thesaurus music library and eventually had two 16-inch turntables for recording or playback.

Kruschen developed disk jockey shows and request shows, mixing news received from other stations. He also devised "Prof. G.I.," based on the popular "Dr. I.Q." radio show.

He said mail started coming in from the first week on the air.

Kruschen at the console. He has by this time received disks to play on his combination playback and recording turntable (and two chevrons on his sleeve).

Birth of a network

"About a year into it, I finally had a headquarters in Los Angeles, which was set up to utilize what I had developed. There were stations that went into North Africa with the troops and into Sicily."

Once Kruschen had established a successful format, AFRS set up stations at other bases, operated by personnel who also had worked in radio. (They too probably had to do some scrounging.)

"Some troops in the South Pacific had developed their own small setups, independent of the Armed Forces Radio Service. These were all later combined, and were supplied by Hollywood with 16-inch pressings of AFRS shows."

Those shows included "Command Performance USA," "Mail Call," "At Ease," "G.I. Journal" and popular programs like Jack Benny's and "Your Hit Parade" with the commercials removed.

Kruschen developed a system of broadcasting that would work in areas of combat.

"That little station in the building in the desert generated what now is the largest network in the world," he said in 1984, referring to the Armed Forces Radio & Television Service.

"Some of the early units that went to Africa and Italy and to the continent after D-Day were the units that were trained in the desert to work with portable equipment," he said.

See KRUSCHEN, page 37 ▶

STATION/STUDIO SERVICES

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World Radio History

Kruschen

▶ Continued from page 36

"Then, later on when I went to the Pacific — to Guadalcanal, Espiritu Santo and Bouganville — I found that every island that would accept our troops had a station set up to carry AFRS material."

Some stations were equipped to receive as well as transmit. Late at night, he recalled, the Voice of America would broadcast what he called "the slow news" via shortwave, for stations to copy, "since some of us in the Pacific didn't have recording equipment. This gave us news to disseminate on broadcasts," Kruschen said.

"We scrounged and found an RCA 1K transmitter — the last one available — to take with us when we went to the most forward station in the combat zone," in Japanese-occupied Bouganville.

Kruschen said that the staff of AFRS in the Pacific had come from broadcasting backgrounds, and all were combat-trained. And the engineers, he recalled, were great.

Offloading his equipment from a ship at Espiritu Santo, the handlers accidentally dropped it into the bay; it could not be pulled out for two weeks. "We got it out and everything was encrusted with salt. These two engineers unwound, cleaned and rewound every transformer. They cleaned all the goop off of everything electrical. In a month, we were on the air, which I think is amazing.

"Whenever visiting dignitaries came — we had Jack Benny and Joe E. Brown and other big ones — we made sure we had them on the air," he said.

"Tokyo Rose was big on the island," he said, referring to the English-speaking female broadcaster of Japanese propaganda. "She would say something and we would rebut what she said. She was broadcasting from Tokyo on a high-power transmitter and we had just 1K. A friend in the Seabees personally dug our copper wire ground system, and we had a full-wave antenna.

"We took an old surplus ambulance, repaired it and put a broadcast station into it. We towed our own generator, and had a transmitter similar to the one I used at Camp Young. We put in a single turntable and lined the walls with records, giving us the capability to go anywhere."

Wire service

By 1945, Kruschen and his crew were on the air 24 hours a day in newly liberated Manila. By this time the operation was using wire recorders, which were much more portable. "We (also) had a lot of Hallicrafters equipment," he said.

"We were set up to go with the invasion of Japan and take a Japanese station that had been 'pacified,' but the A-bombs ended the war.

"By December, 1945, I had enough points to come home, with additional credit for combat duty. I left that month, just 10 days short of four years in the army."

By the end of the war, according to a Museum of Broadcast Communications history, there were nearly 300 AFRS radio stations operating; the number decreased to 60 a few years later and continued to fluctuate depending on U.S. military commitments.

Looking back, Kruschen said in 1984, the most valuable thing the service had supplied in addition to entertainment was news. "We had a good editorial staff. We also helped miniaturize broadcast equipment." But Kruschen's greatest contribution to the war effort was developing the format used by Armed Forces Radio stations around the world to inform and entertain U.S. troops.

Kruschen went on to become a successful Hollywood character actor. He worked on radio dramas and appeared on dozens of network TV shows; he appeared in more than 100 movies and was nominated for an Academy Award for his work in "The Apartment." He died in 2002 at the age of 80.

Bill Ryan is a retired college professor and former broadcast news writer for UPI. Reach him at wryan1807@aol.com.

Share your radio stories at radioworld@imaspub.com.

Kruschen, now a sergeant, worked up an audience participation show to entertain the troops. Here he is quizzing a contestant on his 'Whatcha Know Joe,' a takeoff on a popular radio show of the time, 'Dr. I.Q.'

PBX Interfaces (Between handset & phone)

PBXport New in 2005, this professional digital hybrid provides talk show quality caller audio from any PBX phone system. PBXport allows you to send mic or line level signals through the handset cord of any telephone system and return only the caller's voice, ready for broadcast.

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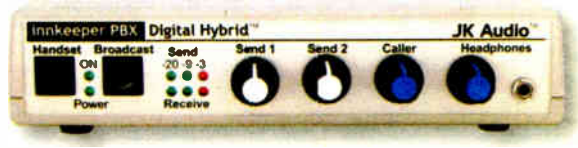

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World Radio History

Radio the Way You Want It

Dallas-Based RadioTime Aims to Be The TV Guide and TiVo of Radio

by James Careless

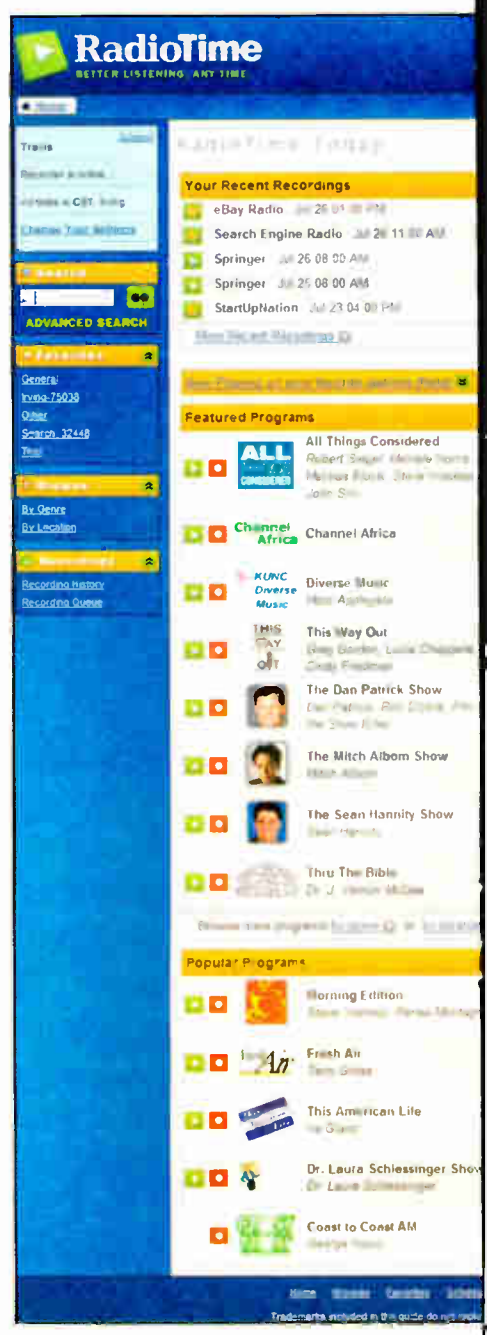
TV viewers can find the shows they want using TV Guide, or record them for later viewing using TiVo; why can't radio listeners do the same? A Texas company says they can using RadioTime, a Web site that allows the user to search for favorite streamed shows for free and record them using RadioTime's player/recorder for $39 a year. The site is *www.radiotime.com*.

For $59, RadioTime will throw in a USB AM/FM Tuner that allows your PC/Mac to tune and then record local AM/FM broadcasts too. Recordings of local or streamed programs can be replayed on a PC, broadcast to the home stereo using a short-range wireless FM transmitter, such as the $69.95 model sold by C. Crane Co., or transferred via USB cable to an iPod or MP3 player for portable listening.

"People want to find and hear the radio shows they love, when and where they want to hear them," said RadioTime founder and CEO Bill Moore, age 43. "With RadioTime, this is easy."

The company, based in Dallas, was founded in 2002 and is privately held. It states its business mission as "tracking and delivering structured information covering millions of radio programming events around the globe." Moore's background includes broadband networking and consumer software. He says he founded the firm "after years of personal frustration without a way to find radio programming or listen when I wanted. Knowing widely deployed broadband would bring even more selection, we decided the world was ready for a radio electronic program guide, so we built the business."

Conceptually, RadioTime is simple. Users surf to the site, enroll for free and use customization features to select the types of music and talk shows they like — including preferred programs — plus broadcasts on local AM/FM stations. The site also provides information on specific programs, hosts, guests and show topics. When used to search local broadcasters, RadioTime can help listeners decide which station to tune to while driving to work, or commuting on the bus.



The Member's Portal provides a for access to past and

To make the selection process easier, RadioTime's search engine can browse by keywords such as "cars," "NFL" or "San Francisco news."

Results can be viewed using a TV Guide-style grid, while favorite programs and stations can be filed into folders for access later.

Such searching and subsequent online tuning makes up "90 percent of RadioTime's current activity," Moore said. "People use our service at work to find the programs they want, whether through streaming media or tuning to local stations."

For the remaining 10 percent who want to timeshift programs for later listening, RadioTime offers its own downloadable player/recorder software, available for a free seven-day trial and sold for $39 a year. The software lets listeners select shows they want using RadioTime's program guide. The player/recorder logs onto the desired streaming audio Web site at

See RADIO TIME, page 39 ▶

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Moderator:
Panelists:
Former President of Group W, CBS and Infinity Radio
Operations Manager, Journal Broadcast Group/Wichita
Vice President, Programming, Regent Communications
Vice President, Programming, Emmis Communications
Executive Vice President, Programming, Spanish Broadcasting Systems
Vice President, Urban Programming, Clear Channel Communications

Thursday / September 22
9:00 - 10:15 AM
Keynote Address
Seth Godin
Author, Entrepreneur and Agent of Change
Opening Remarks by Eddie Fritts, President/CEO, NAB
Event sponsored by: AP Radio News

Thursday / September 22
6:00 PM
NAB Marconi Radio Awards Reception, Dinner & Show
Master of Ceremonies
Kidd Kraddick
Kidd Kraddick in the Morning
Premiere Radio Networks
MARCONI Radio AWARDS
Talent
Delbert McClinton
BMI singer/songwriter
Co-sponsored by: BMI

Thursday / September 22
1:30 - 2:45 PM
Group Executive Super Session
Sponsored by: INTEREP
Moderators:
Katy Bachman, Senior Editor, Media Week
Panelists:
Ed Christian, President/CEO, Saga Communications
John Hogan, President/CEO, Clear Channel Radio
Joel Hollander, Chairman/CEO, Infinity Broadcasting
Mary Quass, President/CEO, NRG Media
Charles Warfield, President/COO, ICBC Broadcast Holdings

Friday / September 23
12:00 - 1:30 PM
Radio Luncheon
Speaker:
Randy Jackson
Westwood One
NAB National Radio Award Recipient John F. Dille III, President and Chief Executive Officer Federated Media
Sponsored by: ASCAP

Friday / September 23
7:30 - 8:45 AM
Legislative Breakfast
Mark Plotkin
Political Commentator and Analyst
Sponsored by: INSIDE RADIO

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World Radio History

Radio Time

▶ Continued from page 38

the right time, recording the audio stream to the user's hard drive. In those cases where the PC has a USB tuner, such as RadioTime's own FM unit or the AM/FM radioSHARK receiver, off-air broadcasts can be captured as well. Shows are recorded as MP3 files, making them compatible with portable digital music players.

'RadioTime at a Glance' feature scheduled recordings.

The back office portion of the system relies on automated software called RadioMill and staff who maintain the guide.

The business case

At first glance, the RadioTime concept seems a bit dot-comish; surely people won't be willing to pay for recording radio shows when they can tune in for free.

But Moore says 4,000 people have paid RadioTime for its recorder, although the site has done little promotion and only launched in June. Also, he sees the biggest opportunity in licensing its software to radio manufacturers, who can then offer it as a value-added feature on new receivers.

"When you buy a new TV and turn on its program guide, it doesn't say Channel 27; it says HBO and tells you what's on," Moore said. "RadioTime can do the same for local and Internet radio."

Moore's third idea is to sell data to Web portals, which can then use it to attract surfers.

"We are akin to Gemstar or TVData," he said. "By compiling all of the unorganized data on local radio and Webcasting stations and programs into a coherent, easy-to-surf package, we have created something that other people want to offer. This is why we have been working with major portals to deliver RadioTime the way surfers currently access TV listings online."

Impact

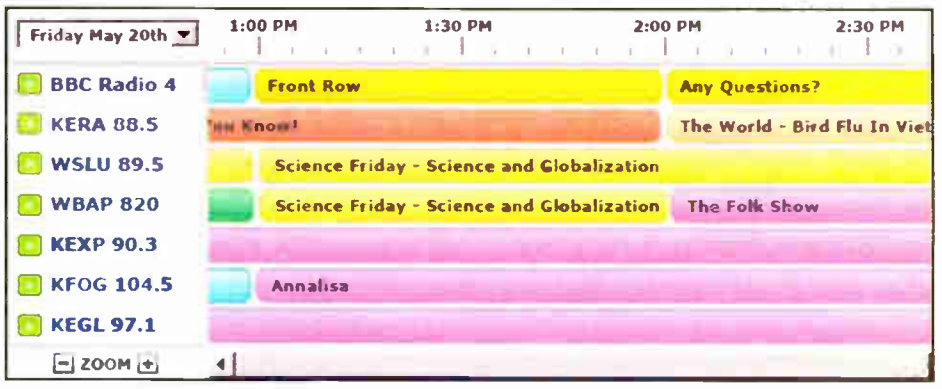
Every time something new like RadioTime hits the Web, AM/FM station owners are confronted with the same question: Is the newcomer an ally or a threat?

From Moore's perspective, his service is definitely an ally.

"A guide is valuable to any industry. RadioTime shows listeners the depth and quality of radio programming available. The guide connects 'old radio' content, quality and distribution models with 'new radio' features."

One particular winner, as far as Moore is concerned, is talk radio.

"The demographic we are targeting — 30 to 55 — is tired of listening to the same music, and hungry for good spoken word programming," he said. "RadioTime helps them find it."



An example of the 'TV Guide'-style live programming screen

World Radio History

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World Radio History

Russell Johnson's Station in a Box

by James Careless

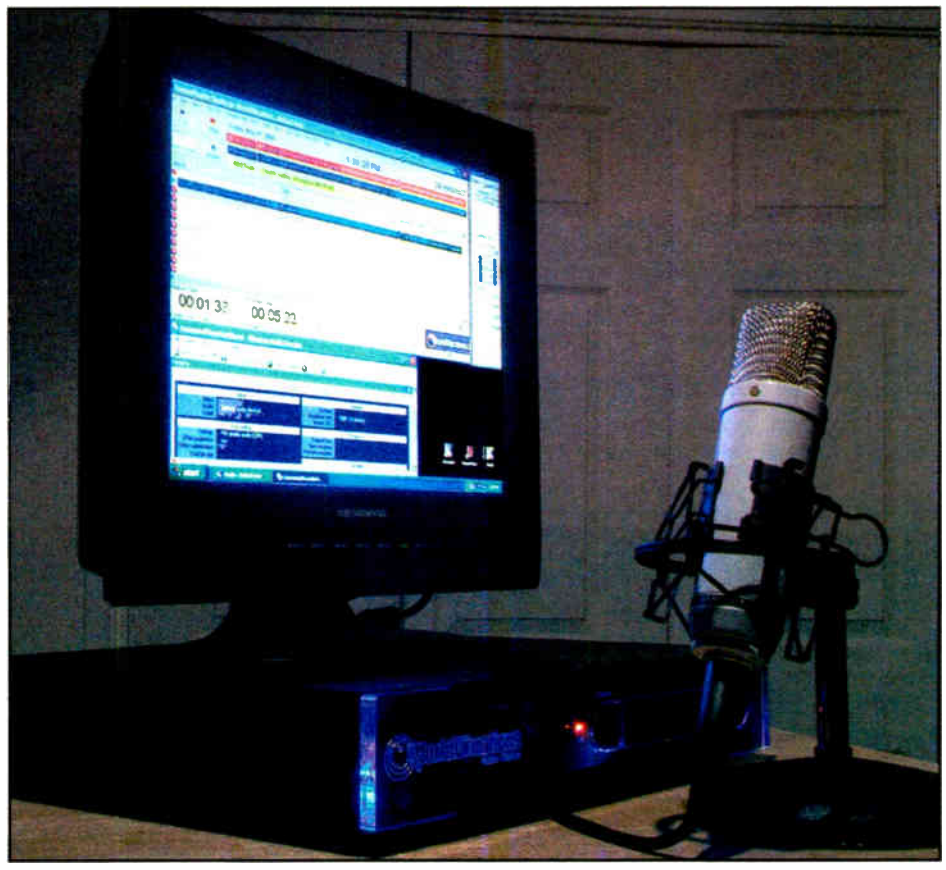
Pack an automated radio studio into a fanless, VCR-sized case. Add a price tag under $3,000 and you've got the WorldVibrations Radio Station & Podcaster.

"It can serve as a complete radio station in a box, including a built-in CD player, professional-level audio interfaces, voice tracking and automation software and Internet streaming," said designer Russell Johnson. "All you have to put it on the air is add is a microphone, EAS generator and a transmitter."

The system, also called the WVRS-P, can produce, record and replay stereo audio to air or the Web. Under certain circumstances it could automate 5.1 multichannel music selections using Windows Media.

It can run in automated mode, leaving open windows for inserting live newscasts. With a microphone, the system can be used for live-assist, with the DJ able to drag-and-drop music, commercials and PSAs.

With a mixing board, the developer said, the WVRS-P will support complex live broadcasts. It can serve as a production studio, recording and editing while playing programming to air. The WVRS-P can record its air feed in real time, then store the files for podcast downloads. "The unit can be used by podcasters to automate their short segments into a full 24x7 radio station," he said.



The WVRS-P is shown. Monitor and peripherals are purchased separately.

Genesis

Despite its price tag, Johnson thinks big. "With two units, one for on-air and one for production and backup, you could create the kind of redundancy desired in a big-time operation." He says the biggest challenge in such a situation might be an interface with proprietary back-office traffic databases, which would probably need systems custom-designed around legacy gear and software.

"Ours is turnkey, simple to set up and use — more suitable for a first-time digital broadcaster without a lot of technical baggage."

Johnson says he knows of no other system that integrates automated and live broadcasting, audio streaming, offline content production as well as podcast creation and publishing. He describes other systems as "limited-purpose automation computers ... that are built in towers or minitowers with noisy fans."

His target, though, is not limited to the traditional automation market. His Web site details possible users including hobbyists, bands, religious organizations and cultural institutions.

With three decades in the industry, Johnson is familiar with radio having programmed content and managed automation systems. He now is a media producer whose clients include the Asian Development Bank and the U.N. Development Program; he has done work in Web and streaming media development and produced HDTV content.

But he says his dream was to find a way for community and nonprofit broadcasters to have access to tools used by the big boys at a cost they could afford.

Capabilities

It was his wife Pat Meier who made it possible for Johnson to realize that goal. She owns and operates the PR firm Pat Meier Associates.

"One of my wife's clients is VIA Technologies, which makes computer chipsets and hardware that is used by computer, appliance and set-top box manufacturers," Johnson said. "As it turned out, combining VIA's professional-level Envy24 sound processor, low-power-consumption/low-heat EPIA motherboard creates a powerful, capable broadcasting appliance that doesn't need a fan.

"As a result, the unit — although it is PC-based, it is really an integrated unit built on a chassis also used in PVRs — makes very little noise, making it ideal for in-studio use." The units are built by VIA to his specs.

The WVRS-P is a horizontal unit with room for a monitor on top and connections for keyboard, mouse, USB-2 for storage, FireWire, for connecting iPods and other audio devices, balanced, professional audio inputs/outputs and Ethernet.

The system is a custom integration of hardware and software for which Johnson has a patent application pending. The operating system is Windows XP Pro, which he says allows for Internet time checks, remote operation and maintenance and compatibility with other storage and production devices.

The unit records in WAV and creates and uploads MP3 and XML files for podcasts; the automation plays back most audio formats including WAV, MP3, AIF, WMV, Ogg and others.

He believes the system has applications for remotes. At the store, fair or car dealership, the jock can produce the show as if he or she were in the studio.

Because it can output MP3, Windows Media or Real Media audio, the system can be used for conventional broadcasts, webcasting or in-house broadcasts through corporate LANs and PA systems simultaneously. The WVRS-P will generate program, music and announcement logs, and can send HTML playlists and "What's Playing Now" information to the transmitter, Web site or Internet radio services.

A 12-volt DC car battery can power it, so a WVRS-based station can be established anywhere a car can drive, such as a remote Third World village. The original WorldVibrations Radio Station has, in fact, been included in UNESCO's guide to village radio.

The WVRS came to market in late 2004. Johnson has sold one to a music magazine for a webcast featuring new artists. "Another was purchased by a college station for webcasting, one (went) to a sports network while four more have been acquired by religious organizations."

He uses the prototype to produce "Connected Traveler Radio," a webcast/podcast of world music, culture and travel that Johnson records with Meier. The WVRS-P came to market this summer and replaces the earlier version.

"The new WVRS-P integrates both the technology and workflow of podcasting, making broadcasters podcasters and podcasters broadcasters," he said. "This unit allows broadcasters to aircheck a show while it is being broadcast live from the unit and then, from the same unit, publish an on-demand podcast by converting that program to MP3, creating an XML file and uploading both to a podcast site."

Johnson believes his invention could be used by organizations as diverse as hospitals, museums and retailers.

"I created the WorldVibrations Radio Station & Podcaster to make professional-sounding radio production affordable and accessible to almost anyone," he said. "It is a way for local communities, individual artists and groups to gain a voice."

The company Web site is *www.worldvibrations.com.*

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World Radio History

BEE Expects Second Sellout Show

The SBE-Sponsored Broadcast Engineering Expo Emphasizes Practical Uses of Digital Technologies

by Stephen M. Poole

Gerry Dalton knows all about burning the proverbial candle at two ends.

In addition to his engineering duties as part of the Tier 3 Team for the Network Operations Center of Consolidated Communications, a local exchange carrier, he's vice chairman of local SBE Chapter 67 Inc.

He edits the newsletter. He's been helping the local chapter to tweak its bylaws. And he is the chairman for the Broadcast Engineering Expo, or BEE, in Dallas, which will be held Oct. 19-20 at the Hilton DFW Lakes Executive Conference Center in Grapevine, Texas.

What's it like to put on a BEE?

"It's a whirlwind for us," Dalton says. "We're all volunteers; it's tough to juggle the time needed to properly organize the event."

Adding to the whirlwind for 2005 is the fact that the national Society of Broadcast Engineers will be there.

Dalton gives credit to his team, Bill Wise and Martin "Sandy" Sandberg, who are handling sales for the event, and Dave Davis of University of Texas at Arlington and Buddy Brown of KTVT(TV), who are handling the programs. Members of Chapter 67 also are helping.

Mid-week

This is Chapter 67's second Broadcast Engineering Expo; Dalton says organizers have learned from last year's experience. For example, you might think the event would be held on a weekend; but Dalton says both exhibitors and attendees requested otherwise.

"Based on feedback, we moved the dates to mid-week to help the exhibitors and attendees."

Dalton expects to sell out the exhibit floor again. Vendors that have signed up include distributors such as Crouse-Kimzey and RF Specialties of Texas, and manufacturers for radio and television including Harris, ERI and Telos/Omnia/Axia.

Gerry Dalton expects Bootcamp to rival that

Digital technologies will be represented, from HD Radio and television to spread-spectrum links and station automation. But typical of an SBE-sponsored event, the emphasis is going to be not just on sales and viewing gadgetry but on the practical use of equipment in a typical broadcast facility.

Society events

Dalton says the Expo draws from the five-state region around Dallas-Fort Worth and is intended to be an opportunity for working engineers and engineering managers to enjoy one-on-one time with technical representatives of vendors.

"The smaller, more intimate atmosphere gives everyone a chance to ask more questions, get more answers and network with people who have similar problems. It gives the vendors a chance to meet their clients and bring in their best technical people to talk about the newest technologies and products," he said.

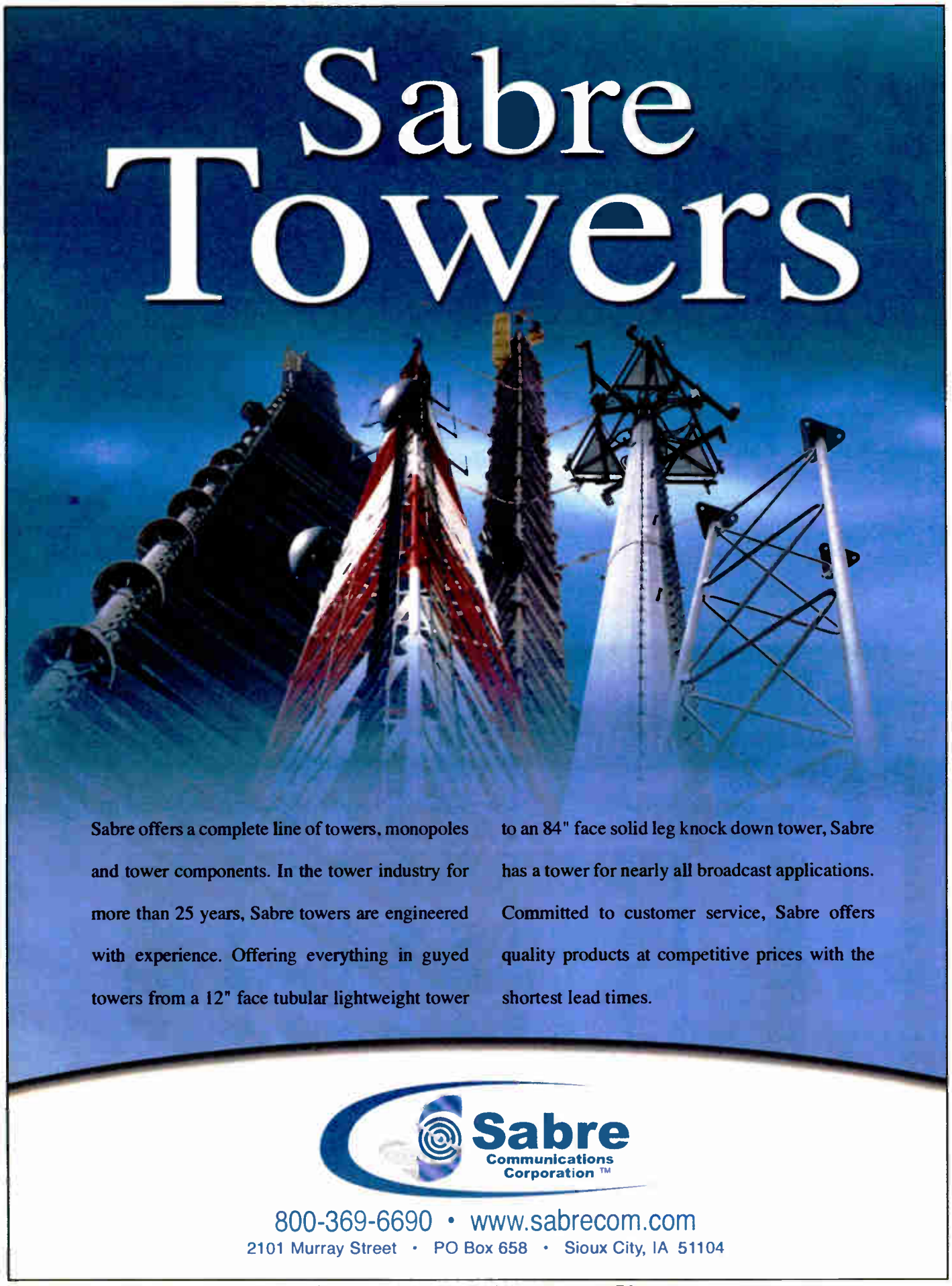
"We also expect the Ennes workshops to be well attended on Wednesday, Oct. 19, with a walk-around reception and a sneak peak of the exhibit floor scheduled for 6 p.m.," he said. "On Thursday, Oct. 20, we will have the exhibit hall open from 9 a.m. to 5 p.m., and are planning a walkaround lunch on the show floor, along with some short educational programs throughout the day."

John Poray, executive director of the national SBE, said the organization will hold its annual membership meeting in Dallas concurrent with the BEE, including the induction of a new national board of directors as well as the induction of a new president for the Society. The term of the current two-term president, Ray Benedict, is coming to an end this year. Chriss Scherer is running for president unopposed.

The fall meeting of the national board will take place on Oct. 19 at 6 p.m., followed by the annual Fellows Breakfast at 8 a.m. on the 20th. The SBE National Awards Dinner will follow that evening at 6 p.m.

At the dinner, the SBE will present annual awards for Broadcast Engineer of the Year, Educator of the Year and Technology.

See SBE, page 43 ▶



See Us at NAB Radio Show Booth # 706

World Radio History

SBE

▶ Continued from page 42

"We will also elevate two members to the distinguished SBE Fellow membership level," Poray said. "A number of chapters and members will be recognized as well, in about 10 award categories."

attendance at this year's CBNT of the inaugural show, shown.

The keynote speaker for the dinner will be Doug Rasor, vice president of Texas Instruments' Semiconductor Group. Tickets for the dinner are $12 and include a reception at 5 p.m.

For more information, visit *www.sbe.org* and *www.sbe67.org*; a list of participating vendors and exhibitors is at *www.bee2005.org*. For information on accomodations at the Hilton DFW Lakes Executive Conference Center, call (817) 481-8444.

As for Gerry Dalton? You'll see him there.

"Basically, Bill, Sandy and I move into the hotel for the three days involved with the show to cut down on travel. The national meeting means we have to plan for more meeting rooms, too."

Sometimes, the work is never really done unless you burn the candle in the middle, too.

Dalton gets a helpful push from Martin 'Sandy' Sandberg to get the financial work done during last year's show.

Other Regional SBE Events

A number of other SBE chapters plan shows and expos this fall. Contact local chapters for more information. The national SBE also maintains a list of events for which it has received information at its *www.sbe.org*.

At a typical expo, the trade show is free, but there may be charges for workshops or other events. In all cases, of course, you're responsible for your own travel and lodging.

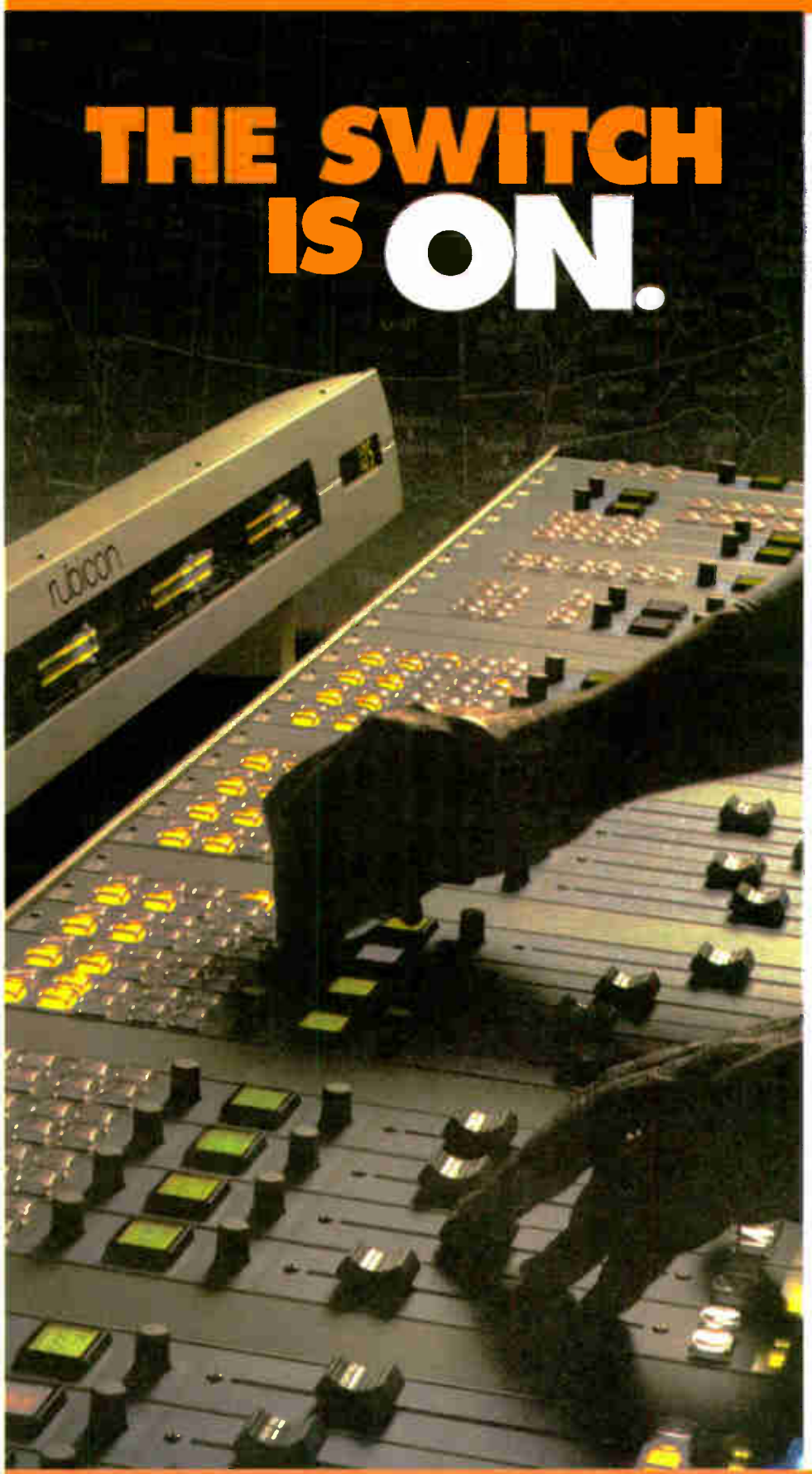
Here's a sampling of regional events from around the country:

Seattle — SBE Chapter 16 hosts Sea-Con 2005 on Sept. 15 at the Boeing Museum of Flight. Attendance is free, as is admission to the museum of flight. Visit *www.sea-con.org*.

Central New York — SBE Chapter 22 will present the 33rd edition of its Broadcast & Technology Expo on Sept. 28, at the Turning Stone Resort Convention Center in Verona, N.Y. Visit *www.sbe22expo.org*.

Pennsylvania — SBE Chapter 20 will host the 34th Pittsburgh SBE Regional Broadcast Expo on Oct. 20 at the Pittsburgh Radisson Hotel in Greentree, Pa. The theme is "Riding the Explosion" and admission is free. Visit *www.broadcast.net/~sbe20*.

Boston — SBE Chapter 11 will hold the BOS-CON SBE Regional Convention on Oct. 26 at the Best Western Royal Palace Hotel and Trade Center in Marlsborough, Mass. The trade show is free; there is a charge for the Ennes workshops. Visit *www.boscon.com*.



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World Radio History

Safety Rules Aid Remote Crews

by Craig Johnston

Considering the miles covered every day by electronic newsgathering and remote broadcast vehicles, they are involved in relatively few accidents.

But as Doug McKay, national sales manager for Frontline Communications, put it, when accidents have occurred, "Unfortunately, they were severe. When you do put the mast up into power lines, you pay a heavy price. People have limbs amputated. People die."

It's a story that affects both radio and TV broadcasters. Awareness was renewed once again by an incident in Virginia this summer, when four adults died erecting a tent at the National Boy Scout Jamboree. Although that was not a broadcast situation, news coverage of the tragedy reminded broadcasters of the dictum, "Look up and live."

Guidelines

In response to several high-profile incidents where ENG masts did come into contact with high-power overhead electrical distribution lines, the California Occupational Safety and Health Standards Board established a set of guidelines for ENG van construction and operation two-and-a-half years ago (see *www.dir.ca.gov/title8/2981.html*).

Among the CAL-OSHA guidelines specific to ENG are the use of switches that require constant pressure to raise the mast; level indicators to ensure that the vehicle is level; spotlights for operating the mast at night; audio and visual warning indicators to prevent moving the vehicle while the mast is raised; and extensive employee training about the hazards of electrical energy in relation to vehicle operations.

RW sister publication TV Technology spoke with four U.S. ENG vehicle builders about the state of news van safety since CAL-OSHA promulgated the new rules. Each noted that they build CAL-OSHA compliance into their news vehicles whether they are delivered to California or elsewhere.

"California sometimes leads the way in a lot of things," said Howard Kirsch, director of sales and marketing for E-N-G Mobile Systems. "I think California OSHA had led the way in safety in this country in a lot of areas, including ENG safety."

Van builders say their news vehicles were built more or less in line with CAL-OSHA prior to the regulations.

Wolf Coach ENG vans "always were CAL-OSHA compliant, less a few placards and things that we have adjusted to meet the new requirements," said Tom Jennings, broadcast sales manager for that company.

While van fitters said they were already paying attention to safety concerns, CAL-OSHA did spur customers to pay more attention to the need for safety gear.

Override features

In the past, "customers would have folks on their staff who would override the safety features we installed on the trucks," said McKay. "What has happened is our customers have had to adopt a company policy to say, 'if you are going to operate this ENG van, you need to play by the rules.'"

model AFS-3 audio failsafe

FUNCTION: dual channel, adjustable length silence sensor

FEATURES: two audio inputs • relay ouput • optional status voltage output for signaling external devices • silence detection delay from 30 seconds to five minutes in 30 second increments • positive adjustment via rear panel rotary switch • front panel LED status indicators • front panel defeat switch • internal audible alert--continuous or pulsing • audio detect mode • silence alarm output is compatible with RFC-1/B telemetry input and requires only two wires

model DAI-2 dialup audio interface

FUNCTION: remote broadcast or emergency interrupt via telephone

FEATURES: telephone line autocouper and tone decoder • momentary or latched relays for control and audio switching • programmable relay output • front panel relay status indicators • telephone audio output • audio monitor input • AGC on audio feeds • balanced audio I/O • four logic level input triggers • seven DPDT and one 4PDT relays

OPTIONS: CI-1 composite insertion module • DB-1 50ms delay board

model RFC-1/B remote facilities controller

FUNCTION: transmitter remote control via telephone

FEATURES: expandable from 8 to 64 channels of telemetry and control • programmable control activity by date and time • programmable telemetry alarms

OPTIONS: MA-2 modem adapter • PA-2 parallel printer adapter TS-1 temperature sensor • ACM-2 AC current monitor (tower light monitor) RS-232 serial data adapter • SP-8 telemetry and telephone line surge supressor

model RAK-1 intelligent rack adapter for RFC-1/B

FUNCTION: modem, printer output and battery backup for RFC-1/B

FEATURES: parallel printer adapter • modem adapter • backup battery • telephone line surge supression • front panel status indicators • sleek 1U chassis • available for new installation or as an add on accessory package for existing RFC-1/B installations *(use of the RAK-1 does not eliminate the need for the RP-8 relay panel)*

OPTIONS: SP-8/TO telemetry input surge supressor

model MBC-1 message board controller

FUNCTION: studio devices trigger custom messages on LED display

FEATURES: fifteen logic level inputs • selectable input priority • text and graphics can be combined in a single display • communications output can drive multiple displays • displays can have different messages on same input trigger • factory default messages for easy initial setup • works with inexpensive, attractive LED display

OPTIONS: OC-2 Optocoupler senses ringing telephone line

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When you do put the mast up into power lines, you pay a heavy price. People have limbs amputated. People die.

— Doug McKay

However, Mark Bell, who has written and lectured on news van safety and manages the ENG News Truck Safety Web site — *www.engsafety.com* — said broadcast van operators often still feel intense pressure from those back at the studio to get the van up and operating. Overloaded with tasks and under pressure, mental errors can occur.

To require operators to pay attention to the mast while it deploys, CAL-OSHA mandated constant pressure switches. But Bell noted that some companies have in-house cultures that encourage operators to find a way around such safety devices, describing one operator involved in a mast-electrical line accident who was taught to bypass such a switch.

"He had actually been taught by his station to get the generator going, and then move the lever to move the mast up and secure it with a rubber strap," he said. "That was in the OSHA notes in the investigation."

Perhaps such practices have become less commonplace with the new regulations in place.

See CAL OSHA, page 45 ▶

World Radio History

Cal OSHA

▶ Continued from page 44

"Customers are proactively purchasing safety devices, warning devices, and spending extra money ... to try to make the trucks safer," said Ron Crockett, president of Shook Mobile Technology.

Sonar system

One such device is the Will-Burt D-TEC AC Field Detection System, which has been available since 1998. Sitting atop an ENG mast, the system is an overhead sonar detector and an alternating current detector.

Will-Burt said it has begun a process to enhance the sonar and AC detection abilities with the D-TEC II. Although the device is undergoing field-testing and not yet in production, the company touts the D-TEC II as another important safety device.

Ed Williams, chief engineer for KPTV(TV) in Portland, Ore., led a disciplined ENG safety program for years before the CAL-OSHA regulations were issued, and he wonders how much CAL-OSHA has changed opinions.

"I have not had the impression from anyone that CAL-OSHA has made any impact beyond the first couple of weeks when the announcement came out, and everybody said 'we better get the new gear.' Beyond that I really do not hear about it too much."

One issue outside the CAL-OSHA regulations remains an area of concern for van makers: news vehicles that exceed their gross vehicle weight, or GVW, limitations.

"We are very, very conscious of truck weight and GVW, truck safety, so we try to use, as best we can, the lightest, most durable materials to keep the truck weight down," Kirsch said.

"We have customers demanding more and more hardware in these news vans, and now we are reaching the maximum weight limits," said Crockett. "We build them, as does everyone, to be safe when they leave our facility, but we have no control over what they put in them once they get out of here."

Next chassis up

If it looks like they will overload the vehicle once it is delivered, "you sort of advise them to go with the next chassis up," McKay said.

Jennings pointed to an additional problem: "There are manufacturers out there who are re-rating the OEM GVWR on vehicles and sending them into the field that way," he said, making tire, spring and other changes to the vehicle.

"The vehicle was designed to handle a certain amount of weight, and that is, by far, the more critical issue at this moment than the CAL-OSHA safety," he said. This, he said, is "just dead wrong. If not illegal, it's extremely risky."

Crockett said he thinks one way of lowering news and remote vehicle weight as well as the center-of-gravity is through power take-off (PTO) generators that mount in the vehicle frame and use the vehicle's engine for power instead of a separate engine.

"Because they weigh less than gasoline or diesel-driven units, that saves payload, which gives us more capacity aboard without keeping them up at the maximum weight," he said.

"There are some PTO generators that we can do 12, even 15 kW and fit them under the truck in the frame rails. That doesn't take up internal space, and where these things may weigh 200 pounds," he said. Conventional generators bigger than 7 kW can weigh 400 pounds, he said.

Bell said CAL-OSHA has put ENG operators and manufacturers on notice, but it might not be enough.

"I sometimes feel that in the industry in general, there is not quite enough spent for prevention as could be," said Bell, "and the dollars for an accident are huge. So it is really kind of a penny-wise, pound-foolish approach."

Ultimately though, Bell said, ENG/remote van accidents are human tragedies.

"Lives can be affected for generations."

Photo courtesy Mark Bell/www.engsafety.com

The Web site *www.engsafety.com* publishes photos of ENG and remote van accidents. This one was sent to the site from Australia and captures an accident as it happened.

See Us at NAB Radio Show Booth # 813

World Radio History

Radio, Tuning in to Multicast

Multicasting Is Embraced Quickly, But There Is Still Much to Learn

by Skip Pizzi

Last time we started a discussion on next steps for IBOC, and focused on multicasting as a potential killer app for HD Radio broadcasters on the FM band. This time we'll consider the receiver marketplace in that regard.

Of the relatively few HD Radio receivers in the market, even fewer handle multicasting, but this is about to change. Numerous new HD Radio receivers are expected to hit the market soon, and most of these will include multicast reception capability.

How these receivers display and navigate among multicast channels is not necessarily uniform, however. This creates a potential problem for consumers' accessibility to any new multicast services. It also makes broadcasters' promoting of these services difficult.

For this reason, the NRSC has established a Supplemental Identification Task Group, or SIDTG, which may ultimately provide the industry with some guidance in this regard.

(Note that *Supplemental Program Service* or SPS is the official title given to an IBOC multicast channel in the NRSC-5 standard, distinguishing it from Main Program Service or MPS, which in IBOC Hybrid Mode is the name given to the digital simulcast of the analog program.)

Meanwhile the industry is considering various elements of what the consumer experience of multicast services could soon be like.

Tuner behavior

The first commercial multicast-capable receiver was produced by Kenwood in 2004, and its designers made their own decisions on how to tune and display multicast channels. Initially the Kenwood design used the pause button of the CD player (which has no function when the tuner is selected, of course) as a method of selecting supplemental program audio.

Kenwood radios also displayed "-HD1" after the station's frequency, once the receiver switched from analog to MPS digital signal. If a multicast channel was selected, the display showed "-HD2" or "-HD3", etc.

Other HD Radio receivers will use a similar approach, but generally with only numerals "-1," "-2," "-3"... instead. Some units will display these subchannel identifiers in a highlighted circle or other geometric shape, to better distinguish them from the frequency numbering. More variation is expected on how to access the multicast channels (e.g., buttons with differing labels, menu-driven operations, etc.).

Most new HD Radio receivers will include multicast capability.

Then there's the "scanning problem."

If an HD Radio user is scanning upwards through HD Radio-enabled channels, typical tuning behavior is to first access a station's analog FM signal, and after about 5 seconds of acquisition time, to switch to MPS digital. Seeking or scanning any multicast services on that channel can then take place without difficulty (assuming the user knows what button to push).

When scanning *down* the dial, the user might intuitively expect the process to be essentially reversed. In other words, if you are listening to MPS on 107.3 MHz and push the scan-down button, the first signal you'd expect to encounter would be the highest-numbered supplemental service on 106.5 MHz, for example. But because this is a supplemental channel, which has no analog acquisition/back-up signal, the radio has to do one of several things — none of which are particularly pleasant or expected by the listener.

First, if the radio wants to take the intuitive approach of going to that highest numbered supplemental on the next station down the dial, there will be at least five seconds of muting, while the tuner acquires the channel (in silence),

See MULTICAST, page 47 ▶

The Big Picture

Photo: Gary Hayes, BBC

by Skip Pizzi

World Radio History

Multicast

▶ Continued from page 46

buffers the digital signal, checks for the presence of multicast services, then switches to the highest-numbered SPS signal. (The receiver might display some kind of "acquiring signal" sort of visual message during the silence.)

Alternatively, if the receiver wishes to avoid a long mute time, the station's analog (main channel) signal could be played while the digital buffering took place, and the radio could switch to the highest-numbered SPS signal when it became available a few seconds later. The abrupt but delayed content change is likely to cause seriously negative listener reaction, however.

A final alternative would be to scan (at least in the downward direction) only MPS services, ignoring SPSs until the user actively called for them on each station. In other words, if a multicast service were desired by the listener, it could be accessed by another separate command (e.g., pushing the up-scan or some other button) after acquiring MPS on a newly tuned station. To aid in this, some visual display element could indicate the presence of any SPS on the channel.

Among automotive radio manufacturers, particularly the major car companies' OEMs (Delphi and Visteon), resistance to addition of any new hardware buttons is expected to be high. Equally problematic is anything that encourages drivers to take their eyes off the road to read in-dash displays. (An increasing number of new vehicles now include scan and volume buttons on the steering wheel for this reason.) Therefore one-button scanning may be the best way, at least initially, to access a multicast channel, so just how the scanning of multicast channels is handled becomes critical for supplemental services' access to mobile audiences.

Latency hurts

A related SPS latency problem will be encountered in any radio that allows direct access to a multicast channel (for example via a memory location). Broadcasters seem to like the idea that a new multicast service could be stored to a preset button like any other station, but no one likes the fact that when that service is recalled, there would be several seconds of dead air before the channel's audio is heard.

And of course, when the IBOC signal fails, an MPS service will blend to analog, while an SPS service simply mutes. If the digital signal is reacquired while still tuned to an SPS service, there will likely be an additional few seconds of reacquisition time before SPS audio is played.

Perhaps listeners' reaction to this problem will be blunted by increasing exposure to tuning latency in satellite radio and digital TV, or from buffering delays on digital music playback devices and PCs, but those delay times are typically shorter than the ~5 seconds expected for direct-tuning of an IBOC-SPS service.

Note that this issue doesn't go away in the all-digital IBOC era. Then, too, the MPS service will maintain low-latency acquisition and backup via a low bit-rate, robust digital signal, while SPS services will not benefit from such assistance.

Marketing challenges

As mentioned earlier, in order for broadcasters effectively to cross-promote their multicast services on-air, or to advertise their presence in print or other media, there will have to be relatively consistent display and navigation for multicast channels in HD Radio receivers. Meanwhile, however, broadcasters themselves may be introducing another element of inconsistency in how they position their multicast services.

So far, most stations offering multicast services are leveraging their analog/MPS service's existing brand and adding a related service (e.g., programming a second service with "Deep Tracks" or "New Releases" from the same musical genre as their main service). Other broadcasters have hinted they will offer weather and/or traffic services, once sufficient multicast receivers proliferate — perhaps even airing these as narrowband *third* services.

Yet some broadcasters would like to at least reserve the right to provide new multicast services with no connection to their existing brand — perhaps even offering services that run counter to their existing brand, such as country and classical, or conservative and liberal talk. Therefore they feel it's important to be able to maintain a fully separate identity on multicast channels. How these divergent views eventually are accommodated remains to be seen, and will likely be one of the key discoveries of the early multicast era.

Finally, how ratings services deal with multicast channels will also be critical to their success. Both diaries and PPM systems will have to be adjusted to include multicast services, and broadcasters will need to establish effective and memorable on-air identification styles to encourage accurate diary reporting of multicast-channel listening.

HD Radio multicasting seems to have caught fire with broadcasters and receiver makers, with both sectors acting to enable this fundamental shift with relatively high speed. All this early activity is based on initial assumptions, however. As the transition continues, the industry should remain agile and open to adjusting its strategies to those that resonate most strongly with the audience, but it should act in a uniform and consistent fashion. Confusing listeners with widely divergent methods of accessing multicast services could obstruct success for one of HD Radio's most promising components.

Next time we'll look at some other areas of IBOC that will mature in coming years, and how they might also change the future landscape of radio broadcasting.

Skip Pizzi is contributing editor of Radio World.

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TECH TIPS

Build a Simple IFB System

by Gary Palamara

In its simplest form, an interruptible foldback system allows air talent to hear foldback audio mixed in with incoming phone calls or remote feeds. The interruptible part happens when a producer, telephone coordinator or broadcast engineer breaks into the talent headset system to deliver needed information.

In the studio, some broadcast consoles have IFB circuitry built in; but for field work or smaller studio setups, IFB cueing often is a luxury. Commercial systems are available, but many engineers are under budget constraints that force them to home-brew their systems, or worse yet, do without IFB.

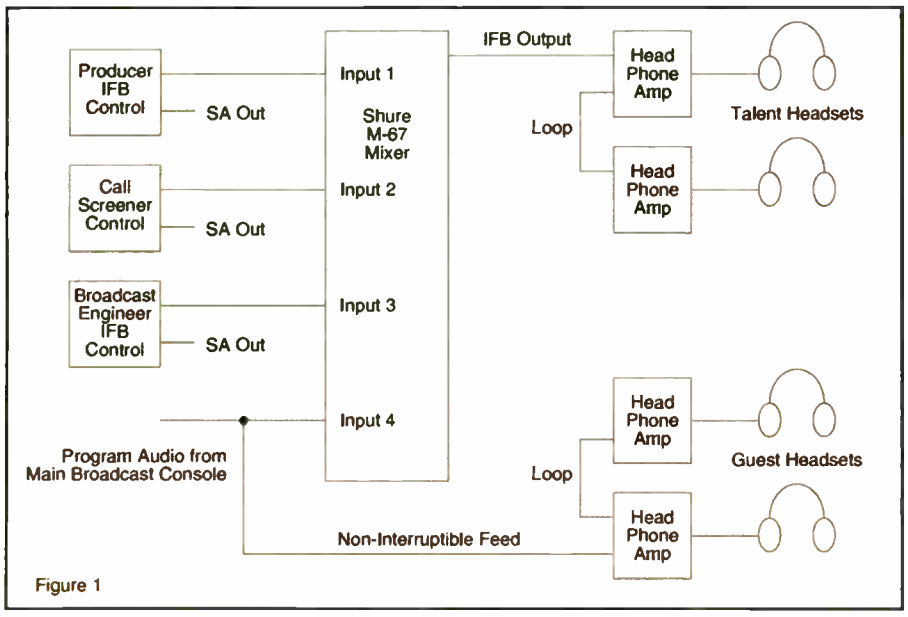

Fig. 1

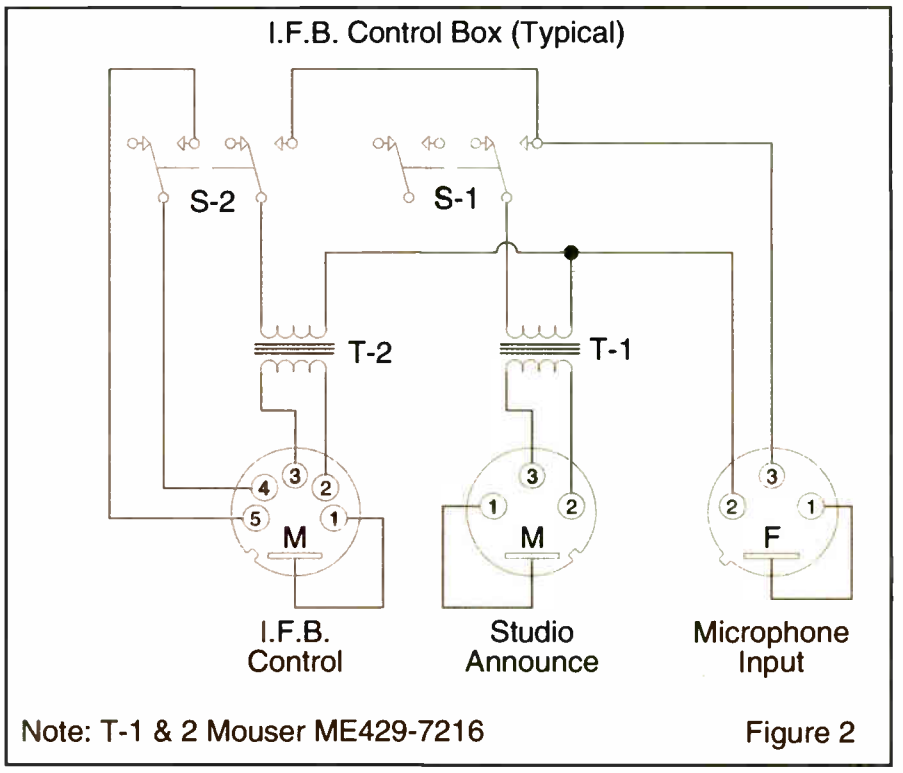

Fig. 2

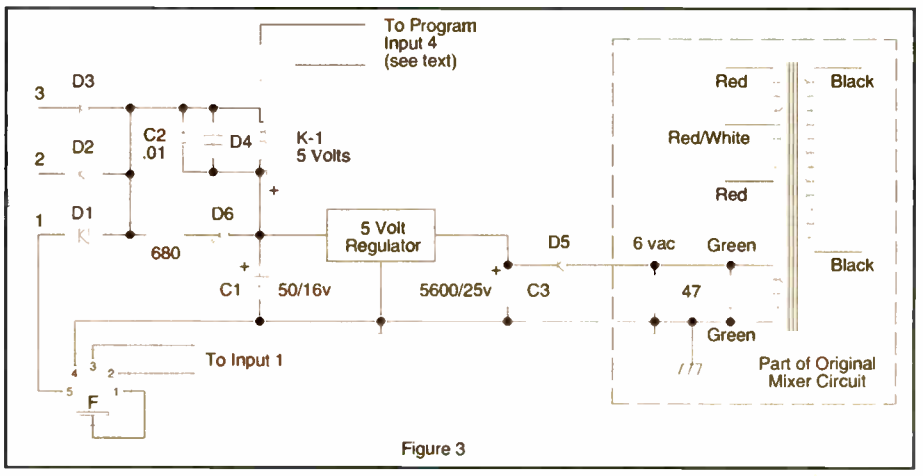

Fig. 3

The modified Shure M67 and two IFB control boxes.

Sometimes, a producer's IFB microphone can be sent through a spare channel of the broadcast console, but that means you run the risk of crosstalk or IFB audio accidentally entering the on-air signal path. Not good.

What's needed is a stand-alone system that is easy to set up and simple to use. The Simple IFB satisfies all of these requirements and has enough flexibility for producers and technical crew, while also providing a program interrupt channel, all in a small, stand-alone package.

Three basic components make up the system: microphone switching, mixing of all audio sources and headphone amplification. With my bottom line in mind, I looked around the shop and decided to design everything around a longtime audio classic that happened to be sitting on a storeroom shelf.

Although it is no longer being made by Shure Bros., the M67 four-input audio mixer is legendary for its reliability and ease of use. The M67 was probably the first mass-market field audio mixer; it entered production in 1968. Tens of thousands were made over the two decades of its manufacture; many are still in use. The M67 is reliable; when repair is needed, its discrete circuitry is simple to fix. It has a fair amount of extra room inside which makes modification easier. The mixer's four inputs, tone generator and VU metering make setting up and monitoring the IFB system relatively easy.

Naturally, your particular setup might

See IFB, page 49 ▶

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IFB

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vary from what I have designed, but the basic idea is straightforward. If you don't happen to own an M67 mixer or even its newer big brother the Shure M267, either unit may be purchased for a $100 or less on the surplus market. But a frugal engineers may well have a long-forgotten spare mixer sitting on a shelf somewhere, ready to use.

Figs. 1-3 show the complete system setup. Most of the IFB circuitry is built inside the M67. Relay K-1 and other small parts were pre-assembled onto a small, perforated circuit board, and then installed into the M67. For ease of field setup, the connectors associated with the first three inputs were replaced with five-pin XLRs. This allows both microphone audio and the program mute circuitry to flow through a single connector.

Input 4 of the mixer is used for program audio and is muted by relay K-1. Energizing K-1 puts the wiper of input 4's control pot at ground potential and effectively kills the program audio when the tech crew is giving cues to the talent. The mixer output signal is sent to all talent headphones and can be controlled individually by a Shure FP12 headphone amplifier or other similar device. If on-air guests require a non-interruptible foldback, either a separate console output or splitting input 4's signal prior to feeding the M-67 mixer will do the trick.

Nice extra

Along with the modifications to the M67, three control boxes were built, each with a microphone input and two outputs.

Output 1 sends the IFB mic signal to the system along with the relay closure that controls the program mute relay K-1. Output 2 may be omitted, but in my design is used for feeding a studio announce amplifier or self-powered speaker system.

That's a nice feature when you're trying to pump up an audience prior to air or need a "Voice of God" mic for announcements. Just remember to kill that feed prior to going on the air! In a studio situation, the SA signal can be shut off whenever the on-air lights are turned on. Fig. 2 shows the control box circuitry.

Both in the studio and in the field, the technical crew normally works fairly close together; so cable runs between the control boxes and the IFB mainframe are not long. My system was made for fieldwork, and for ease of setup, I chose to build "special" cables that carry both the IFB audio and program mute switching in the same cable.

Five or six cables of varying lengths were built to give me some options during setup. To interconnect the IFB system to the control boxes I used Canare brand, star quad cable and five-pin XLR connectors. The quad cable has a total of five conductors: two twisted white wires, two twisted blue wires plus a shield. I used the two white wires to carry microphone audio to the mixer and the two blue cables switch the mute relay. The shield connects to ground on pin 1 of the XLR.

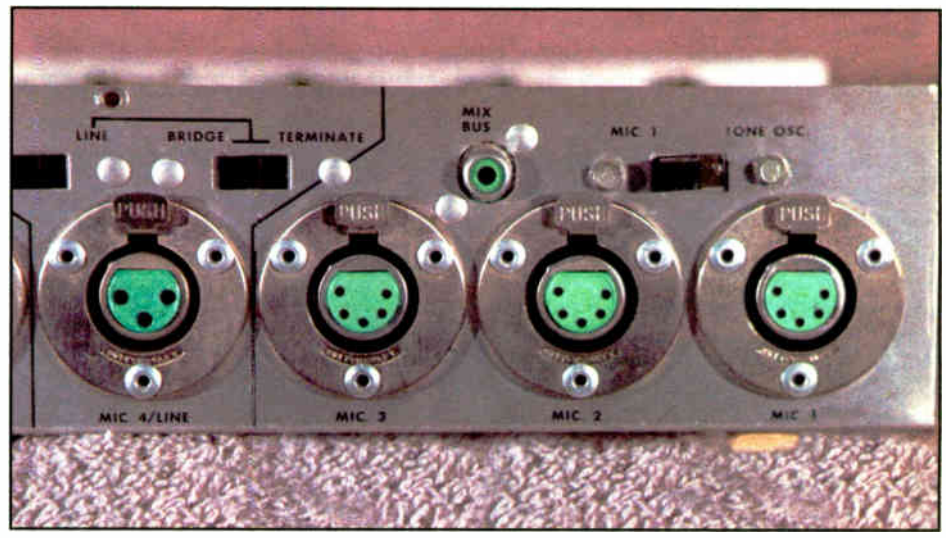
With short cable runs, crosstalk between the microphone audio and K-1s DC voltage doesn't seem to be a problem. Referring to Fig. 3, one reason for this is the reversed biased diode D-4 and capacitor C-4 that are connected across relay K-1. When relay K-1 de-energizes, its magnetic field collapses suddenly, and the D4, C4 combination help dampen any back voltage.

One drawback of building "special" cables to work this system is the inevitability of not having the right cable at the right time for making the interconnections in the field. So make sure to carry a few spares of various lengths when you go out on the road. To identify the five-pin XLR cables, all of the wiring for the IFB system is a nice bright orange color.

While the Shure M67 is a great mixer, one of the problem areas of its early design is the rather poor voltage regulation of its power supply. Trying to run relay K-1 off of the main voltage source that also runs the electronic circuitry inevitably will cause the mixer's DC voltage to sag to a very low, unacceptable level. Luckily, there is another option.

The secondary of the 67's 120-volt transformer has two independent windings.

See IFB, page 50 ▶



The M67's rear input panel. Connectors 1-3 have been changed to five-pin XLRs, which allow for IFB control switching. Input 4 may be used for the program input.

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MARKET PLACE

IP Is Target Niche for Harris Intraplex NetXpress

Harris is promoting what it calls "the first managed platform for transport of audio over IP" available to the radio industry. The system is slated for shipping early next year.

Intraplex NetXpress, Harris said, is a networking platform that can send multiple services over an IP connection while allowing an operator to control and monitor the operation from a central area.

"Radio broadcasters can transport multiple audio programs in multiple formats, local-area network data and PBX/PABX telephone communications over a single IP connection," Harris stated.

"The result is a far more cost- and bandwidth-efficient transport network compared to the expense of using separate dedicated E1/T1 circuits and individual codecs."

The supplier touts the system for redundancy, error mitigation, quality of service and network performance monitoring. It said the product also allows stations to transition gradually from E1/T1 or work within a hybrid IP/TDM network.

For current Intraplex users, it provides a high-speed bus as well as a multi-channel E1/T1 bus that allows a user to repurpose E1/T1 family channel modules in the IP environment. This, Harris says, lets the user move to IP incrementally.

Channel Sales Manager for EMEA, Harris Networking Solutions Bob Band stated in the announcement, "The ability to reliably transport audio, voice and data over a robust, lower-cost IP connection in a point-to-multipoint design is clearly more efficient than the typical point-to-point design of E1 circuits."

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IFB

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While the center-tapped, high-voltage winding operates the mixer's electronics, another low-voltage winding provides approximately 6-volts AC to only run the two # 47 lamps that illuminate the VU meter. Fig. 3 also shows a partial view of the M67 circuitry. You might notice that one side of the green 6-volt winding is already at chassis ground potential. By adding diode D-5 and capacitor C-3 to the non-grounded end of the winding, you'll end up with plenty of DC power to run K-1 without affecting the audio circuitry. A 5-volt regulator and LED indicator were added to help stabilize the relay voltage and provide a visual indication of IFB switching.

With a little effort, building the Simple IFB system will give your remotes studio-quality performance and convenience on a poor man's budget.

I've used this simple IFB system many times with good results. The entire package with mixer, control boxes, headphone amps and cables fit into a single small road case and only takes a few minutes to set up and test out. You can modify and expand this system with more channels and to meet other needs. Just remember the KISS principle.

With a little effort, building the Simple IFB system will give your remotes studio-quality performance and convenience on a poor man's budget.

Gary Palamara, AF1US, is a radio amateur and a freelance audio engineer. He began his career with Armed Forces Radio and has spent three decades working in audio and video production. He owns Morningstar Sound, a professional sound services company. Reach him at morningstar938@verizon.net.

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GM Journal

Radio World | Resource for Business, Programming & Sales | September 16, 2005

Marry Your Listeners
Page 54

You May Already Have Won! Sorta

by Ken R.

"If you're the 10th caller, you'll win one hundred grand!"

That was what the DJ on Cumulus Broadcasting station "Hot 102," WLTO(FM) said. And that is what Norreasha Gill of Lexington, Ky. believed. But after being notified she was the 10th caller, it was later explained to her that what she really had won was a candy bar called "100 Grand."

Jamie Gumbrecht, culture writer for the Lexington Herald-Leader, heard of the incident when the boyfriend of the alleged victim called her paper.

"The story checked out and Norreasha was very hurt by this," said Gumbrecht. "For some people this contest may have been funny, but to a pregnant woman who needed a new backyard, it was no joke."

Gumbrecht reported that Cumulus offered Gill $5,000. She felt she was owed another $95,000 and a civil suit resulted.

Playing by the rules

Asked for the management point of view on the "100 Grand" controversy John Dickey, executive vice president of Cumulus Broadcasting in Atlanta, said, "It's become a legal matter, so we can't comment specifically. But I can tell you that in general, the contesting we do at our company is taken very seriously, and this was an isolated incident involving a 'rogue' employee who didn't follow the rules. Two individuals were fired as a result. We have never had a situation like this happen before."

Was this an amusing jape or was it a deliberately phony contest?

The FCC has specific guidelines. If one were to look up section 73.1216 of the code, one would find the following language: "(On-air) contest descriptions may not be false, misleading or deceptive."

Harry Cole, member of the law firm Fletcher, Heald & Hildreth and a contributor to Radio World, said such shenanigans might earn a station a small fine from the commission but are unlikely to result in a suspension of license. He explained the process by which such incidents are addressed.

"Let's say Joe Listener sends a complaint to the FCC," he said. "The FCC may then choose to write the station a letter of inquiry requesting the facts as the station sees them. From the licensee's response, the commission may ask additional questions or issue a notice of apparent liability.

"Let's say the station disputes the notice. The FCC may then modify its position or just issue a forfeiture order. This whole process may take years."

But even if a station were fined $4,000, the complainant doesn't get the cash. So Joe Listener may wish to address his problem by filing a civil suit against the station. That remedy may not be worth the pain and expense.

Dickey said any company that serves customers, be it in fast food or radio, is open to litigation. "But the onus is always on the radio station to make sure the rules are in place and followed," he said.

Reports of station hijinks keep popping up from time to time.

The San Jose Mercury News this summer reported that a Los Angeles listener to KBDS(FM) in Taft, Calif., was told she had won a new Hummer H2. The station allegedly neglected to tell her one small detail: it was actually a remote-controlled model. April Fool.

A lawyer for the listener filed suit seeking $60,000, the price of the actual vehicle.

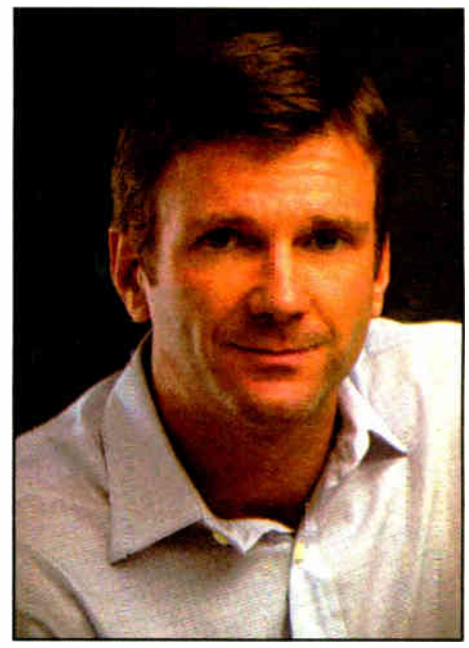
In a different kind of instance in August, the Associated Press reported, a Clear Channel station in Florida ran a contest in which three people in shackles and jail clothes tried to get motorists to give them a ride in hopes of winning a trip to Los Angeles in conjunction with a TV show. People called 911, traffic was tied up and the contestants briefly were taken into custody.

A police official was quoted by AP as saying state law would have allowed motorists and deputies to shoot the participants if they had been seen to pose a threat.

Can't win

Sometimes contests can go awry when a station acts in good faith.

According to the commission's Web site, in 2002 the FCC received a complaint from Joe Lucker, a listener to WDRQ(FM), Detroit. He had been awarded two tickets to the premiere showing of the film "Spiderman," good for a specific evening. Because of a large crowd at the theater that night, Lucker arrived too late to get in. The station offered him tickets to another movie playing that night or, if he preferred, another showing of "Spiderman" on a different date. Apparently this wasn't satisfactory to Lucker. WDRQ's parent, ABC Inc., was fined $4,000, in part because the station had failed to broadcast an announcement saying prizes of equal value could be substituted.

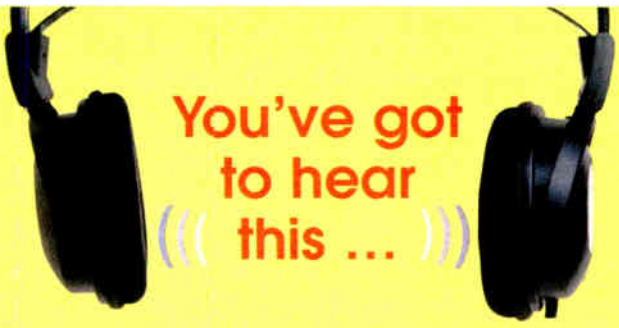


John Dickey

The morale: Put contest rules in writing and broadcast them on the air. Also train station staff about FCC rules and your own policies concerning both contests and on-air spoofs. When those two areas overlap, take special care.

Make sure everyone knows how to play the game.

Ken R. is a frequent contributor. He wrote in the Aug. 17 issue about Mt. Washington Valley Visitor Information Radio.



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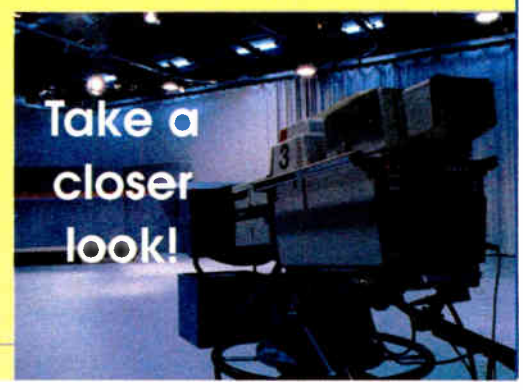

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World Radio History

State of Streaming Broadcast Stations

Promo Power

by Mark Lapidus

As I drove the Capital Beltway around Washington today, I listened to radio stations from San Francisco, New York, Chicago and Corpus Christi, Texas.

No, these were not powerful AM radio stations booming down from the ionosphere late at night. Satellite radio? Good guess; but no, I did not install a new radio in my car.

About six weeks ago, I began streaming stations on my mobile phone via my media player and wireless broadband Internet. I plug my phone into a cassette adapter, which pops into my radio and *voila!* I get streaming radio from anywhere in the world.

Yep, I'm a geek; there's no way that Joe Blow the consumer is going to do this in massive numbers, at least not until he has an easy Web connection built into his car.

I bring this up for two reasons: The first is to let you know that it can now be done pretty easily in many major cities, so you can monitor stations around the globe for ideas.

Where does the task of restarting the stream fall within the hierarchy of things that your busy engineers are required to do?

But more important, it has given me the chance to listen to a lot of streaming radio. This has heightened my awareness about the state of streaming commercial broadcast stations.

What's the plan

The state of streaming is best described as neglected. Often the streams I check out are down for hours — even days — and nothing is done about it.

This triggers many thoughts on stations that stream:

✓ What's your monitoring plan?

✓ Does someone at your radio station listen regularly enough to notice if your stream has gone off?

✓ Does someone act right away when they get e-mails from listeners telling you that you're off?

✓ And critically, where does the task of restarting the stream fall within the hierarchy of things that our busy engineers are required to do?

The last question is perhaps the most difficult to answer; most engineers these days are stretched across several radio stations and sometimes also responsible for IT issues. So while we may not tolerate our radio stations being off the air even for two minutes, it may be necessary to live with our audio streams being off for a few hours.

It does get silly, though, when half a day goes by and nothing is being streamed to your Internet-active listeners. Your management team should discuss a reasonable timeframe in which action can be expected.

Selling it

Stations that stream the exact same content as they broadcast over the air are rare in the United States. Most streaming stations extract over-the-air commercials for both legal and financial reasons.

The legal reason often has to do with paying fees to union voice talent. The financial reason has to do with selling an additional set of spot inventory. If you don't stream your over-the-air commercials, you have the obvious option of selling Internet-only spots. However, the state of these sales is the same as the technical state: pretty poor.

Too few stations have a dedicated Web seller. It's long been my contention that unless you have at least one person dedicated to Web sales, you will not maximize success. Radio sales people will gravitate toward the easiest path of making money, which almost always means doing what they already know how to do: selling over-the-air spot advertising.

Selling audio insert ads on a stream is different than over-the-air advertising. Web sales people have to envision a different

See STREAMING, page 53 ▶

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Streaming

▶ Continued from page 52

listener experience and know a different terminology: "uniques," "impressions," "tune-ins" and a dozen other terms that have nothing to do with radio.

Also, the best client targets for audio inserts on streams may not be able to afford broadcast radio; so a radio sales rep has to do a totally different kind of prospecting. Opportunity can be everywhere for a dedicated Web seller whose entire income relies on successful selling of audio inserts, content-based ads (for example, a camp section) and Web banners. And with today's tight budgets and demanding numbers, your station's general health can only improve.

As broadband continues to expand around the world and streaming improves, more people will use it.

Until we manage to sell out all the insert advertising on the streams, we must fill it with something. Unfortunately, most filler material I hear consists of repetitive promos, repetitive public service announcements and bad production music. As an industry, we can do much better.

As always, I'm sure there are still a few naysayers of streaming technology. When I first starting working in AM and the sister FM station would go off the air, it was no big deal. Eventually an engineer would get around to turning it back on. There were even AM-FM owners who sold their FM stations for peanuts in the early 1970s because they thought FM had no future.

The lesson: Technology takes time to catch on. As broadband continues to expand around the world and streaming improves, more people will use it. It's simply another delivery method; and we just need to continue our quest to improve it.

See the Aug. 17 issue of Radio World, page 27, for a discussion of how to get started with streaming by engineer Art Reis.

The author is president of Lapidus Media. E-mail him at marklapidus@yahoo.com.

Letters

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.

Anderson Helps Out With AIDS PSAs

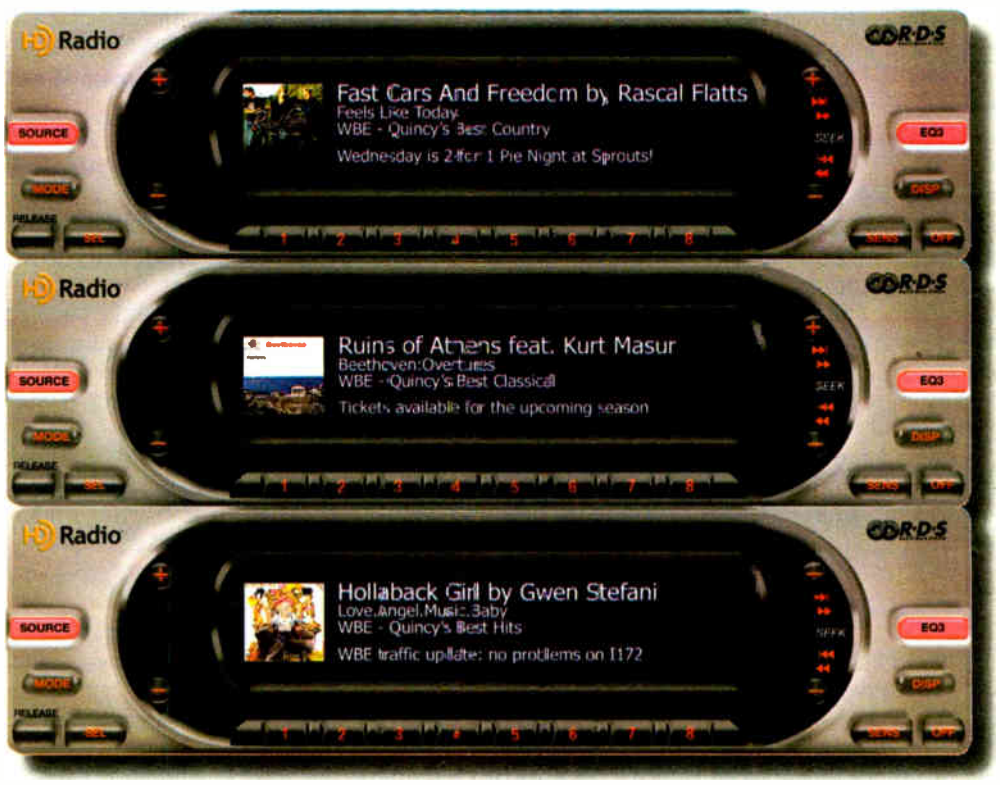
Photo by Wire Image

Pamela Anderson, center, spokeswoman for M.A.C. Viva Glam, participated in the making of public service announcements for the M.A.C. AIDS Fund by McHale Barone.

The :60, :30 and :15 spots were cowritten by Joe Barone, right, Chris McHale and partner Jill Cheris, left.

The campaign began in June in conjunction with National HIV Testing Day. Anderson has Hepatitis C, and delivers AIDS statistics in the PSAs.

Organizers say the M.A.C. AIDS Fund has raised $47 million in 11 years through sales of Viva Glam lipstick. Cheris produced the session on location in Los Angeles.



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World Radio History

GUEST COMMENTARY

Ready to Commit? Marry Your Listeners

How to Build a Winning Franchise and Increase TSL in Your Market

by Gary Begin

The author is president and co-owner of Identity Programming in Jackson, Tenn.

Radio is an art form but also a business. Producing great radio involves both commerce and art.

But further, successful radio stations are married to their listeners. When we fail to satisfy our listeners' needs and desires, we don't meet their expectations or our revenue goals.

As an industry we need to rejuvenate the creative spark in our radio product. Radio's underlying sameness from market to market has created a homogenization in sound. Our creativity has been stifled in the name of corporate profit. This is a problem, especially in small to medium markets.

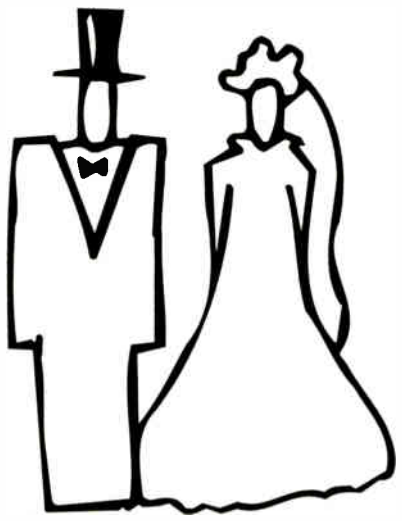
The key to solving any problem is knowing it exists. In business, as in marriage, problems are defined by dissatisfaction. It's really that simple. So ask yourself: Do I have listeners who are dissatisfied? If you do (and you do!), you have a problem.

In my 25 years as a program director and air personality in large and small markets, I've seen great stations succeed because they foster a strong creative environment coupled with strong leaders who act as mentors. Station employees who tap into that well of creativity and apply it to their everyday craft help build winning franchises.

Radio works best when it connects emotionally with its listeners, just like good marriages. And satisfied listeners are good customers.

Here are a few examples of building that winning franchise and increasing TSL in your market.

The more locally focused your presentation, the greater the opportunity to serve your community with excellence. "Local" should become your new buzzword.



Great stations know one of the best ways to winning an audience is having an air staff that live, love and play in the community. Become tapped into what's going on in your town or city, then deliver the information in a useable and interesting form to your listeners. Communicate!

Know the market

Chain stations are programmed from far away, but while everyone likes the "hits," not every market has the same interests, hobbies, spare-time activities, etc.

Do you and your staff understand what your target audience's interests are? Do you understand their needs and wants? Are you *listening* to your audience or are you vulnerable to attack from the competition? If you don't know the answers to those questions, you are vulnerable.

Ask yourself, as if you were the competition, "Where are they the weakest?" Fix that area ASAP. Use research to benchmark your progress and determine if you're cutting through the clutter, and how your target audience perceives your programming.

If research dollars are tight, perform listener panels, Internet surveys/polls and Internet music tests. You can even do live interviewing; ask waiters/waitresses, etc. If Leno and Letterman can do it, so can you.

Put your Web site to work

If you don't have a site, for shame; get one.

Maintain a site where listeners can answer surveys and take part in special, online-only contests. Make it fun and involve the listener often, at least twice per daypart. And remember, stream, stream, stream your audio. This will allow you to pick up listeners in un-conventional ways. Go where your listeners are going. Today that often means the Internet.

Work your Web site correctly and it can become your best marketing research tool. This is important especially in small markets, where dollars are tighter.

KISS (Keep It Simple)

Great stations are simple stations. We never confuse the listener.

This means not just playing the right songs, but playing them in the right order and giving your playlist some expansion. On music stations, 70 percent or more of any given hour is music. Make sure your air staff's comments reflect the music and image of your station.

Consistency

More than just needing to be simple, we need to be consistent and stick with a well-thought-out game plan.

Worse than not sticking with your plan is not having a plan to begin with. Inconsistency is frequently caused by:

- ✓ Boredom
- ✓ Impatience
- ✓ Lack of commitmen
- ✓ Lack of confidence
- ✓ Too many distractions

Today's successful stations are not produced overnight.

Failure is not an option

Don't fail your listeners. If you are in a marriage worth saving, you go to counseling to see how to be successful again. Your radio station is no different.

How do we fail?

- ✓ Lack of research
- ✓ Assumptive familiarity
- ✓ "Personal favorite" of the PD or MD
- ✓ To get the trip/concert/promotion
- ✓ Rights songs, wrong order
- ✓ Someone called in a "requested song"

Gary Begin

Start mentoring

The encouragement of a strong creative environment begins with a mentoring program. Successful stations are professional, forward-thinking organizations that hire and train the best people and find a way to keep them happy. In the new millennium, it's a much more difficult task to find a great air staff and productive sales people. We need to bring "communications" back into the communications industry.

Successful mentoring starts with:

Leadership: Delegate authority and encourage teamwork. Be different. Don't follow conventional rules blindly. Become passionate about your projects. When management is excited and enthusiastic, a trickledown effect occurs. Communicate excitement. If you don't, how can you expect your staff to get worked up?

Involvement: Don't reject ideas out of hand because they seem wild, crazy or unproven. People who are involved in a decision-making process participate much more enthusiastically than those who just carry out their boss's orders. Help them contribute and show them you value their opinions. Listen and incorporate their ideas when it makes sense to do so.

Brainstorming: Something normally thought of as a group activity, this is also a great area for private problem-solving. Do it away from the station. Find a quiet place: a park, someone's home, a friendly restaurant with private meeting rooms, any place where management and staff can feel mentally and physically comfortable to talk. Play some games to get everyone warmed up mentally. Remember, the mind is a muscle; it needs warming up. Make an agenda of things you want to create ideas for. Informally review the agenda, then let people throw out ideas.

Include *everyone.* This imparts a sense of ownership with the staff. Include interns; they haven't been in the business long enough to be screwed up. For them, any idea is a good idea, which is the basis of brainstorming.

And take good notes, which include the originator of any ideas that will be used.

See MARRY, page 56 ▶

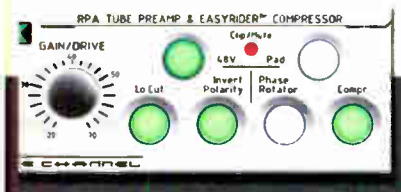
World Radio History

Looking to touch your listeners?

APHEX MODEL 230 MASTER VOICE CHANNEL

Introducing the Aphex Model 230 Master Voice Channel, the most powerful processor ever designed specifically for voice.

Voices will be bigger, more present, more intimate, more intelligible and more consistent. Its comprehensive complement of exclusive proprietary features brings these benefits to any voice – from a thundering bombast to a whispering waif – without changing its essential quality.



Every element of the Model 230 is superior to any other voice processor's similar function...

- The RPA™ tube preamplifier provides warmth, image and detail.
- The Easyrider® Compressor controls output levels without pumping or breathing.
- The Logic-Assisted™ Gate won't false trigger or cut off words.
- The Split Band De-esser effectively cuts sibilance without dulling.
- The Big Bottom® and Aural Exciter® add resonance, depth, presence and clarity.
- The parametric EQ takes care of any frequency anomalies with surgical precision.
- Post-processing insert point, -10dBV and +4dBu analog outputs, 24/ 96 digital outputs on AES3, S/PDIF and Optical, word clock I/O, and a cough switch with soft mute allow the Model 230 to be easily interfaced into any system.

So if you *are* looking to touch your listeners, you should be looking at the Aphex Model 230.

www.aphex.com

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Genuine APHEX

Illustration by Jesse Connor. Aural Exciter, Big Bottom, Easyrider, RPA, and Logic Assisted Gate are trademarks of Aphex Systems.

World Radio History

Marry

▶ Continued from page 54

Incentives/Bonuses: Show your staff you appreciate their hard work and good ideas with bonuses or incentives. This practice helps create staff loyalty, making it difficult for competitors to lure your best people away. Staff longevity can also promote loyal listeners and an excellent reputation for your station.

Job 1

Ford Motor Company claims "Quality is Job 1." We need to think of our radio product in the same way.

My approach to getting and keeping listeners through "identity programming" is summarized by the phrase "Marry Your Listeners." Most families have a family physician and dentist, an insurance agent and a favorite hair stylist. Why can't we also have a family favorite radio station? Any station can become wed to its listeners for life. You simply need to communicate with them and the desire to keep them happy.

Congratulations! And may you both be happy and successful together for the rest of your lives.

Identity Programming is a consultancy specializing in small and mid-size markets and in adult formats in AC, standards, smooth jazz and country. E-mail the author at garybegin@charter.net.

RW welcomes other points of view.

WEB WATCH

EMSLive Targets Paramedics Via Web

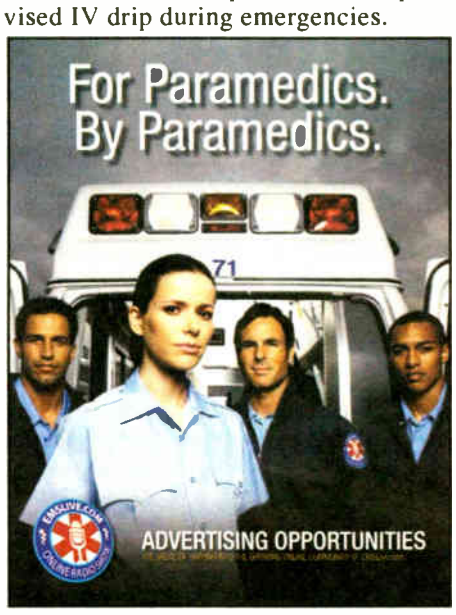
When it comes to the War on Terror, EMS paramedics are definitely on the front line. This is why a Canadian paramedic has launched a one-hour weekly webcast and downloadable podcast via *www.emslive.com*.

"The problems faced by paramedics across North America are the same, be it dealing with a heart attack or a terrorist incident," said John Bignell, producer and host of "EMSLive."

"Add the fact that, when I looked in early 2003, there were no radio shows addressing the needs of paramedics anywhere on the Web, and you'll understand why I produce EMSLive out of my own pocket."

Since its first webcast on March 2, 2004, EMSLive has interviewed a range of EMS professionals.

"We've spoken live to UK Paramedics who responded to the London bombings," said Bignell, a paramedic in Halifax, Nova Scotia. "On the other end of the scale, we've interviewed Randy Mantooth, who played Johnny Gage on the hit TV show 'Emergency!'" Also covered during the past year have been topics like coping with tight government funding, new medical technologies and how coconuts can provide an improvised IV drip during emergencies.



During its live hourly webcasts, EMSLive hosts Bignell and journalist Shannon McCarthy respond to e-mails and chat group comments sent by listeners. They do so while operating out of Ferguson Music Productions in Dartmouth; across the bay from Halifax.

"It's a modern music recording studio where we rent production space," Bignell said. "The show is captured using QuickTime Broadcaster, then sent to a QuickTime server for streaming over the Web. We have the ability to support up to 2,000 simultaneous streams." In addition, listeners can download aired shows directly from the site's archives, store them to their MP3 players and listen later. Meanwhile, affiliated Web sites can link to EMSLive's News Digest audio file, which is updated twice a week.

To date, EMSLive's audience consists primarily of downloaders, Bignell said. "We have anywhere from 50 to 150 people listening live each week, judging by e-mail and traffic in our chat room," he said. "From 1,000 to 2,000 visitors then download the show's audio file each week."

Overall, "We average about half a millions hits each month and will reach 1 million hits by this September, based on current growth. Better yet, we are rated No. 1 by Podcast Alley under their Health category, and No. 78 out of 5,000+ podcasts overall."

— James Careless

OMNIRAX BROADCAST FURNITURE

NAB Radio Show
Philadelphia 9/21-23/05
Booth #122

Omnirax from Design to Production

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- Our CAD/CAM process ensures precision fit and finish, repeatability, and ease of modification. All of our designs are rendered in the computer prior to manufacturing. We are able to make alterations and adjust to your equipment, guaranteeing you not only get what you want, but exactly what you need.
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- The measure of our success is the achievement of a synthesis of form, function and ergonomic comfort.

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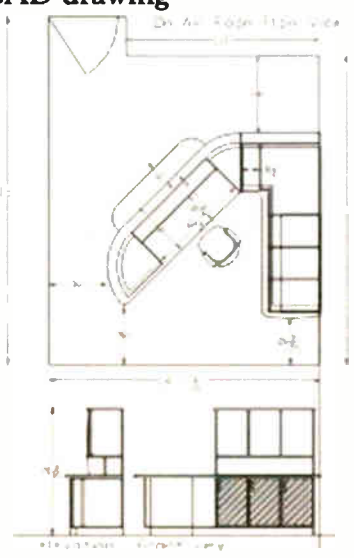

CAD rendering

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World Radio History

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element

Technology can save you money.

Consider: computers, VoIP phone systems and bandwidth cost less and deliver more every year. Wouldn't it be great if broadcast gear did, too? Thanks to Axia, it can.

Axia saves you money by using open Ethernet technology to replace expensive proprietary mainframe routers. Not only is Ethernet less expensive, it's simpler and more reliable — perfect for critical 24/7 operations. The Axia IP-Audio solution eliminates sound cards, DAs, punch blocks and cumbersome cables, so it reduces installation and maintenance costs.

And now, Axia has a cool new modular control surface: Element. Scalable from four to forty faders, you can build the ideal surface for every studio. Element's abundant outputs and flexible architecture can be switched between stereo and surround mixing. Its info-rich user display, built-in router control, and integrated phone and codec support simplify the most complex shows. You'll never outgrow it.

Like all Axia products, Element does more and costs about half what others try to charge for their *"Trust us, this is better than Ethernet, would we lie to you?"* stuff.

Element. Worth its weight in... well, you know.

AXIA
A TELOS COMPANY

www.AxiaAudio.com

World Radio History

Character Generation for Radio

by Jeffrey Hedquist

One way to give long legs to a radio campaign is to create it around a character or ensemble of characters who will be identified strongly with the advertiser as soon as the audience hears their voice(s). Their personalities should have enough facets to allow for character development and interesting stories to be told.

Make each character unique. Don't just give us Sven, the generic Scandinavian guy from that cheese shop; give him a name that reminds us of the advertiser, develop a biography for him, show the audience quirks in his personality — his feeble attempts at humor, his fondness for lutefisk and his affection for his plaid snowmobile. This will give you hooks on which to hang stories.

Characters can compliment the product or service — for instance, a reminiscing storyteller who reflects on the "good old days" on behalf of a down-home restaurant, historical district or any business with yesterday's prices or service; a character with a foreign accent for an ethnic restaurant or imported car dealership; a 12-year-old genius nerd for a computer store.

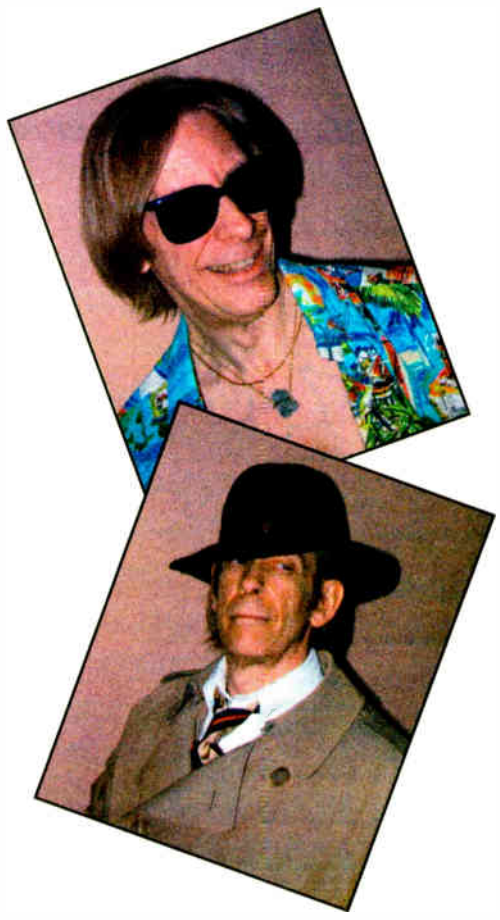
They can be caricatures of the advertiser him or herself, especially if the owner is familiar to the audience.

You can create a confused or obtuse character who needs to have everything explained by a knowledgeable advertiser representative.

Mr. Moonlight

Use a category character as spokesperson or interviewee: The World's Most Experienced Traveler, Mrs. Fuss-budget, Mr. Nervous, Your Guardian Angel, The Extreme Dude for a sports store, Mr. Sandman for a bedding store, Mr. Know It All for a bookstore, an argumentative family for a video store.

I have a personal bias against anthropomorphic characters such as talking trees, toothbrushes and cars. I'm sure someone has made them work, but it's rare case.



Characters with too much borrowed interest — The Simpsons, Arnold Schwarzenegger, Jim Carey — will soon become dated, are overused and draw attention to themselves rather than to the advertiser. Remember, your goal is to attract people to the advertiser.

Successful campaigns featuring characters abound: the funny characters for NYNEX Yellow Pages, Tom Bodett for Motel 6, Charlton Heston and his Gen-X partners for those Bud Light spots from a few years ago, the overblown announcer for the "Real Men of Genius" campaign.

When you develop a character with an interesting history or back story, the audience will look forward to hearing each new episode.

When you develop a character with an interesting history or back story, the audience will look forward to hearing each new episode.

The next step in making your character-driven commercials effective is to have character development. Are *you* different now than you were last year, last month, yesterday, a few minutes ago? We're all changing. So should the characters in your radio commercials.

This will make your story more com-

See CHARACTER, page 59 ▶

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See Us at NAB Radio Show Booth # 304

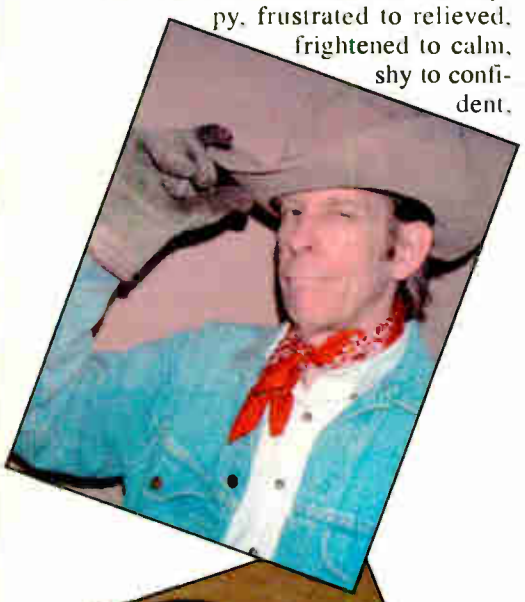
World Radio History

Character

▶ Continued from page 58

pelling, even in the short duration of a radio commercial. Aside from making the story about them, with a plot your target audience can relate to (based on their needs, wants and desires), if you can have your characters move, you will draw listeners in. When characters remain static, you're less likely to keep the listener's attention, especially upon repeated exposure.

A character can go from being a devil's advocate to an advocate, sad to happy, frustrated to relieved, frightened to calm, shy to confident,



cowardly to heroic, from losing to winning. You can take your character from the throes of passion to the depths of outrage, from hysterical crying to hysterical laughter.

That's life

What can be the catalyst for these changes? Other characters, each behaving from his or her own point of view, which you've already developed in your back story. As they experience their lack of, discovery of or interaction with the advertiser's product or service, they change.

What else? Self-discovery, overcoming obstacles, emergencies — all the vicissitudes of life cause us to change.

Show the changes with dialogue and the attitudes of the actors, but also with sound effects and music. A simple example is the problem/solution commercial.

If you've created a character your audience can relate to strongly, they will have the same "a-ha" experience as the character in your mini radio play. Now you have an ideal situation in which the listeners are co-creating with you. They are, to an extent, "rehearsing" that discovery themselves.

Try applying this technique to your commercials, even the monologues. See if your character has remained static or has changed. Change is movement, which attracts and keeps attention, which leads to involvement and, eventually, to a purchase.

Anytime you have that kind of compelling entertainment value in a commercial, you've gone a long way towards getting the audience's attention and interest — and, of course, results for your advertiser.

For years, Jeffrey Hedquist says, he has been creating characters based on members of his family, who have yet to recognize themselves in his commercials.

Visit www.hedquist.com for a free subscription to his newsletter.

A character can work wonders. DDB Chicago won $5,000 in the Radio-Mercury Awards for an Anheuser-Busch spot in the 'Real Men of Genius' campaign that poked fun at 'Mr. Pro Sports Heckler.' The campaign also won the Grand Prix at the International Festival, Cannes. Shown are Mark Gross, Bob Scarpelli and Chuck Rachford.

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See Us at NAB Radio Show Booth # 216

World Radio History

News, Talk and Sports Still Atop Format Cake

What does the radio format pie look like?

A graphic from Interep actually looks more like a layer cake than a pie, but it gives a visual indication of the relative size of various radio format niches. The analysis is based on spring 2005 audience information using Arbitron data and the M Street format list. The top 10 categories account for nearly 90 percent of total radio listening in continuously measured Arbitron markets, Interep stated.

"News/Talk/Sports, Spanish, urban and CHR continue to dominate the list of format categories; a resurgent country has tied a declining AC for the fifth position," the ad sales and marketing company stated.

"However, the big gainer was classic rock, which surged to its highest level in years with a share increase of more than one and one-half points. As impressive as those numbers look, it should be noted that the latter category includes the 'play anything' ('Jack' type) stations — more than two dozen of which switched to the format in time to be listed under that heading in the Spring Book.

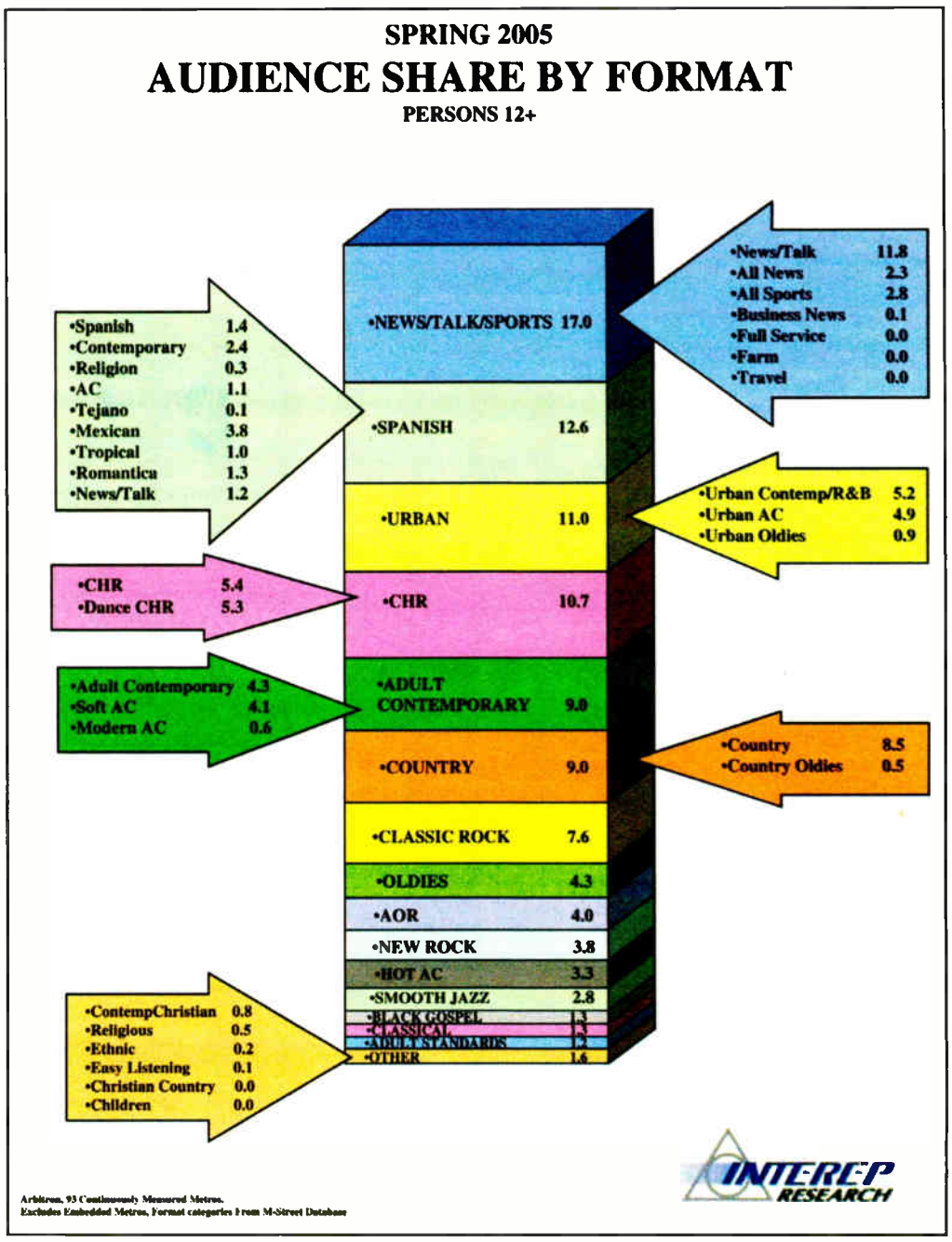
> **'News/Talk/Sports, Spanish, urban and CHR continue to dominate the list of format categories; a resurgent country has tied a declining AC for the fifth position.'**

"So, even though the format share total is higher," Interep concluded, "it's really too soon to judge the performance of these evolving stations on a book-to-book basis."

News/talk/sports was off from peaks reached in last fall's campaign season but the format grouping is steady from a year ago. Spanish edged up to another record high.

Urban was up incrementally, matching its total from spring a year earlier. Interep sees a recent shift from urban contemporary toward urban AC. Meanwhile CHR experienced some erosion since it peaked last spring and summer; the declines have occurred mainly in the dance segment.

Country had its best performance in several years; the oldies format hit a new low, apparently due to flips to Jack-style stations. AOR rebounded in the spring while new rock fell back.



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World Radio History

Investing in Surround Sound is Good Business

IMAS Publishing Group presents

How to Plan, Budget, Build and Broadcast in Surround Sound

An all-day seminar at WNET Studios in New York City

Learn how you can set yourself apart from the competition with surround sound at *your* facility! Studies show that surround sound makes DTV pictures "look better"; HD-Radio offers parity with state-of-the-art audio to radio stations.

See and hear for yourself the difference surround sound can make. This seminar is packed full of need-to-know information, such as:

- How surround sound fits into the digital broadcasting transition
- The present state of broadcast and production equipment for surround sound
- The present state of consumer equipment for receiving surround sound, including DTV and HD-Radio, NTSC and FM, automotive environments, PCs and convergent devices; and the wireless world
- Market demographics: Who's listening to surround sound?
- Surround sound's use and impact in sports, music and educational content
- Planning for conversion
- Budgeting for equipment, design and staff training
- Quality control and maintenance

Thursday, October 6 *(immediately preceding the 119th AES Convention)*
WNET Studios, 450 W. 33rd St. (2-1/2 blocks from the Jacob Javits Convention Center)
New York, NY

8 a.m.-9 a.m. On-site registration and continental breakfast

9 a.m.-5:30 p.m. **Seminar Program:**

- Introduction/History and Overview of Surround Sound
- Surround Sound Broadcasting
- Lunch Break (Lunch Provided)
- Implementing Surround Sound at the Broadcast Facility
  (separate breakout sessions for TV and Radio run concurrently)
- Producing Surround Sound Content

WHO SHOULD ATTEND:

- TV and Radio Engineers
- Operations Directors/Managers
- Tech Directors/Managers
- Station Group Owners, Network CTOs and Engineering Directors
- Audio Engineers

YOUR HOSTS: A TEAM OF EXPERTS

This surround sound seminar is hosted by TV Technology, Radio World, Pro Audio Review and Audio Media.

IMAS Publishing specializes in professional audio and video technology magazines (including the one you're reading now). Publications include such industry standards as Radio World newspaper, and TV Technology, Pro Audio Review and Audio-Media Europe magazines.

Skip Pizzi, who is moderationg the seminar, is a renowned expert in digital audio and co-chair of the NRSC Surround Sound Audio Task Group, as well as a Contributing Editor to Radio World. He is also a former technical training manager for broadcast technology.

Registration Form

How to Plan, Budget, Build and Broadcast in Surround Sound
At WNET Studios in New York City, 450 W. 33rd St., NY, NY

☑ **YES**, please sign me up for the Surround Sound Seminar:

- ☐ Early-bird Registration Rate (must respond by Sept. 9): $575
- ☐ Regular Registration (after Sept. 9): $675
- ☐ On-site Registration: $700
- ☐ Multiple attendees from the same company save $50 on each registration! (check here if this applies) Note co-worker who will attend:

Payment Terms: For credit card orders, a non-refundable $100 deposit will be charged to your credit card upon receipt of registration. The remaining balance, based on your date of registration, will be charged to your credit card on September 30, 2005. Cancellations after September 30 are subject to a 50% penalty.

To register, you may RSVP online at **www.imaspub.com/surround** or fax this form to 703-671-7409, or mail this form to: IMAS Publishing Group Surround Sound Seminar, P.O. Box 1214, Falls Church, VA 22041. Or phone in your reservation at 800-336-3045 x153.

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World Radio History

Products & Services SHOWCASE

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jimg@gorman-redlich.com Web Site: www.gorman-redlich.com

◆ *Also available: weather radios, antennas for weather radios, crystal controlled synthesized FM digitally tuned radios, remote signboards, cables for interconnection, character generators.*

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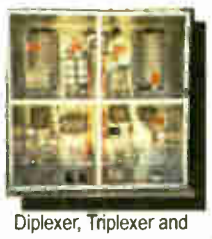

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World Radio History

The Politics of Radio Relationships

In a Training Program for Radio Bosses, Holtom Teaches the People Perspective

by Carl Lindemann

A fresh outlook is crucial for any manager navigating the rapidly changing opportunities and obstacles in today's radio environment.

For Georgetown University Professor Brooks Holtom, the right outlook is also a look inward. Radio is a people business. By creating opportunities for employees to flourish, organizations flourish too.

Holtom has created "The Power Game" and "Managing the Politics of Relationships" for the NAB's Executive Development Program for Radio Broadcasters (*www.nab.org/radio/seminar*), a classroom-type training seminar that takes place each summer and for which NAB members pay about $1,800.

The EDP's curriculum is designed to give managers an opportunity to sharpen skills and gain new perspectives; but Holtom's piece is more experiential.

Over the past three years, he has guided radio managers through a role-playing game to come to a better understanding of human dynamics at work within their organizations. While he believes that the best way for radio managers to take these lessons to heart is by participating, he offered a few pointers for those who haven't had the opportunity.

'Underling' view

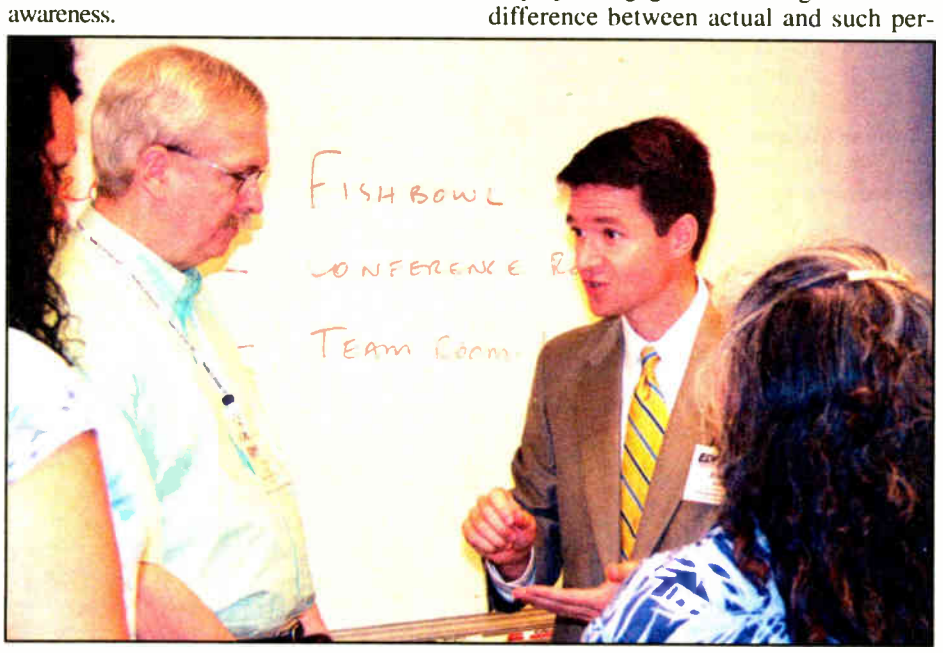
"The key is for managers to stay sensitized about what it's like to work in any and all aspects of their organizations," said Holtom. "For most, it's been a long time since they knew firsthand what it's like to be at the entry-level or talent side of the business. But knowing what drives people wherever they are is essential."

Holtom's "game" makes explicit the power relations that exist within hierarchical organizations.

The way the game works is simple. Start with a classroom full of managers and divide them into three groups with different levels of power in a hypothetical organization. Each participant antes up a $10 stake in the enterprise. The money serves as a symbol of the organization's resources. Working out how it gets directed is the prime activity.

Though all players put up equal stakes, control of resources is not shared equally. The top group consists of 10 percent of the participants but controls two-thirds of the resources. The middle- and low-power groups divide up the rest.

For managers used to seeing things from the top, being placed at the bottom can raise awareness.

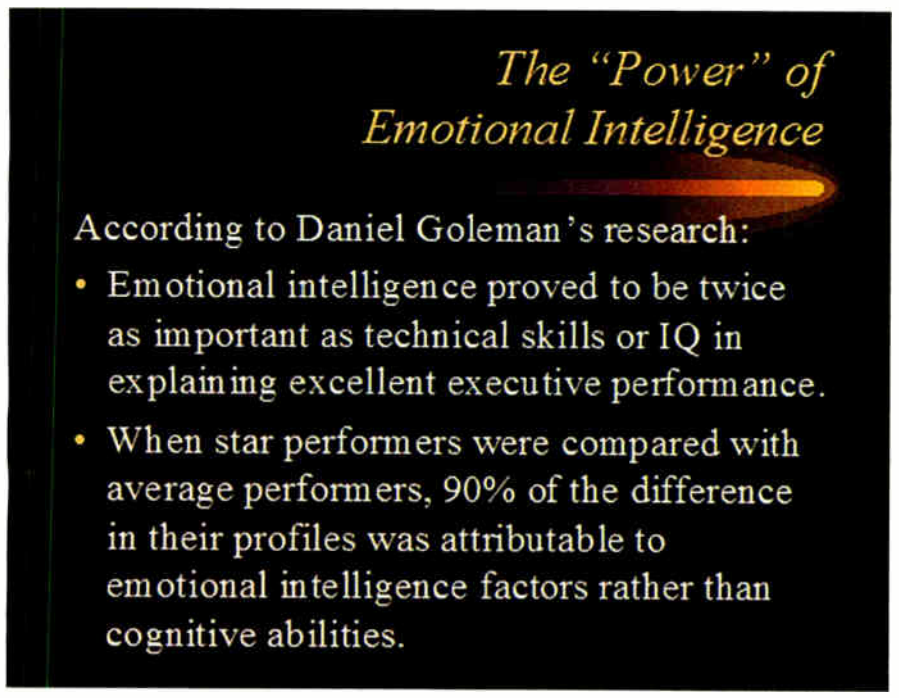


Prof. Brooks Holtom talks management theory at the NAB's seminar with Tom Fahy of Broadcast Strategy Group; Theresa Timm, local sales manager for Family Radio, Inc./Midwest Family Broadcast Group, far left; and Mary Lopez, cultural affairs director, KOHN 91.9 FM, right.

Even though not everyone can be on top, that doesn't mean that those working under need to feel out of the loop.

"Most senior managers haven't been in the role of underling for a long time. What they see in the role-play is the need for clear and accurate communications so that no one feels they're working in the dark," Holtom says.

"Wherever you are in an organization, you want to see how you contribute to the whole. You need to feel connected to the mission or else you feel exploited."



Slide from Holtom's presentation

Perceptions

Observing radio managers at play with this "game" over the years, Holtom has seen various groups arrive at much different approaches to managing power relations. Some have directed the bulk of resources into the pockets of top management. Others have directed it to charity.

The specific outcome isn't so telling as the process. In one session, the signature action of the organization was renaming the low-power group, which made up the bulk of the participants, to "the large group."

The lesson in this is to understand the power of perceptions. Creating the impression that everyone is a "player" fosters employee engagement. Though there is a difference between actual and such perceived power, employees who feel they are stakeholders far outperform those burdened by a sense of disenfranchisement.

Seeing radio in terms of larger business principles has value, he says. For all of radio's idiosyncrasies, the fundamentals that apply throughout industry hold true in ours. Time and again, Holtom says, he has seen how human dynamics trump industry differences.

The bottom line? Attractive workplaces that draw in and retain excellent employees tend to be managed by people who share credit and are not consumed by maintaining power. Productive leadership operates by effectively communicating the organization's vision and mission and providing everyone the opportunity to engage in the common enterprise to the best of their abilities.

This, he argues, is the cornerstone to building and maintaining a thriving organization.

For Holtom, success in the seminars isn't about providing an academic appreciation for the problems of radio management. "What we really want is to shake people up. We want them to be different, to be changed by the experience, when they get back to the office," he said.

Irish Broadcasters Increase Choice

by Kevin Branigan

With a fresh round of radio licensing to commence later this year, groups large and small in Ireland are gearing up to apply for lucrative franchises.

According to the Broadcasting Commission of Ireland, all citizens will have at least one new service to listen to within the next three years.

The release of unused frequency allocations by regulators has led the BCI to plan to issue a new quasi-national license as well as regional and local licenses.

Youth-oriented services will make up a large percentage of the new licenses advertised, along with a national religious service on AM with low-power FM repeaters.

The developments will significantly alter the Irish landscape and come at a time when the BCI is evaluating its rules on ownership and control, as well as those governing news and current affairs mandates.

New services

Meanwhile, while some operators intend to expand their range of services by acquiring new licenses, others have found ways to tap into new markets and develop new services.

Midwest Radio has set up the Midwest Irish Radio Internet Service aimed at the Irish diaspora. The new venture is an addition to the existing local radio station for County Mayo and broadcasts Irish music to a potential global audience of almost 70 million.

Midwest Irish Radio provides a "unique and interactive" service for the Irish community worldwide, said Station Manager Paul Claffey. "This is the first time that an Irish radio station has provided such a service for Irish people all over the world and made it instantly available over the Internet," he said.

Programming includes news and current affairs from Ireland, as well as all sorts of Irish music. The move by Midwest to a new studio complex last year facilitated the Internet project.

"Naturally, it is putting a strain on our resources but we believe in the concept and that it is the way forward," said

See IRELAND, page 64 ▶

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World Radio History

Ireland

▶ Continued from page 63

Claffey. "Our new studios afford us the perfect infrastructure to progress our ideas. We acknowledge the potential of Internet radio."

Claffey launched the Internet-only radio service after he lost the franchise for North West Radio. Following a public court case, the license went to Ocean FM in 2004.

Reducing barriers

Other Irish services broadcast via the Internet too. Most radio stations now stream their normal programming online, while Sun80s.com operates a global Internet radio service from its Dublin base, specializing in music from the 1980s.

A new service, Radio.ie, intends to launch from Dublin within the next six months, offering a number of specialized live and on-demand audio channels for Irish people around the world, and FM104 ran Wod1.com, an Internet-only dance station, which also became a valuable training ground for the station during 2001.

Some services have begun to make use of IP-based linking methods as the technology becomes more accessible to users.

Developments in this area reflect the increased use of new technologies. Broadband Internet access has become commonplace, lowering the costs of transmitting and receiving streaming media and reducing barriers to access for broadcasters and consumers alike.

Other developments in wireless technology, such as radio services over satellite or cellular networks, are creating possibilities for the listening public and are expected to grow in popularity.

Meanwhile, the bulk of the development in Irish broadcasting over the coming years will continue to be analog. Development of a formal digital policy will not begin until 2006, while no public tests of any form of digital terrestrial broadcasting have taken place since the late 1990s.

Full-time licenses

Despite this, new stations have continued to make their mark on the airwaves.

In Dublin, five radio services have won licenses over the past five years, including new formats such as youth-orientated, news and current affairs, country and Irish and over-35s.

In addition, a revision to the BCI temporary licensing scheme has allowed a series of stations to operate high-power broadcasts from locations around the country for prolonged periods of time.

Dublin has welcomed alternative rock station Phantom FM, Christian broadcaster Spirit FM, Irish Music Radio, oldies station Premier FM and ethnic station Sunrise FM.

Such is the availability of spectrum that, even if all of these services had full-time licenses, there would still be room for new stations in the Dublin area, not to mention the rest of the country.

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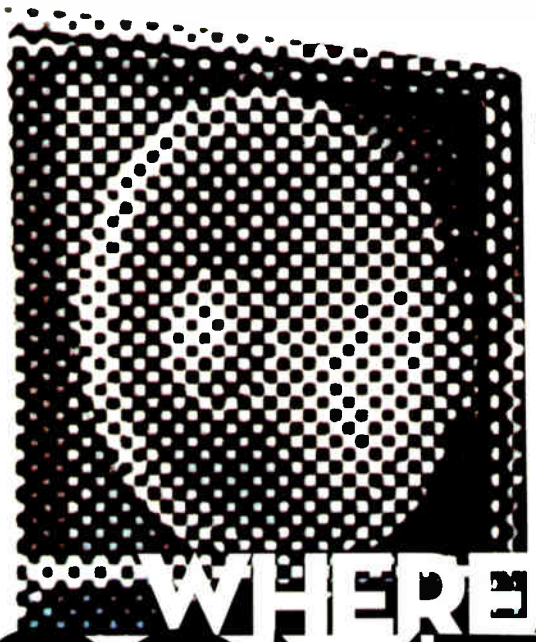

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Midwest Radio has set up an Internet service aimed at the Irish diaspora. The venture aims to send Irish music to a potential global audience of almost 70 million.

A recent report for the Irish Government by Dutch consultant OX suggested that almost 40 percent of available spectrum space in Ireland is unused, with large swathes of the FM band and virtually the entire medium-wave band unused.

With the availability of such a large amount of analog spectrum, the pressure to move to digital that exists in other markets is not present in Ireland.

Hot topic

It would appear that, apart from prospective transmission providers, the only party actively interested in digital broadcasting is public broadcaster Radio Telefís Éireann.

RTÉ has been attempting to plan for digital broadcasting since the mid-1990s, and it even conducted DAB tests in Dublin during 1998.

Rumors have circulated that the public broadcaster now plans to conduct Digital Radio Mondiale tests from its Athlone transmission site, and one group, Irish Overseas Broadcasting, has predicted that audible reception could be achieved across most of Europe and into North Africa from the Athlone site using DRM.

RTÉ is said to be keen to trial various modes of digital transmission and feels that if Ireland does not get involved in the debate at this stage, it may be ultimately forced to accept a system that does not match its requirements.

Kevin Branigan contributes to Radio World from Dublin. Contact him via e-mail at kevinbranigan@eircom.net.

World Radio History

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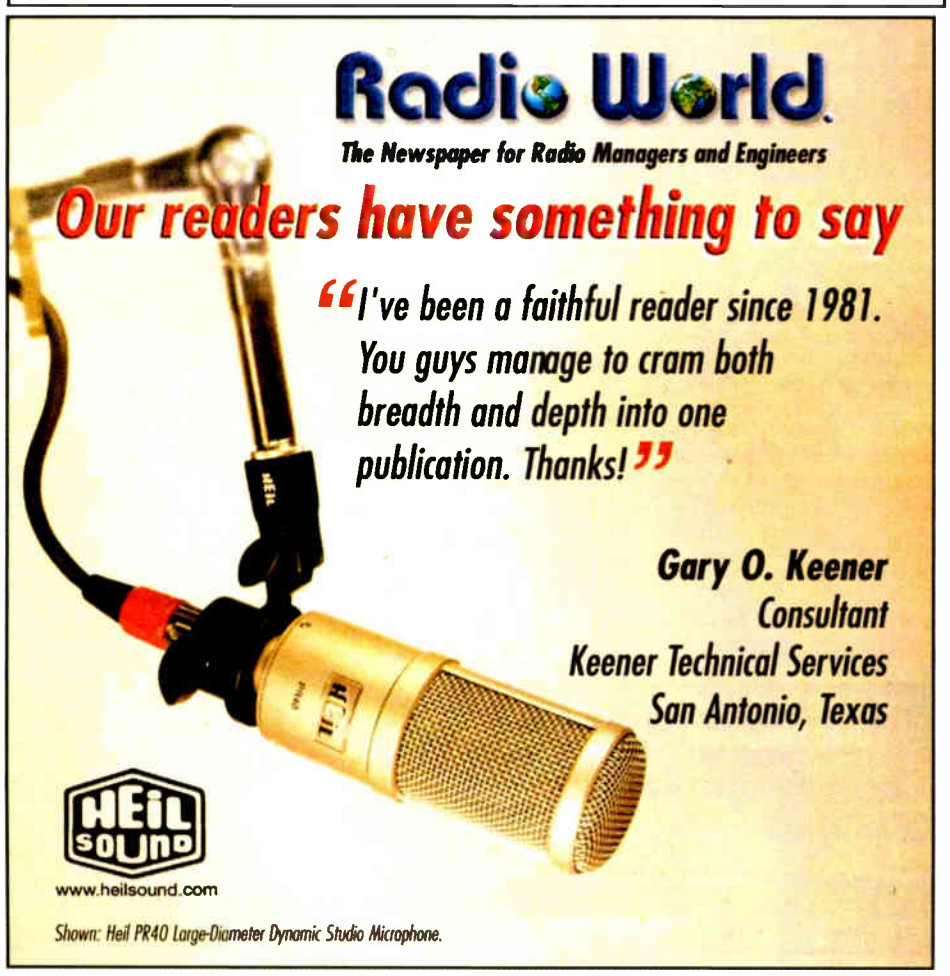

GUEST COMMENTARY

Can DRM Do AM IBOC?

The Author Calls HD Radio an IBAC System, Outlines Options for Generating a DRM IBAC Signal

by Peter Jackson

The short answer to the question raised in the headline is, technically, no. End of story.

However the longer and, hopefully, more informative answer is that it all depends how you define IBOC.

If we define it strictly as what it says on the wrapper — i.e., that we can put both the analog signal and the digital signal into the same single channel —the answer must be no. But then, no other system proposed or in the market can do this.

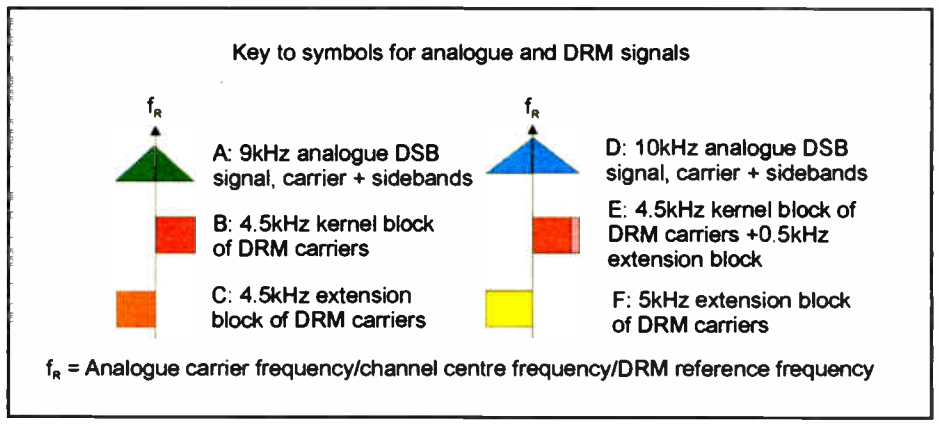

Fig. 1

This is because if we define an AM broadcast channel according to ITU (International Telecommunications Union) regulations, an AM channel is either 9 kHz wide (Regions 1 and 3 — everywhere apart from the Americas) or 10 kHz wide (Region 2 — the Americas).

Actually putting both the analog AM signal and a digital signal into a 9 or 10 kHz channel without impacting analog reception on existing receivers is very tricky — maybe impossible in any satisfactory sense. However it can be argued that the HD Radio system being introduced into the U.S. market is not an IBOC system but strictly an IBAC system (in-band, adjacent-channel).

That's if we use the ITU channel definition and not the rather more relaxed FCC definition of what constitutes a channel.

So if we now ask a different question — "Can DRM do IBAC?" — the answer will be yes. If this is so, it's worth considering what options are available to generate a DRM IBAC signal, or what might be called in DRM-speak "multi-channel simulcast."

The DRM system is a completely open standard published through the IEC, ETSI (see *www.etsi.org* to download a free copy of the standard) and ITU, and recognized by the ITU-R, its radio division, for use in all the AM bands worldwide. Potential manufacturers of DRM equipment (transmitters, receivers, etc.) can obtain licenses for the technology through a patent pool, on an equitable and transparent basis. Consumer receivers, based on the DRM consortium technology, will be exhibited in early fall.

Basic rules of DRM

It is perhaps worth going back briefly over the basic parameters and rules for generating a DRM signal to provide the background as to how it is possible to generate a compliant DRM IBAC signal, which also bears a passing resemblance to the spectrum of an HD Radio signal. But first, be aware that, within a series of DRM system specifications, there is one that applies to analog AM signals.

This specification is defined as the AM Signalling System {AMSS – ETSI technical specification TS 102 386 v1.1.1 (2005-03)}. It extends an earlier specification and allows the addition of slow-speed data to an AM analog signal, using phase modulation of the carrier. The extension allows a subset of the DRM SDC (Service Description Channel) configuration data to be carried on analog transmissions and can thus signal the presence of associated DRM signal(s) and frequency/ies to a DRM receiver.

The basic DRM building block is a 4.5 kHz group of OFDM carriers. This block (Fig. 1B) carries all the basic information needed by the receiver to decode the information carried in it and any additional extension carrier blocks. For the 9 kHz regions, an additional 4.5 kHz OFDM block (Fig. 1C) can be added to fill a 9 kHz channel. For the 10 kHz Region a 0.5 kHz extension block is added to the kernel group (Fig. 1E) and then a 5 kHz block (Fig. 1F) can be added to fill a 10 kHz channel.

The reference frequency, f_R, of the kernel block is conventionally the channel center frequency (the carrier frequency of the equivalent analog AM signal); this is OFDM carrier position "0" and is on the low-frequency edge of the kernel block (carrier "0" is not actually transmitted, which reduces the possibility of interference from a co-channel analog transmission). See Fig. 2.

The reference frequency, f_R, can only take integer values of 1 kHz. This is to reduce the number of search steps, and time, required when a DRM receiver first starts scanning a band for new stations. As we will see later, this places certain limitations on the options available when generating DRM IBAC signals in Regions 1 and 3.

What is transmitted?

The DRM multiplex contains three main components: the highly robust FAC (Fast Access Channel), which carries basic

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World Radio History

DRM

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transmission parameters needed by the receiver to start decoding the rest of the multiplex; the SDC, which contains information on how to decode the MSC, alternative frequencies etc.; and the MSC (Main Service Channel), which contains the bulk of the transmitted data, such as the audio service(s).

The SDC and MSC modulation and code rate can be changed to match signal robustness to propagation conditions; clearly, though, the more robust the signal, the lower the available capacity for audio data and the lower the audio quality.

Signal generation

Generating a DRM IBAC signal, Region 2-10 kHz grid — Let us consider first how this might be done in a Region 2 country, where the channel grid uses 10 kHz spacing. First we generate the analog signal, which has a spectrum tightly constrained within the 10 kHz channel. This signal also can carry the AMSS signal referred to above, which will tell a DRM receiver of the presence of one or more DRM digital OFDM frequency blocks.

We can then add DRM blocks in the next adjacent higher and lower channels (i.e. with block edges ±5 kHz from the analog carrier). These DRM blocks can validly be either 5 or 10 kHz in bandwidth which gives options for overall signal (analog plus digital) spectrum occupancy of 15, 20 or 30 kHz depending on whether there is a DRM signal in both adjacent channels, or only in one (see Fig. 3 options 1 and 2).

This gives considerable flexibility of configuration, albeit the use of a single 5 kHz block would significantly restrict audio quality. In order to prevent interference to reception of the analog signal, the DRM signal is transmitted at a power level at least 16 dB below the adjacent (host) analog signal. The figure of 16 dB has been derived from a number of laboratory and over-the-air trials carried out in France, by TDF, using a variety of analog AM receivers.

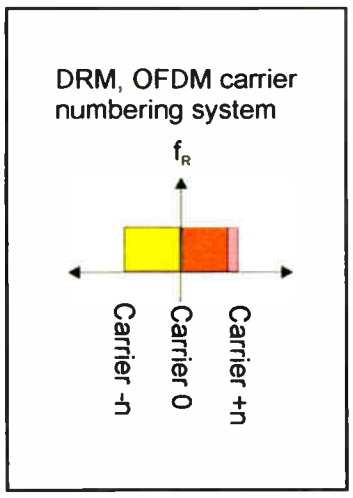

Fig. 2

When DRM blocks (of either 5 or 10 kHz width) are transmitted in both adjacent channels (i.e. ± 5 kHz from the analog carrier) the blocks can either carry identical audio data, or one block can carry base layer audio and the other can carry enhancement layer audio.

In the first case a simple receiver can decode one or other of the two DRM signals at any one time. The receiver would decode the signal that provided the lowest error rate and switch (without loss of audio) between the signals, should its current signal degrade compared to the other.

This glitch-less switching can be achieved because there is a defined inaudible gap in the transmitted audio data to allow a receiver to change frequency momentarily and sample the quality of a signal (carrying the same audio data) on an alternative frequency. A more complex receiver (already demonstrated in a BBC receiver) can combine the two signals in a way that reduces the error rate, when compared to the reception of the individual signals.

In the second case a simple receiver would decode the base layer DRM block and ignore the other block. A more complex receiver could decode both blocks and use the additional data, carried in the enhancement block, to significantly improve the audio quality.

Generating a DRM IBAC signal, Region 1 and 3 countries; 9 kHz channel grid — The situation for these regions is somewhat more difficult under a strict interpretation of the DRM standard.

This stems from the requirement that the DRM kernel carrier block must have its reference frequency lying on a 1 kHz grid. This is not a problem if/when providing a 9 kHz analog service with 9 kHz DRM block(s) above and/or below this analog signal (see Fig. 4 option 1). Nor is it a problem if we wish to place a single 4.5 kHz block on the next adjacent lower frequency side of the analog signal.

However if we wish to transmit a 4.5 kHz block in the next adjacent upper frequency channel, it has to be 5 kHz from the analog service carrier. This is not ideal and makes a 4.5+9+4.5 kHz option asymmetrical (as can be seen in Fig. 4, option 2).

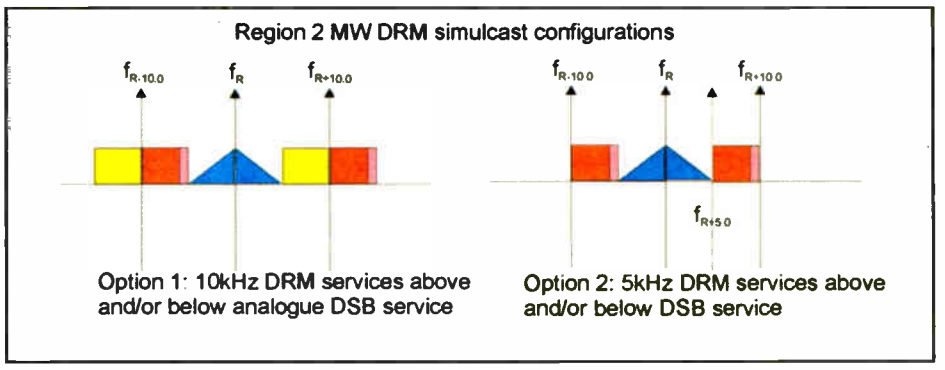

Fig. 3

To allow for a symmetrical option would require a change to the current DRM specification and has some implications for receiver scanning times if the reference frequency step size is reduced from 1 kHz to 0.5 kHz. But this is a special case and could possibly be overcome by the use of a -0.5 kHz offset flag in the AMSS data carried in the analog signal.

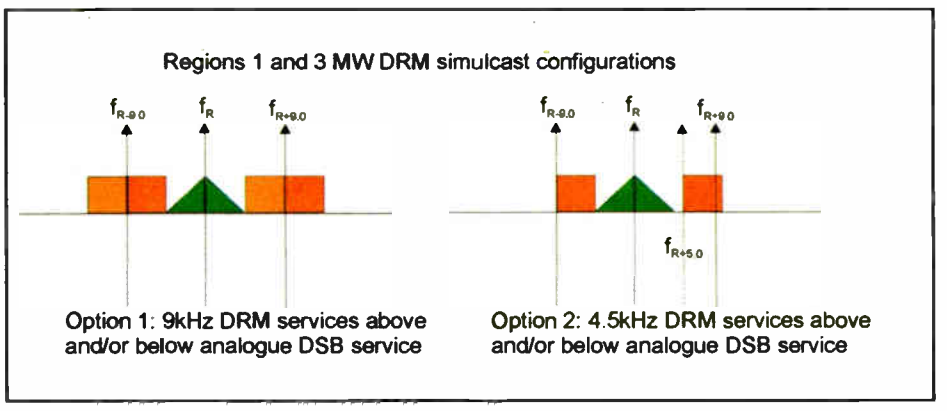

Fig. 4

To sum up

It would seem the DRM system can generate "IBOC-like" signals with spectrum occupancy very similar to an HD Radio signal. It is quite possible that some of the configurations shown may be used to introduce DRM services over the coming years, although the DRM system has never been specifically promoted as an IBOC (or IBAC) system.

However AM simulcast has, from the outset, been a cornerstone system requirement. The goal of producing a compatible simulcast option, which can work within a single channel (true IBOC), remains elusive, but there are DRM consortium members who still hope this might eventually be achievable.

The Digital Radio Mondiale (DRM) consortium was formed in March 1998, when a group of 20 broadcasters and manufacturers joined forces to create a universal, digital system for the broadcasting bands below 30 MHz. While DRM now covers shortwave, medium-wave/AM and long-wave, the DRM consortium voted in March to begin the process of extending the system to the broadcasting bands up to 108 MHz.

The DRM consortium has grown steadily since 1998 and now stands at around 90 members from 30 countries (see *www.drm.org* for a list of members). Members come from a wide spectrum of sectors and include broadcasters, broadcasting associations, network operators, manufacturers (transmitters, receivers, semiconductors and related broadcast equipment), research institutions, regulatory bodies, NGOs and others.

For more information, see the European Telecommunications Standards Institute at *www.etsi.org* or visit *www.drm.org*.

This article represents the views of the author and should not be taken to represent those of the DRM Consortium, expressed or implied.

Peter Jackson is a DRM technical expert. He recently worked for VT Communications as a technical adviser within the group working on DRM implementation across the company's SW and MW transmission services. Contact him at peterjackson3@compuserve.com.

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CBS Gear

▶ Continued from page 70

Volumaxes (410) had a unique and pleasing sound.

Unfortunately, as time progressed, "improvements" were made in the Audimaxes. The 8056 tube was removed, as was the input transformer and the unit was shrunk to a single rack space. The newer ones seemed to have less low end. The last FM Volumaxes (4110s) had limited headroom due to its pre- and deemphasis circuitry.

Other interesting CBS gear includes the Dynamic Presence Equalizer and the Recording Volumax. The DPE kept the midrange energy up and helped bad phone line remote broadcasts, and also brought out some presence in hit songs of the era like "Heart of Gold" and "Garden Party." The Recording Volumax was another take on the FM Volumax and allowed for hotter tape levels.

I collect audio processing gear and my collection has two Audimax IIIs, two Volumax 400s and a 410, and 4450A and 4110 stereo chains. So far, I haven't been able to locate a DPE or Recording Volumax, but you never know.

I have used the 410 Volumax as an AM peak limiter because of its pre-emphasis and it sounds really nice. Follow it with a little negative peak control and you have nice, loud audio. To my ears, Top 40 music from the CBS Labs era doesn't sound right without a little help from the "Max Brothers."

Phil Beckman
Naples, Fla.

World Radio History

◆READER'S FORUM◆

CBS Processors

I read with great interest and nostalgia the CBS Volumax/Audimax article by Charles Fitch (Feb. 16). Most of us veteran broadcasters and engineers got our feet wet with these two units. I relish some of the stereo air-checks of major FM stations throughout the '60s and early '70s as quality worth listening to.

At a recent Las Vegas NAB convention, I asked one of the audio design gurus why they have not offered at least one preset in their magic processors that would remind us of the sound of a Volumax. The answer was there is no demand for it. True, in this day of louder and louder is better, but there is no demand for quality FM sound as I am sure the inventor Major Edwin Armstrong envisioned.

One side note: The late Jim Schulke of Stereo Radio Productions (SRP) demanded, before running his syndicated Beautiful Music tapes on the air, that the engineer must clip out the final protection clipper diodes in the final stage of the Volumax. Schulke did not like distortion. Now there is new twist on things.

Dick Tyler
Burlington, N.J.

Fitch replies:

Dick Tyler's reminiscence of the late Jim Schulke is most interesting and so typical of his attention to detail.

Having refurbished possibly 10 FM Volumaxes (two running as the final controller of a major Boston TV station — some people still recognize quality) I can assure you that the Volumax's adjustments can be as arbitrary as one can imagine.

It probably would have been better to adjust the box to limit lower (from factory spec) and clip higher rather than eliminate these diodes and have to accept a much lower peak and hence average level audio envelope.

By the way, some of these units have been capable of being adjusted to as low as under 0.5 percent THD, which is a level that even using HP gear questions whether you're seeing THD from the audio generator, CBS unit or THD test set.

I enjoyed Buc's story on the CBS processors.

I clearly remember in the late 1970s and early 1980s as we were building of company of small-market (10,000 population) stations in the Upper Midwest. One of our first upgrades in our new stations was the CBS pair.

It was a big expenditure for us, but also a priority. We made the commitment and never looked back. They were great units, and served us well.

Thanks for helping us remember.

Dean Sorenson, CRMC
Sorenson, Eternal, Jim Dandy &
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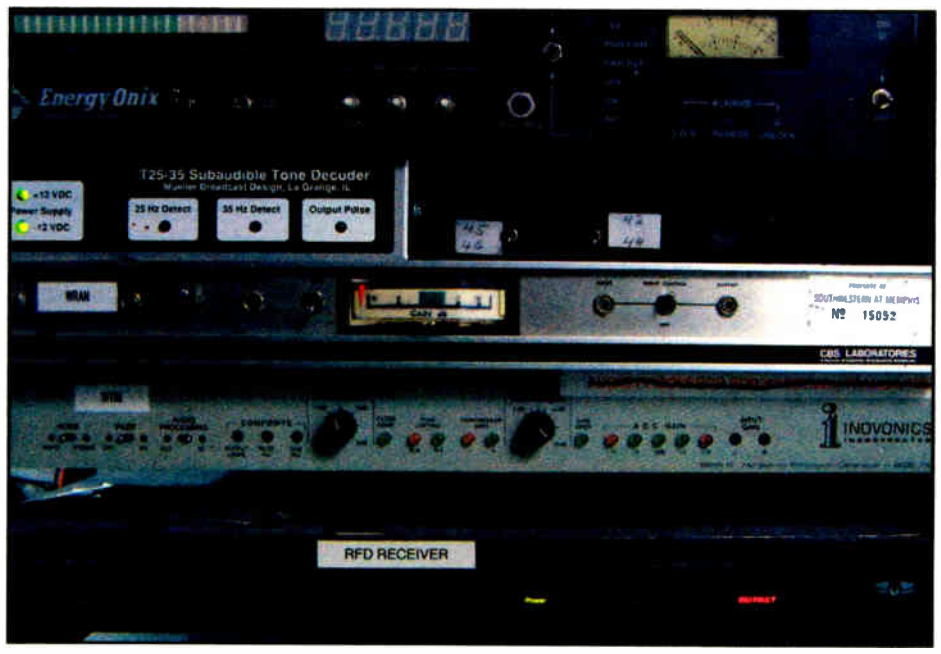

One of Miller Media Group's CBS Volumax processors is shown, mounted above the Inovonics unit.

I still have two CBS Volumax units in the audio chain of two of my FMs (see photo). Both are music stations and we use them to bring the audio up between their respective Optimod 8100As and their STL transmitters. They are nice AGC boxes and still sound great.

Thanks for the great article.

Randal J. Miller
President
Miller Media Group
Taylorville, Ill.

The Audimax/Volumax combo consisted of the most effective AM processors ever made. I still miss their warm sound. I kind of miss the tube Audimax with its noisy 12AX7 socket.

I know the Orbans, CRLs and other innovative digital processors give radio stations their coverage through maximum modulation, but they give audio a certain harshness with their series of multiband AGC and clippers. Most AM stations I listen to these days are so distorted, it's annoying. Some even have decreased their audio range to 5 kHz in addition to clipping the heck out it. This sounds horrible on my radio.

The Audimax III and the 400 were beautiful AGC amps. They were designed for just the right amount of maximum gain reduction. You had to physically go into the unit and change resistor values in order to make them sound pumpy and bad.

The factory set attack and release values were perfect. If you wanted a louder more constant modulation, you adjusted the Volumax, not the Audimax. Set your modulation peaks just to the right of center on the Volumax meter, then add input gain until the meter was in the middle of the heavy side. Voila, you've got maximum constant modulation, minimum AGC pumping and loudness.

If you wanted a little extra oomph, you added a UREI LA-3A to the front of the Audimax with a maximum 5 dB gain reduction.

I can still hear the mercury vapor tubes loud and clear with the speaker turned down. AM radio has not sounded better since.

Robert Heiney
Houston

I really enjoyed Buc's article on the CBS Audimax. I have several of them here that I use for various projects and I used on my Amateur Repeater back in the '70s. I followed it by a Volumax, followed by a 5 kHz low pass filter. See *http://wa6tdd.tripod.com.*

What I usually do is replace the 8056 Nuvistor with a N-Channel FET from Radio Shack. The only problem is trying to figure out what pins are what on the Nuvistor socket and shoving the appropriate pins of the FET into the socket. Once done, the FET will work without any other modifications. It's only necessary to recalibrate the meter following the instructions in the manual for normal calibration.

I also replace the two resistors, I think R45 and R-45A, in the GGS stage sensitivity with a 100 K pot so I can set the gate threshold. I used a small pot with a 1/8-inch shaft through the inner front panel for easy adjustment. You can set it by watching the recovery action on the meter during low-level audio. I've re-capped all of mine and they work great.

One point regarding the input and output pots — if you remove them from the circuit board you can spritz WD-40 into them through what would be the center pin. That way you don't have to disassemble the pots. I've done that once per unit and have had quiet pots for over 10 years.

About 10 years ago I traded one of my older tube types for a new Potomac SD-31/RX-3 generator/detector.

Burt Weiner
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Glendale, Calif.

The CBS Laboratories processors made in the mid-1960s through about the mid-1970s were fine pieces of equipment. In their stock form, the "Max Brothers" had a very clean and uncompressed sound, while allowing excellent modulation control.

The Volumax's asymmetrical limiting was uncommon at the time. For Top 40 though, the 10 megohm time constant resistor in the Audimax III had to go! Although the book said it could be replaced with a 1 megohm, the hot setup was about 500-700 kilohms. With the 8056 Nuvistor's bias set properly, the Audimax squeezed audio pretty nicely. And, with the Volumax running flat out, you ended up with (in my opinion) the standard for wideband audio processing on AM.

On the FM side though, it did take Mr. Orban to solve the modulation control dilemma, although the older FM

See CBS GEAR, page 69 ▶

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