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NAB's Honoree
 Peers speak out on Glynn
 Walden's industry contributions.

You're Covered
 Buyer's Guide gets down
 to transmitter basics.

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Radio World



May 5, 2004

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The Newspaper for Radio Managers and Engineers

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FCC Looks More Closely At IBOC

by Leslie Stimson

WASHINGTON Terrestrial digital radio proponents have been hoping the FCC would move to solidify final rules for IBOC this year. Now that process has moved a big step forward.

At the same time, commissioners and staffers are asking a lot of questions — about content, about public service, about split channels and subscription fees — in their quest to craft further operational service rules for in-band, on-channel digital audio broadcasting.

In a Further Notice of Proposed Rule Making issued in April, commissioners noted that IBOC has potential beyond improved sound quality, such as datacasting, multiplexing and subscription services. It is seeking industry remarks on these and other possibilities. Comments are due June 16.

Content control

The FCC has also issued a separate Notice of Inquiry seeking comments on content control for digital, regarding consumers' ability to record from the radio. The Recording Industry Association of America has raised

See FCC, page 2 ▶

RDS in Dallas Clicks With Listeners

How One Company in One Market Is Putting Radio Data to Work

by Randy J. Stine

DALLAS The five Clear Channel FM stations in this city are easy to spot on the radio dial — if you've got the right radio.

They're the only ones scrolling song title and artist information, visible on RDS-equipped car receivers.

The Radio Data System has arrived in
 See RDS, page 10 ▶



Louis Sutton, laptop hooked to the RDS generator, checks settings.



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FCC

► Continued from page 1
the "broadcast flag" question for digital radio. The Consumer Electronics Association, which opposes such a flag, was pleased the FCC restricted such discussion to a Notice of Inquiry and did not include it in its Further Notice.

"We strongly hope and believe that the FCC will reject the RIAA's efforts to restrict the noncommercial home recording of digital radio broadcasts," CEA stated.

And in its Further Notice about DAB, the commission is raising questions about public interest and how radio should meet those obligations as IBOC technology enhances audio quality and potentially enables new services.

The commission initially selected IBOC as the preferred digital radio technology for this country in 2002. Now the agency is building on interim operation requirements to develop final authorizations as well as related licensing and service rule changes.

Chairman Michael Powell said the action "demonstrates the commission's commitment to developing the necessary framework to ensure a successful digital audio conversion."

Commissioners noted potential new data services such as station, song and artist identification, stock and news information, as well as local traffic and weather bulletins. With IBOC, a station also is capable of splitting its digital channel so that it may broadcast multiple streams of audio.

The commission seeks comment on what changes it must make to its technical rules to further radio's digital transition, especially

regarding proposals to allow AM nighttime service. The FCC also wants to hear about the possible effects on FM translators, including services such as reading services for the visually impaired. Questions regarding interference are raised for comment.

The commission asks what kind of digital services stations should be allowed to offer, such as multiplexing and datacasting, and whether subscription services have a place in terrestrial digital radio.

Commissioners also are asking if radio has considered the role of public interest obligations. The agency seeks comment on how digital broadcasting can enhance political discourse and the extent to which it should include news or public affairs programming in its service rules.

Commissioner Michael Copps believes the questions about public service requirements don't go far enough.

"I would have preferred an even broader discussion of the public interest in this item rather than deferring some important issues to future proceedings. As just one example, an issue that we raised in the context of digital television but which is not addressed here is how broadcasters can identify community needs and enhance disclosure to their communities of how they are meeting their obligations.

"We now have over 1,000 digital (television) stations ... and over 200 stations that are multicasting. And yet, these broadcasters still don't know what they must do to discharge their public interest obligations. And consumers don't know what to expect from digital radio either."

Copps also believes the multicasting issue, the split channel concept for FM radio, raises questions regarding ownership rules. While the extra channels offer the promise of more diversity of programming, the sudden addition of more channels could change the competitive landscape in local markets, he said.

"What does it mean for competition if a company that would be permitted to own eight radio stations in a market also obtains the ability to multicast many more programming streams? Does that really promote competition, localism and diversity in the digital era? We need to be looking at such questions before we leap."

The agency seeks public input about digital's effect on noncommercial stations and low-power FMs and how such stations may introduce DAB.

A day before its April 15 meeting in which commissioners passed the notice on service rules, it asked for comment on AM nighttime authorization.

In July, NAB submitted evaluations of tests conducted by Ibiqity Digital, and the NAB Radio Board recommended that the FCC allow nighttime IBOC.

The FCC seeks comment on authorizing AM nighttime IBOC with special temporary authority procedures. Comments are due June 14.



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NEWS MAKER

Walden: IBOC Visionary Gets His Due

by Leslie Stimson

NEW YORK "Full of passion, tireless and dedicated" is how peers characterize E. Glynn Walden, senior vice president of engineering for Infinity Broadcasting and recipient of this year's NAB Radio Engineering Achievement Award.

The honor is given each year to industry leaders for significant contributions that have advanced broadcast engineering.

Walden has been described in the pages of Radio World over the years as one of the visionaries of in-band, on-channel digital audio broadcasting — sometimes as "the father of IBOC." NAB credits him with creating the technical design and economics of the IBOC system, now known by its brand name HD Radio.

"In his capacity as vice president of broadcast engineering for Ibiqity Digital Corp. he wrote the IBOC technical and regulatory specifications for a design team of 50 engineers, scientists and technicians who went on to develop the HD Radio IBOC system," NAB stated in its announcement of the award. Walden was laid off from that post last summer.

His involvement with terrestrial digital radio goes back to what was then called Project Acorn in 1989, according to Geoff Mendenhall, vice president of advanced development for Harris Broadcast and himself a winner of the award in 1999 for helping to develop a new generation of FM exciters.

Keeping radio competitive

Mendenhall said Walden, who was vice president of engineering for Westinghouse when the project began, was being recognized for helping to advance radio technologically.

"We're trying to keep terrestrial radio competitive with satellite radio and other venues that are evolving. HD Radio is part of that."

Milford Smith, vice president of radio engineering for Greater Media and chairman of the DAB Subcommittee of the National Radio Systems Committee, said Walden, Tony Masiello and Paul Donahue were the engineers who developed the idea that it might be possible to

broadcasters and institutional investors to enable incorporation.

Struble said, "The thing about Glynn has always been his passion for the project and his belief in the project. His passion was exemplified in his dedication, his hard work. Nobody worked harder



Walden laughs during a 2003 interview with Radio World at Ibiqity.

do digital radio in existing spectrum.

"That was the era in which Eureka-147 had just started getting traction in Europe. After initially looking at it (Eureka), the consensus in this country was that wasn't how we needed to do digital radio to be compatible in every respect with the commercial radio system that existed in this country," said Smith.

"They came up with this idea. They thought they could do it in existing spectrum. It was a long, hard battle. I think the idea was considerably ahead of the ability of the technology to do it. But the idea was sound and the right way to do it, I'm convinced, for the United States."

According to Ibiqity, in 1991 CBS

than Glynn. He was here earlier in the morning than basically anyone else and left later and was always working on it."

Struble said early in the USADR days, Glynn spent a lot of time on system design,

determining exactly what was going to be most important for broadcasters.

"Later on, as we were pushing it more, (Glynn) was on the phone with everyone in the industry, walking them through exactly what was going on, why it was important and taking their input," said Struble.

As the digital radio rollout moves forward, Struble said, "It would be difficult to overstate how important he has been to the whole effort."

Critical checkpoints

Mendenhall said the consistent contact between Walden and the industry as IBOC progressed was important, especially at critical points, from the early 1990s to last summer's codec problems.

"He always provided a reality check at each turning point as to what would ultimately fulfill the requirements of the broadcaster and the listening public. I think one of the things that Glynn brought to the party is that even though he's a businessman and he was involved as a systems developer and a broadcaster, I think he also had an overriding feeling of responsibility that this system has got to be right.

"Glynn used to say something to the effect that 'We're about to develop and implement a new broadcast system here that's going to have to last 50 years. And it better be right. It can't go the way of AM stereo or a lot of other things in terms of coming out of the starting gate too early and not being right.'"

USADR merged with Lucent Digital Radio to form Ibiqity Digital Corp. in 2000.

See WALDEN, page 5 ▶

I think he ... had an overriding feeling of responsibility that this system has got to be right.

— Geoffrey Mendenhall

Mendenhall recalled testing transmitters that had been modified for IBOC with Walden. In 1991, they tested a Harris analog TV transmitter that was modified for IBOC and a Broadcast Electronics 20 kilowatt analog transmitter with high-level combining of the analog and digital signals to the antenna. In 1992, Mendenhall said, with WILL(FM) in Urbana, Ill., they tested using a BE FM20 analog transmitter and a Harris Platinum VHF TV transmitter that had been modified for FM band operation. The TV transmitter was generating the FM IBOC signal.

"Glynn has a unique ability to translate complex technical issues into key business drivers to fulfill the needs of the broadcasters and of Ibiqity as well and their business plan," said Mendenhall. "He was able to translate the business needs of the broadcasters into a technology strategy that supported the business objectives of both the broadcasters and USA Digital Radio, which eventually became Ibiqity."

and Gannett established USA Digital Radio Limited Partners, L.P. Westinghouse joined the partnership that same year. Masiello, Donahue and Walden were primarily responsible for AM IBOC development.

Walden wore two hats for several years while the technology was in development in his role with Westinghouse and the digital radio effort.

In 1995 Westinghouse Electric Corp. merged with CBS Inc. Robert Struble, now president/CEO of Ibiqity, said the digital radio project "was accelerated" in 1996, the year CBS/Westinghouse asked him to lead the digital radio effort. Walden took on additional duties for the FM IBOC development program at this time.

Walden, Struble and other early partnership employees still worked for CBS, but solely on digital radio. They founded USA Digital Radio, Inc. in 1998 when the company secured \$20 million from

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New Data Coming In About RDS

When I talk to industry people about RDS, a lot of them say Clear Channel opened the door to a resurgence of interest when it announced plans for "the largest rollout of RDS in the United States," covering 192 FM stations, last fall.

But trying to identify the moment when RDS came back into vogue, I recall instead an announcement by Entercom Communications that it was getting into RDS in a big way, renewing interest in the technology that brings data to radio receiver displays. Entercom placed an order in April 2003 with The Radio Experience to equip 54 FM stations with that company's Dynamic Data Initiative technology.

I recently e-mailed Marty Hadfield, vice president of engineering for Entercom, for a story for Radio World Online, asking him how RDS is coming along.

"As of last week, Entercom has 65 FM stations running RDS Radio Text with the enhanced dynamic PS code text," he told me. "We'll be adding another one in Providence pretty soon."

The company is experimenting with inserting specific CD title info and adding content to complement its Web presence. Hadfield said Entercom does "not have commercial content aspirations at this time."

He said he finds it "exciting and reassuring" that hardware and software have matured at the station level to permit radio to offer such enhanced features.

The most common use at Entercom stations, he said, is displaying song artist and title, although some stations are displaying 1-800 contest line numbers and others are running "silent contests" with instructions displayed in Radio Text mode.

"I've also seen promos for HD Radio displayed on RDS."

Most Entercom stations are running song artist and title, call sign and a positioning statement, such as "25 Years of Rock & Roll." On talk, news and sports formats, stations often run the show name.

What has Hadfield learned about the technology that impressed or disap-

pointed him?

"The wide variations in existing RDS receivers' display modes and their response to both changing PS code content and Radio Text content is a challenge," he said.

How is *your* radio station or group putting RDS to work? Will the technology stick this time around? Or are you a skeptic? Tell me more at radioworld@imaspub.com.

★ ★ ★

I touch base from time to time with suppliers, asking their views on various industry trends. I put one such question to Phil Owens, a sales engineer at Wheatstone, and I thought his answer worth sharing:

"The most prominent trend continues to be the creation of networked audio systems with distributed control throughout a facility," Owens wrote back. "All audio inputs and outputs can be considered as a common pool of signals which are handled by the networked router components throughout the building. Any of these signals can then be mixed or switched by various control surfaces that interface with the routing system.

"These surfaces perform the same functions as a traditional console but have much more power and flexibility due to their system-wide access. Small edit surfaces can access the same array of sources as large on-air surfaces. Entire show setups can be easily switched from room to room. Systems such as this handle digital audio, analog audio and control signals with equal ease, making them ideal for today's mixed signal environments."

★ ★ ★

If you've been following the news, you know Alistair Cooke died at age 95 in New York in March, a few weeks after stepping down from his BBC program "Letter From America." The broadcaster and journalist began the program in the months after World War II. The BBC believes it was the longest-running speech radio program, ever.

My image of Cooke has more to do with his hosting public television programs than radio. But I was drawn to his urbane, quiet

From the Editor



Paul J. McLane

demeanor. He was an Anglophile's dream, someone who could explain *us* to *them*.

His choice to perform meaningful work at an age when most people would have long been retired is an inspiration. It was Cooke who once wrote, "I've noticed that if you retire you keel over." How prophetic.

His passing makes me all the more aware of how few links we have left to a monumental era.

Transcripts of Cooke's first and last letters from America — dated 1946, and 2004 — are posted at

http://news.bbc.co.uk/1/hi/programmes/letter_from_america/ along with other Cooke works and tributes.

★ ★ ★

This issue marks the departure of Michele Kramer Peterson from the staff of Radio World; she's leaving to start her own business, with our best wishes.

Michele joined IMAS Publishing Co. six years ago as managing editor of Pro Audio Review magazine, and at her departure was associate editor of Radio World's *Studio Sessions* section. She contributed as well to online content and specialty IMAS publications.

Kelly Brooks, who was already spending part of her day working for Radio World as editor of the *Buyer's Guide* and *Reader's Forum* sections, is promoted to associate editor and adds *Studio Sessions* to her portfolio. I'm delighted to have her full time on the staff of the longest-running (and still the best) IMAS publication.

You can reach Kelly Brooks at kbrooks@imaspub.com.

Past Winners

Readers of this page know my affection and respect for Glynn Walden, winner of the NAB Radio Engineering Achievement Award, profiled on page 3.

The award dates to 1959, when it was given to John T. Wilner of Hearst Corp. Winners have included Ralph Harmon, John DeWitt Jr., Carl J. Meyers, Philip Whitney, John Moseley, Julius Barnathan and Carl Smith.

The award was divided into radio and TV categories in 1991. The radio winners since then:

- 1991 George Marti, Marti Electronics
- 1992 Edward Edison and Robert L. Hammett, Hammett & Edison
- 1993 Robert M. Silliman, Silliman and Silliman
- 1994 Charles T. Morgan, Susquehanna Radio Corp.
- 1995 Robert Orban, AKG Acoustics
- 1996 Ogden Prestholdt, A.D. Ring & Assoc.
- 1997 George Jacobs, George Jacobs & Assoc.
- 1998 John Battison, P.E., Consultant
- 1999 Geoffrey Mendenhall, P.E., Harris Corp.
- 2000 Michael Dorrrough, Dorrrough Electronics
- 2001 Arno Meyer, Belar Electronics Laboratory
- 2002 Paul Schafer, Schafer International
- 2003 John W. Reiser, FCC

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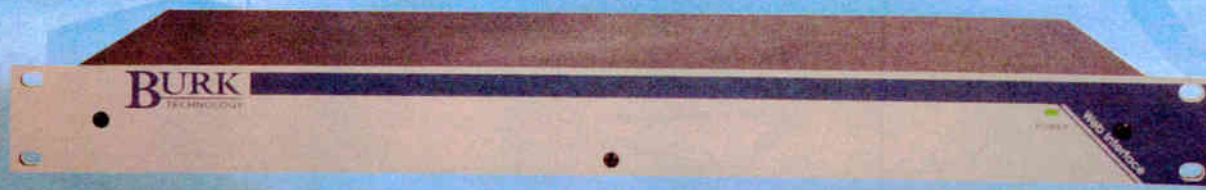
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Powell: 'Are We There Yet?'

Chairman Says Internet Voice Will Unleash a Torrent of Innovative Services

The following are excerpts from a speech by FCC Chairman Michael Powell to the National Press Club this winter, on the digital migration and its relationship to personal communications devices as well as the emerging Voice Over Internet protocol.

WASHINGTON For six years, I have spoken ... about the great Digital Migration — our movement from an analog world to a digital world — and the radical transformation that will come with it. ...

So is the case with the digital trip we have been on. "Are we there yet?"

Not quite yet, but I believe we have reached the city limits, and if you look out the window, the signs are there that we will arrive soon. ...

Coffee shops and airport terminals have sprouted WiFi Internet access hot spots. Hotels have furniture with power plugs and Internet port connections integrated into them. ...

But the real measure of general acceptance is when things become imbedded in pop culture. Words creep into every day vocabulary: "download it," "TiVo it," "do it online," "rip it," "hot spot," "Hi Def," "beam it". ...

Few people would think of leaving home without their cell phone. One's cell phone is more personal than traditional phones.

Features that allow customization abound — personalized ring tones, faceplates, interfaces and styles. With the arrival of local-number portability rules, you see that people want personal ownership of their phone number as well. ...

Nearly 56 percent of U.S. households have one or more cell phones, nearly 150 million users.

The Blackberry is one of the most-talked-about personal communicators around. It was the hero of Sept. 11,

allowing many people to communicate during the crisis. It is a communications Swiss army knife, allowing someone to



FCC Chairman Michael Powell on Capitol Hill

stay accessible to e-mail, voice calls, address books, schedules and more.

WiFi is perhaps the most celebrated technology of the last two years. We have worked hard to drive its adoption. There are now estimated to be close to 100,000 hot spots worldwide. ...

High-speed broadband connections are being adopted quickly. Nielsen Net Ratings reports that 50 million Americans now access the Internet from home using high-speed connections. When I became chairman (in January 2001), that number was a mere 12 million. ...

Power to the people

Computing and communication power is coming to people because the forces of silicon chips, massive storage and speedy

es, go anywhere to espouse the benefits of in-band, on-channel digital radio. I know he was all over the country and all over the world for the last few years speaking about the system ... answering questions of many foreign broadcast groups or governments."

Smith said for broadcasters, Walden "was really the spokesperson for IBOC and absolutely trusted as somebody that you could anticipate giving truthful, straight, no-B.S. kind of answers."

Walden worked at Ibiquty until last summer, when he and several other employees were laid off as the company switched codecs and determined it needed more marketing personnel to roll out the technology.

Now he is senior vice president of engineering for Infinity Broadcasting, which declined to make Walden available to comment for this article.

Walden got his start in radio while attending Miami Dade Community College. He was chief engineer for WEDR(FM) in Miami.

Later, as vice president of engineering for CBS and Westinghouse Broadcasting, he worked on capital projects including station power increases, facility consolidations and relocations and served as engineering manager for KYW(AM), Philadelphia.

connections to the Internet are combining to produce smaller and more powerful devices that can rest in our hands, rather than in the hands of large centralized institutions.

It boggles the mind to see the fantastic products available to us today. ... Digital

ers like the iPod have taken the rows of CDs out of a music store and placed them in your pocket.

Personal Video Recorders like TiVo have given us more control of what we watch and when. We want movie theaters in our family rooms.

GPS satellite receivers come on farm tractors. DVD players let us watch high-quality movies almost anywhere. ...

Internet Voice

And now we will turn our efforts to the latest development in the drive to digital Voice Over the Internet, and commit ourselves to the policy formula that is proven to stimulate innovation and bring more choices, better value and more personalized service to the people. Let me lead off by giving some explanation of what Voice Over the Internet really is and explain why it holds such great promise for our citizens.

First, it is important to see Voice Over IP as an application that runs over the Internet, in contrast to a telephone call that you buy as service integrated into a specialized network. ...

Plain old telephone service performs one basic function really well. It sets up a telephone call from point A to point B. A voice application can do that, but it can do so very much more.

Microsoft, for example, has integrated a voice application into Xbox Live. It allows gamers to play others over the

See POWELL, page 6 ▶

Walden

▶ Continued from page 3

As vice president of broadcast engineering for Ibiquty, Walden was responsible for coordinating and leading radio's digital implementation, including establishing multiple field test sites and evaluation of implementation requirements for stations contemplating conversion.

Walden developed and completed what Ibiquty says is the most comprehensive study on the existing levels of interference in the AM and FM bands and predictions of how the interference would increase following adoption of IBOC. He developed a comprehensive test program for evaluation of IBOC digital performance and compatibility with the existing broadcast infrastructure.

Walden represented Ibiquty on the NRSC and managed other independent testing and evaluation efforts of Ibiquty Digital's technology.

Smith and others said Walden was accessible, ready to talk about digital radio.

"Glynn, probably to the detriment of his personal life, would take anyone's call, talk with anybody, and in most cas-

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Powell

► Continued from page 5

Internet while talking to each other. That is Internet Voice, but hardly a classic phone call.

The device you use to run a voice application can take many more forms than a standard telephone handset. There is a service by Vocera that is being used in hospitals. It is a device that can hang around your neck.

Simply by speaking the name of someone, you can initiate a conversation over the device. A nurse can call for a doctor and talk to him immediately. This is Internet Voice.

Internet Voice will unleash a torrent of innovative products and services, from many more sources than we are accustomed to, if we let it. ...

Choice will also come from being able to use different devices with different features to send and receive voice communication — your PDA, your game console, your laptop, your MP3 player all will be useable as a phone is today. ...

The increasing power and declining price trends of microchips, storage and consumer electronics devices work in our favor. We all know that flat-screen TVs will get better and cheaper, as will computers, as will cell phones and MP3 players.

Internet voice services are cheaper because they are not heavily regulated.

'Your PDA, your game console, your laptop, your MP3 player all will be useable as a phone is today.'

As a software application, Internet voice can be readily integrated with other computing systems. For example, you make an Internet call to a doctor's office to make an appointment.

The doctor's system calls up your medical records, your medications and your last visit and instantly displays them. It also brings up the appointment times available, allows you to select one and then calls you back, or sends a text message to your cell phone the day before the appointment to remind you.

Similar potential rests with police and fire response systems. The 911 system is vital in our country, but it is limited functionally. In most systems, it primarily identifies the location from which the call was made.

But an Internet voice system can do more. It can make it easier to pinpoint the specific location of the caller in a large building. It might also hail your doctor, and send a text or Instant Message alert to your spouse. ...

This is not solely because they avoid taxes and fees, which are a big chunk of the cost of your phone bill. It is also because these providers do not bear the heavy transaction costs of having to deal with over 51 regulatory commissions, both state and federal, and the thousands of pages of rules. ...

Internet voice service is also less expensive because providers do not need to build a billion-dollar infrastructure to offer it. ... Voice applications, just like e-mail or Instant Messaging, just ride over your broadband service.

Finally, VoIP networks are cheaper because they can use the same network for delivering voice and data, rather than maintaining different networks for each. This is an enormous efficiency. ...

Yes, there will be issues as Internet Voice becomes more widely adopted. We will need to ensure the legitimate concerns of public safety and law enforcement are addressed. ... It is important to have a government-industry partnership to keep an eye on these concerns. ...

NEWSWATCH

BIA Predicts Uptick In Station Deals

CHANTILLY, Va. BIA Financial Network expects a slight increase in the overall value of station transactions in 2004. BIA executives believe that 900 to 1,200 radio stations will be bought and sold this year, with an estimated value of \$3 billion to \$5 billion.

Last year, the number of stations sold increased, from 769 to 925, while their value dropped, from \$5.4 billion to \$2.4 billion. But in four of the last five months of 2003, the number of stations sold was higher than in 2002, in some cases significantly, according to the financial consultant.

"Even with lackluster sales in the early part of 2003, we did see renewed interest and activity in the later part of the year," said Mark Fratrik, vice president of BIA Financial Network.

"This increased activity, along with a healthy economy, a recovering advertising marketplace and continued low interest rates, suggests that radio station trading should increase throughout 2004 and that values of radio stations should also increase at a reasonable rate."

Consumer Groups Protest 'Flag' for Digital Radio

WASHINGTON The groups Public Knowledge and Consumers Union sent FCC Chairman Michael Powell and his colleagues a letter opposing a broadcast flag rule making for digital radio.

The consumer groups say the agency plans to propose a rule making on copy-protection policies for digital radio. The commission had taken no action on the issue for radio at press time.

The policy, if adopted, would be the radio equivalent of the TV broadcast flag, the consumer groups say.

In the letter, Public Knowledge and Consumers Union urge the FCC to drop copy protection from the notice of proposed rulemaking and to consider it, if at all, as a Notice of Inquiry.

"There is no reason for the FCC to create a broadcast flag for radio. The

record companies have done nothing to establish that digital radio is a potential threat to record sales or a potential source of content for Internet file-sharers," said Mike Godwin, senior technology counsel for Public Knowledge.

The groups acknowledge that the Recording Industry Association of America seeks broader restrictions on digital copying and content storage. The RIAA wants to prevent consumer recording of broadcasts.

"Unlike the Broadcast Flag proceeding, for example, we have here no specific technological proposal to consider. Nor is there any call from members of Congress that the commission act quickly."

The consumer groups also point out that stations transitioning to digital radio will use the same spectrum that they now use for analog, so protecting digital radio content would not make more spectrum available.

Clear Channel Penalized Nearly \$500,000 for Stern

WASHINGTON The commission proposed a total of \$495,000 in penalties against six Clear Channel stations for material aired on the "Howard Stern Show" that the agency considers to be indecent.

This is in addition to the \$755,000 Clear Channel Radio paid in March for indecent broadcasts by former employee Todd Clem, known on-air as "Bubba the Love Sponge."

The Stern decision is the first time the FCC has fined per instance, rather than treating an entire program as one indecent utterance. The total penalty represents 18 indecency fines of \$27,500, each stemming from material aired on April 9 of 2003.

Noting that Stern originates from Infinity Broadcasting, the commissioners told its Enforcement Bureau to open an indecency probe into Infinity for the same show.

The FCC reminded licensees that license revocation is an option for "serious, repeated cases of indecency violations."

"This is not a surprise," said Howard Stern in a statement on his Web site. "This is a follow-up to the McCarthy-type 'witch hunt' of the administration and the activities of this group of presidential appointees in the FCC, led by 'Colin

See NEWSWATCH, page 6 ►

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Newswatch

► Continued from page 6

Powell Jr.' and his band of players."

The material at issue is dialogue about the sexual practices of certain cast members and a discussion with a guest about a "purported personal hygiene product" designed for use before sex.

The stations involved are WBGG(FM), Fort Lauderdale, Fla.; WTKS(FM), Cocoa Beach, Fla.; WTFX(FM), Louisville, Ky.; KIOZ(FM), San Diego, Calif.; WNVE(FM), Honeoye Falls, N.Y., and WXDX(FM), Pittsburgh.

In its order, the agency said it fined Clear Channel the maximum penalty allowed because of the company's "recent history of airing indecent programming."

The company has the right to appeal.

Hogan Nixes Howard for Good

SAN ANTONIO In light of the \$495,000 FCC fine, above, Clear Channel cancelled Howard Stern's show on its stations.

"Mr. Stern's show has created a great liability for us and other broadcasters who air it," said John Hogan, president and CEO of Clear Channel Radio. "The Congress and the FCC are even beginning to look at revoking station licenses. That's a risk we're just not willing to take."

In February, Clear Channel suspended the show in the six markets where it had aired. At that time, the company asked for assurances from the show that steps would be taken to bring the program into compliance with FCC regulations.

Hogan said Clear Channel received no assurances.

"Unfortunately, the FCC's latest action, combined with deafening silence from the Stern show on their future plans to comply with the law, leave us no choice but to abandon the program for good."

Stern syndicator Infinity Broadcasting declined to comment on Hogan's statements.

Earlier this year, Clear Channel began a zero-tolerance policy for indecent programming.

Katz, Interep Combine Invoice Delivery

NEW YORK Katz Media Group and Interep have developed a central invoice delivery system. The e-business Web site, called RadioInvoices.com, is set for a June launch. The companies can upload radio invoices on behalf of their clients to a secure facility that will be accessed by registered agency personnel.

Katz and Interep had each been working on their own electronic invoicing products, but said they realized customers wanted a single system, according to Marc Guild, president of Interep's marketing division.

"As agencies and advertisers ask for enhanced accountability from all media, the ability of radio to provide a single source for electronic invoicing is vital to the continued growth of our medium," said Guild.

Stu Olds, CEO of Katz Media Group, said, "By joining forces, we're demonstrating our commitment to an industry-

wide focus on using technology to improve the efficiency of the medium."

RadioInvoices.com is non-proprietary, and the companies said it has been developed to help parties that buy and sell radio time to reduce processing costs and errors.

Clear Channel Taps Comcast Lobbyist

SAN ANTONIO Clear Channel has appointed a new person to head its Washington lobbying operation. Jessica Marventano was to join the company as senior vice president for government affairs April 15. She reports to Andy Levin, who relocated to San Antonio following his February promotion to executive vice president

and chief legal officer.

Marventano comes from Comcast where she served as senior director/policy counsel. Before joining Comcast in July 2003, she was majority counsel for the House Committee on Energy and Commerce, where she was chief advisor on broadcast, cable and satellite policy issues.

Clear Channel President and COO Mark Mays said of Marventano, "Her expertise and strong relationships with lawmakers on both sides of the aisle will make her an effective advocate in Washington."

Axia Is New Telos Subsidiary

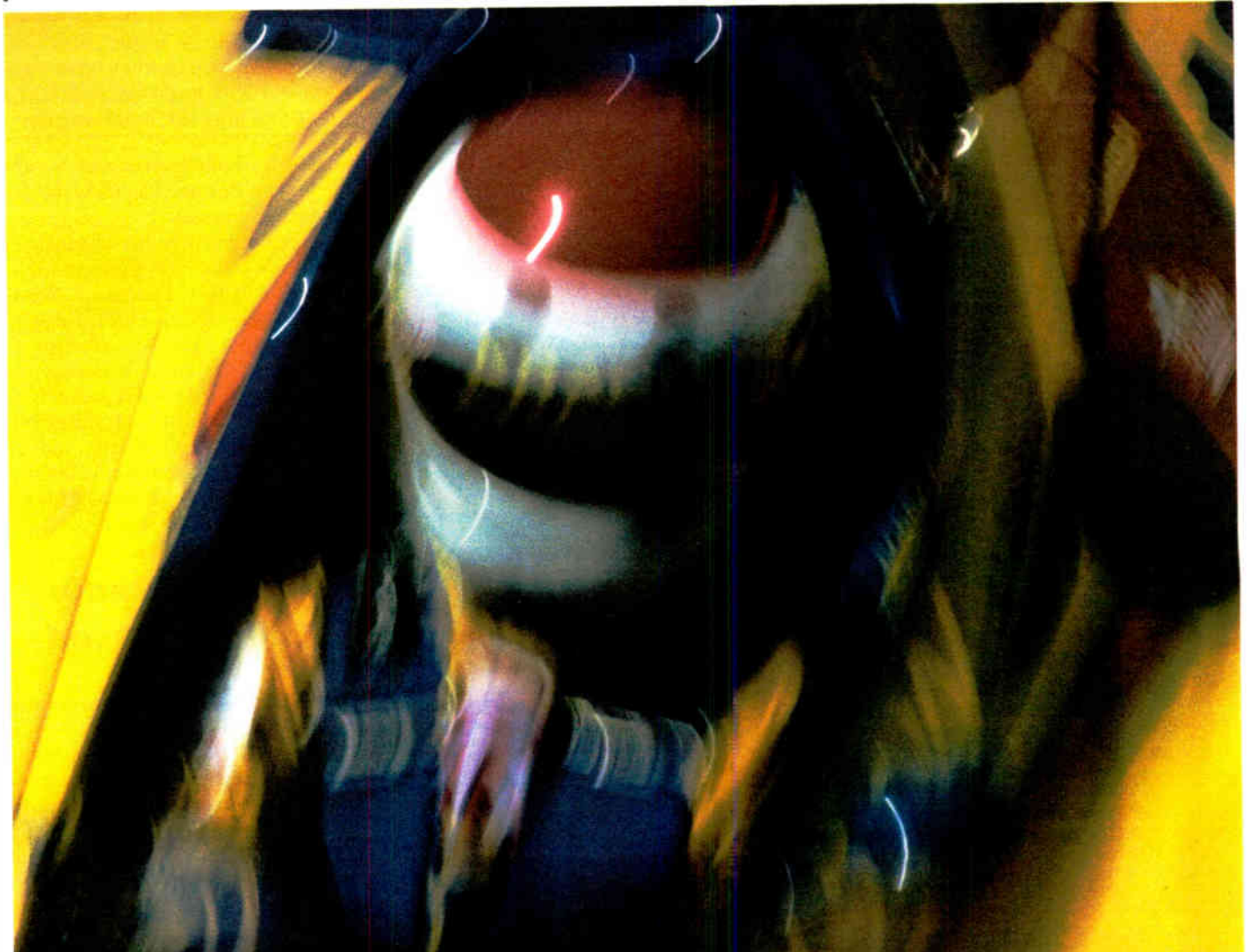
CLEVELAND Professional networked audio products will be the focus of Axia, a

subsidiary of manufacturer Telos Systems. Mike Dosch will serve as Axia president. Dosch, who joined Telos in 1999, is a former console designer and general manager for Pacific Research & Engineering.

Products include digital audio routing switchers, mixing engines and console control surfaces, networked using the company's Livewire Ethernet technology. Axia products are modular and scalable. Installation uses Cat-6 cable and RJ-45 connections.

CEO Steve Church said that client response to the core Axia technology has been positive. "We decided that this could not just be another Telos product line."

With Axia, Dosch said, "Audio, logic, routine IP traffic and even PAD data for digital radio and RBDS are all conveyed over the same net. This simple approach dramatically reduces infrastructure costs."



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DIGITAL NEWS

DRM Patent-Holders Join Forces

SAN FRANCISCO Companies holding patents for components of the Digital Radio Mondiale Technology are establishing a way to pool those patents to make it easier for manufacturers to license the technology and bring DRM products to market.

Via Licensing Corp. is crafting a portfolio containing patents essential to the DRM audio coding and modulation/demodulation technologies.

Companies working with Via Licensing include AT&T, Coding Technologies, Dolby Laboratories, France Telecom, Fraunhofer IIS, NEC, Philips Electronics, Robert Bosch, Sony, T-Systems International, Thales and Voice Age.

The patent licensing fees for DRM are on the Via Licensing Web site at www.vialicensing.com/products/drm. The group hopes to begin licensing later this year.

Sirius, XM Increase Traffic/Weather Channels

NEW YORK Sirius Satellite Radio and XM Satellite Radio are multiplying their traffic/weather channels.

Sirius has expanded its traffic/weather channels to 20 markets: Chicago,



XM Satellite Radio President/CEO Hugh Panero, hands raised, and Chairman Gary Parsons beside him opened the NASDAQ market April 8 to coincide with the company's presence at the New York International Auto Show. They are flanked by XM executives, relatives and NASDAQ officials.

Philadelphia, San Francisco-San Jose, Boston, Dallas-Ft. Worth, Washington, Atlanta, Detroit, Houston, Seattle, Tampa-St. Petersburg, Phoenix, Miami-Ft. Lauderdale, Orlando, Pittsburgh, St. Louis, Baltimore and San Diego. These markets join New York and Los Angeles, which launched in February.

Sirius broadcasts traffic conditions from operations centers around the country. Reports for these markets are available nationwide to all subscribers.

XM has added Boston to its group of

dedicated 24-hour traffic and weather channels. The Boston channel is the 16th of 21 planned channels.

XM Traffic and weather channels are available for Boston, Washington, New York, Los Angeles, Dallas-Ft. Worth, Chicago, Houston, Detroit, Philadelphia, Phoenix, San Francisco, Tampa-St. Petersburg, Orlando, Baltimore, Pittsburgh and St. Louis. Channels for Atlanta, Miami-Ft. Lauderdale, Minneapolis-St. Paul, Seattle and San Diego will be introduced later in 2004.

The satcaster says it now has 1.6 million subscribers.

Satellite Radio Bill Introduced

WASHINGTON In light of satellite radio's addition of local traffic/weather channels, NAB persuaded two members of the House Energy and Commerce Committee, Reps. Chip Pickering, R-Miss. and Gene Green, D-Texas, to introduce legislation that would put into law what NAB has been hoping for in regards to satellite radio.

The "Local Emergency Radio Service Preservation Act" would clarify that digital satellite radio licensees could not insert local content into their network of terrestrial repeaters.

The Pickering-Green bill would require the FCC to examine whether the satcasters' new local traffic/weather channels, available nationwide to all subscribers, are consistent with the FCC's intent that satellite radio be a national service.

The measure picked up four co-sponsors. Reps. Ralph Hall, R-Texas; Ron Lewis, R-Ky.; Greg Walden, R-Ore.; and John Tanner, D-Tenn., added their names as cosponsors to H.R. 4026.

Automakers Expand Offerings

NEW YORK Automakers announced new deals and expansion of existing agreements with XM and Sirius at the New York International Auto Show in April. In the second half of 2004, factory

installations of Sirius radios will expand across 11 Chrysler Group vehicle lines for the 2005 model year, including Chrysler, Dodge and Jeep lines.

The Saab 9-7X debuted at the show. The car is Saab's first SUV and XM will be a standard option in the 9-7X in Q1 2005. Saab plans to offer XM radios as dealer-installed options on more 2006 vehicles.

BMW began offering Sirius radios in April as a factory-installed option and a dealer-installed accessory on the 2004 7 Series Sedans. Sirius now is available on some 2004 BMW 3 Series, 5 Series, M3, X3, and X5 models. The Sirius factory-installed option is \$595, which includes a 14-month subscription and free activation.

American Honda believes it will double the number of models sold with XM radios as standard equipment for the 2005 model year — from about 200,000 autos in 2004. Honda's XM-equipped models will be sold with a three-month free trial subscription.

Honda plans to offer XM in a total of seven 2005 Acura and Honda autos. The automaker plans to reveal specifics later this year.

For the 2004 model year, XM is standard and a dealer option on some Acura and Accord models.

Frontier Silicon Releases DAB In-Dash Module

LONDON Frontier Silicon has a new Eureka-147 digital radio module for the automotive industry. Frontier says the Roadster module allows automakers to factory-install Eureka-147 radios in the dash.

Typical applications for the new module — which features the Eureka-147 DAB receiver, dual band (Band III and L-band) RF front end, baseband processor and power supply — include integrated head units, automotive DAB modules, telematics and navigation units.

The company says Roadster is self-contained, containing Flash memory for the program and data storage, and additional random access memory. A suite of firmware included in the module for automotive use includes DAB to FM linking, which Frontier says is essential for seamless audio listening in a car when it moves from an area with DAB service transmission to one where there is no DAB service transmission.

Chinese Radio Supports DRM

HANGZHOU, China Digital Radio Mondiale got a boost from Chinese broadcasters and the government. DRM organized a symposium about digital radio in China and said more than 200 Chinese broadcasters participated.

Chinese Vice Minister Zhang Haitao said that China is committed to the introduction of digital radio because of its advantages in quality, services and power consumption. The country's government is in the process of selecting DRM for use on medium-wave/AM and shortwave. China has conducted tests, which DRM says were successful.

— by Leslie Stimson

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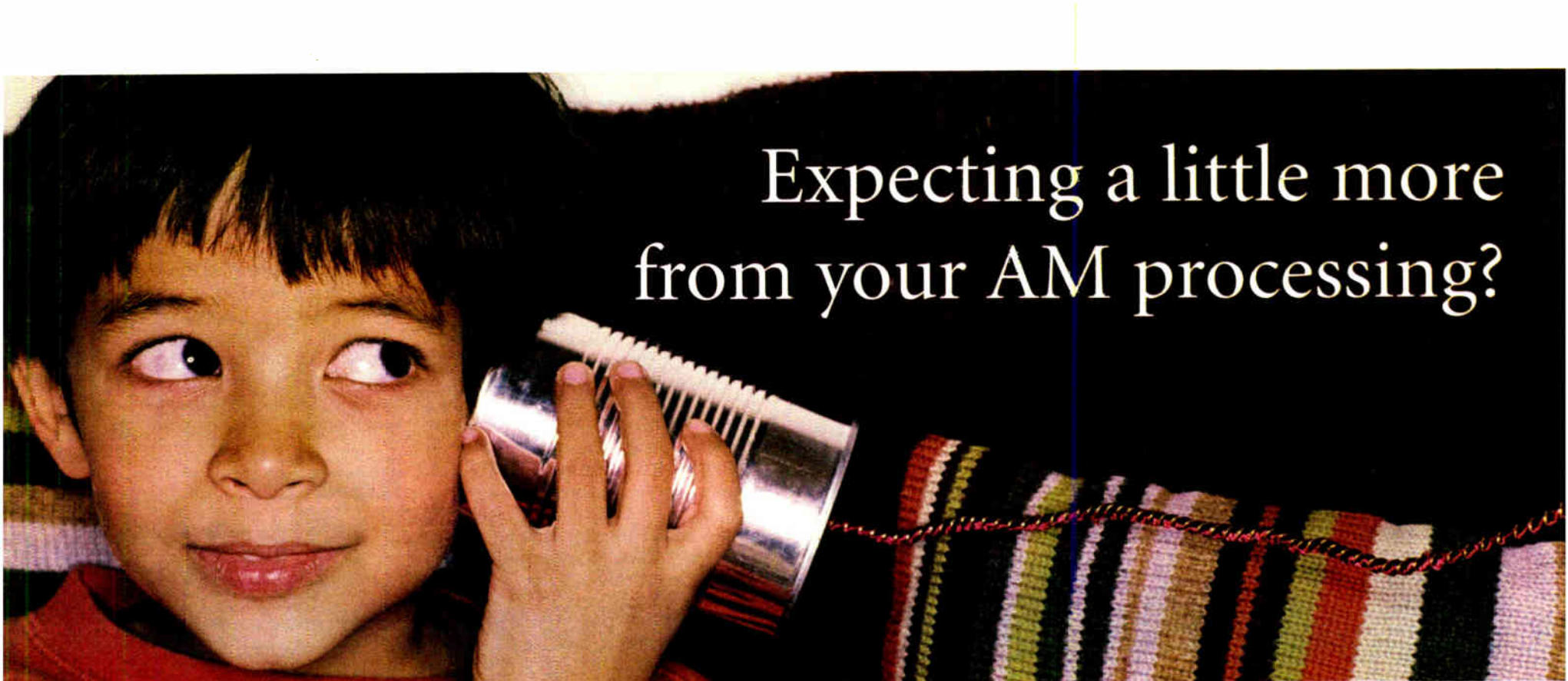
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The new Omnia-5EX HD+AM is the only processor that accommodates **both your analog and digital channels** in a single unit that easily integrates with your HD encoder and transmitter.

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You should expect more from your AM processing. More clarity, more presence, more power, more flexibility. Omnia-5EX HD+AM delivers.



The new Omnia-5EX HD+AM has enhanced processing for standard AM, and a second limiter section and digital output for HD Radio. Both limiters and outputs are included as standard.



For those who don't need HD Radio capability, there's Omnia-3AM, with a four band limiter, wideband AGC and our famous high-performance, non-aliasing final limiter for sweet, clear, natural audio that keeps listeners hooked.

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RDS

► Continued from page 1

Big D, where the nation's largest broadcaster began using the data and text delivery technology last November. So far listeners — especially those in young demos — appear excited to see song title and artist information along with station positioning statements and call letters fill the face of their car radio displays, according to Clear Channel officials.

Clear Channel has been at the forefront of what has turned into an RDS revival, implementing the technology on more than 200 of its stations so far. (Entercom, another group to commit heavily to RDS, has 66 FM stations running RDS Radio Text, according to Marty Hadfield, vice president of engineering.)

75 percent of new cars sold in the United States.

Clear Channel/Dallas Chief Engineer Louis Sutton said the five stations — KHKS(FM), KDMX(FM), KDGE(FM), KGEL(FM) and KZPS(FM) — scroll a combination of call letters, song title and artist data.

"The response has really been fantastic with our listeners. When we rolled it out we received a ton of calls, specifically on our CHR stations. I know it is eye candy for listeners in the car, but they seem to really get a kick out of it. Consumer interest seems very high here in Dallas," Sutton said.

HD Radio proponents tout in-band, on-channel digital radio as having a range of advanced text-based data broadcasting capabilities, including traffic, weather and station promotions. And even though none of the Clear Channel/Dallas stations are broadcasting in HD Radio yet, Sutton says

increase listenership and eventually increase our ad rates," Littlejohn said.

Sutton said the Clear Channel/Dallas transition to RDS last fall was seamless.

"The biggest trick was just configuring the little encoder boxes on our end to get it to properly scroll the data. We had to make sure we had the injection level right and make sure the subcarrier was strong enough that we don't lose the data stream."

The five stations use Prophet Systems Innovations NexGen digital audio control systems, which generate song and title information. That data is sent to Clear Channel's corporate engineering offices in Covington, Ky., over the broadcaster's wide-area network, Sutton said.

"Covington sees our song title and artist as they are being played. The data is stripped off and encoded and steered back to Dallas over the WAN," Sutton said. "All of this happens within seconds."

Harris Intraplex TDM-160s combine the RDS data with the audio, which is sent to the transmitters on a T-1 circuit. "There is a little bit of bandwidth in the T-1 line loops that is not used for audio ... we take a sliver of that to get the data to the transmitter site," Sutton said.

An edge

Because the stations share a transmitter site, data is sent over one Intraplex unit and then split out via a hub to each station's RDS encoder box, which is identified by an IP address. The text data is then injected into the subcarrier input of our exciters at a 5 percent injection level, Sutton said.

Clear Channel/Dallas uses Audemat-Aztec FMB80 RDS generators at its transmitter sites to generate the RDS signal.

Once the RDS system is set up, Sutton said, you just make sure the data streams are working and it becomes a "set it and forget it" operation.

An indication of just how popular RDS content is among listeners in Dallas, Sutton said, is that all of the other broadcast groups in town want the system.

"Our programmers believe this gives us an edge in serving our listeners. We'll take the edge for now, until everyone else catch-

es up," Sutton said.

Hot AC KDMX Program Director Pat McMahon said, "Initially, the reaction from listeners was 'Wow, this is so cool.' People seem to like it. The feedback has been all very positive."

McMahon believes RDS gives his station an advantage over other stations in the market without data text capability.

"I think it's a very good attribute to have. It makes us a little more visible. We tried to claim some ownership for it when it launched. I've been surprised by how many people notice it," McMahon said. 🌐

DIGITAL NEWS

Microsoft Backs Eureka-147

SEATTLE Proponents of HD Radio and satellite radio have been experimenting with the concept of delivering surround sound over digital radio; now, so are the proponents backing the Eureka-147 technology for digital radio.

Microsoft Corp. has joined the World DAB Forum, a group promoting the Eureka-147 technology for digital radio. Microsoft said it would work with members to speed deployment of devices and services based on the Eureka standard.

Microsoft wants to combine the terrestrial digital radio technology, used in some countries, with its Windows Media Player. It said Eureka-147 technology combined with its Windows Media 9 Series is being used to deliver 5.1 surround sound in London trials. Microsoft is working with Capital Radio plc, NTL Broadcast, RadioScape Ltd. and PURE Digital and Imagination Technologies Ltd. The London trial, scheduled to last through summer, involves live Internet Protocol datacasting of Windows Media Audio 9 Professional encoded 5.1 channel surround sound content over L-Band in the central London area.

"The software we have developed for the trial enables our digital radio tuner to receive the 5.1 channel audio stream from the DAB data broadcast and to send compressed audio from the tuner over a USB connection to the user's PC," says Nick Jurascheck, vice president of software development at PURE Digital.

"The PC software allows them to receive that stream and feed it into Media Player to decode the Windows Media Audio 9 Professional data into full 5.1 surround sound, for output via a standard six-channel sound card, without requiring any additional hardware."

Windows Media 9 Series allows delivery of 5.1 channel surround sound at bit rates as low as 128 kbps, says Simon Mason, head of new product development at NTL Broadcast. NTL is trying to determine whether surround sound with DAB could be used primarily for home or car.

Microsoft Research Cambridge in England has been exploring services and technologies that make use of DAB, along with several partner organizations. Microsoft said trials have begun in home and mobile networks in Cambridge. The Cambridge trial, which is more open-ended, includes the same 5.1 channel surround sound IP datacasting via DAB, along with digital television services broadcasting over DVB using Windows Media Video 9 Professional encoding.

It is eye candy for listeners in the car, but they seem to really get a kick out of it.

— Louis Sutton

The data and text delivery service, which allows radio stations to incorporate inaudible signals into their broadcasts on the 57 kHz subcarrier, was introduced in this country in 1993 as a possible means of increasing revenues through non-traditional advertising. Most broadcasters agree that it failed to catch on at the time because of the limited number of RDS-capable car radios. They say today's proliferation of digital audio storage systems makes it easier to stream data information.

Determining the exact number of vehicles on the road equipped with RDS-ready radios is difficult. One wireless data distribution firm estimates that RDS-enabled radios are standard equipment on more than

IBOC may open up more wireless data possibilities.

"We are planning for (HD Radio). I'm just not sure what the timetable is for the rollout in Dallas. Regardless, I know (Clear Channel) is not planning on selling RDS advertising of any kind. This is purely a service for the listeners," Sutton said.

Clear Channel Senior Vice President of Engineering Jeff Littlejohn said the company is committed to not accepting advertising for RDS display, even though it has had inquiries.

"This technology is a listener benefit that is being integrated into our operations to increase listenership. Rather than monetizing this technology directly, we hope to

Kintronic Labs, Inc

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DIRECTIONAL ARRAY ANTENNA TUNING UNIT GAITHERSBURG, MD



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PRODUCT EVALUATION

Antex Has Multizone Sirius Receiver

by W.C. Alexander

The Antex Electronics SRX-3 TriplePlay is a three-zone Sirius satellite audio receiver — the company calls it the world's first satellite radio receiver designed for multizone audio systems.

It is, in essence, three separate receivers in one, each with outputs that can be fed to different unbalanced line-level inputs of an amplifier, or to three amplifiers in a distributed audio system.



Antex Electronics makes a three-zone receiver, intended for industrial installations of Sirius satellite service.

The unit, which retails for \$1,999, is relatively large. Although my evaluation unit did not include them, the company says rack ears are standard. The unit is two rack units high. Connections include the antenna port, three pair of unbalanced line-level outputs, hard-wired infrared and RS-232 control ports and an EIA power connector. The unit comes with antenna and mounting bracket; the installer is responsible for the cable.

Installation couldn't be much easier. Simply connect the unit to power, connect one or more of the "zone" audio outputs to the line input of an amplifier, and connect the antenna with your cable.

Office performance

During my evaluation, I tried several antenna locations. Interestingly, I found that there was no location inside my office near downtown Denver that I did not get a listenable signal.

The best signal, however, was obtained with the antenna on the north side of the building with a clear sky view. From that location, signal strengths were shown in the 80s (presumably out of a possible 100), and this is the antenna location used for my critical listening tests.

There is one set of controls for all three "zones." Simply select the zone you wish to control, then select the channel. Selection can be made with channel up/down buttons, or a channel number can be entered directly with the front-panel 0-9 buttons. These also provide preset functions, 10 per zone, if used in preset mode.

A set of "category" up/down buttons is provided on the front panel. With these controls, the user can navigate to specific

display contrast. I could find no contrast adjustment.

Each "zone" can have 10 channel presets that can be accessed via a row of front-panel preset buttons. The presets are programmed in much the same way as many auto radios, by first tuning the desired channel, pressing the "preset" button, then pressing the desired preset button.

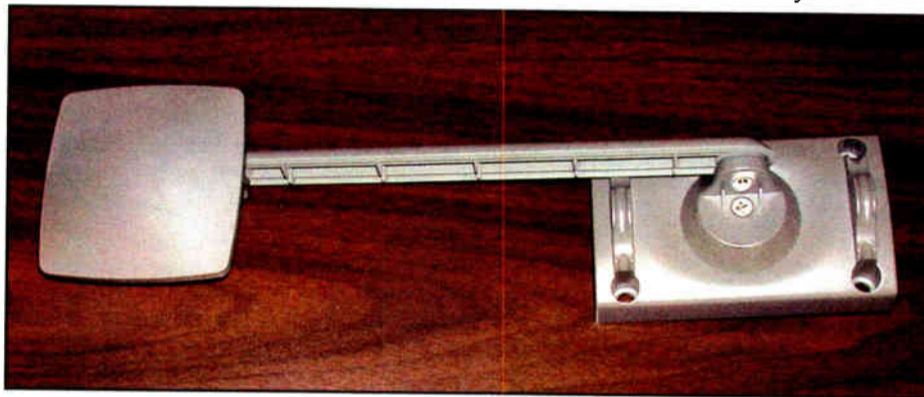
A setup mode, entered by holding the power button for four seconds, provides password-protected parental controls for each zone. Specific channels can be blocked or unblocked as desired. Specific channels can be set to be skipped in the channel up/down selection process as well, simplifying channel scanning.

If, for example, the user had no taste for a specific music format, all the channels for that format could be set to "skip." The TriplePlay would then behave as if the channels did not exist.

The setup mode also provides access to Sirius ID numbers and a signal-strength meter. The signal meter shows the receive signal level from two different satellites as well as any terrestrial repeaters.

Audio disappoints

An infrared remote control is provided that duplicates most of the front-panel controls. One advantage of the remote control is direct channel entry; instead of



The included antenna mounts to most surfaces.

audio categories, such as Pop, Rock, News, Sports, Entertainment, etc. Once a category is selected, the channel up/down buttons are used to navigate the channels within the category. Execution of a selection is made with the front-panel "select" button.

The display is a backlit blue/white LCD screen. The screen is relatively small, and I had trouble reading it unless I was directly in front of it (zero-degree viewing angle). Some of this was due to glare from room lights off the display glass, but some, too, was a function of

paging through channels to get to the one desired, the user can enter the three-digit channel number directly. Presets also can be selected via the remote. The disadvantage of the remote is that unless the user

Artifacts were evident, and were more pronounced in considerable high-frequency content such as cymbals and snares.

is standing a few feet from the unit, he will not have any visual indication of what the unit is doing.

There was no documentation provided for the RS-232 control port other than a statement that it and a hardwired IR port are available to professional installers for integrated audio systems.

During my evaluation, I connected the unit and ensured that it had a strong signal from the satellite. Again, setup was a snap, taking less than five minutes for my temporary installation.

I used a pair of near-field studio monitors for the evaluation. In the process, I

Product Capsule:
Antex Electronics
SRX-3 Triple Play
Sirius Satellite Receiver

Thumbs Up

- ✓ Easy installation/setup
- ✓ Good user manual

Thumbs Down

- ✓ Poor audio quality
- ✓ LCD display
- ✓ Size

Price: \$1,999

For information call Antex in California at (310) 532-3092 or visit www.antex.com.

sampled a few minutes on several different channels of each different music and talk format, inviting several different people to join me in the listening tests.

It was immediately apparent that the audio quality was lacking. A "slewing" was apparent, sounding like a reduced bit-rate Internet stream. Artifacts were evident in virtually every sample, but more pronounced where there was considerable high-frequency content, such as cymbals and snares. The talk formats had audible gargling, a familiar sound from Internet streams.

Judging by the reactions of the others who listened with me as well as my own reaction, I don't believe that audiophiles and those who otherwise take sound quality seriously will be satisfied with what they hear. What is not clear is whether the poor audio quality is a function of the receiver or if it is inherent in the Sirius satellite radio technology.

Asked by Radio World to comment on the issue, a spokesman replied, "Antex has not experienced the level of audio concerns that Mr. Alexander has mentioned. The SRX-3 TriplePlay receiver draws upon the company's 20 years of professional audio expertise, incorporating 24-bit D/A conversion, low harmonic distortion, broad frequency response and RCA analog and S/PDIF digital outputs. All have been tested to the high industry standards for which Antex has always been known.

Product Showcase



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- optional printer and modem adapters
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It's Zephyr's 10th birthday (But you get the present).



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ROOTS OF RADIO

Aunt Vivian and the Bootleggers

by David Richardson

In radio's earliest days, some pretty unlikely people became broadcasters.

Take for example the case of Seattle's KFQX, which came on the air in 1924. Its owners were a former police lieutenant who was now openly heading the Northwest's largest rum-running gang, and his new bride, a cultured British-born charmer who spoke several languages and drank nothing stronger than tea. Their names were Roy and Elsie Olmstead.

It was Elsie's idea to go into radio. The Olmsteads were fairly rolling in money from the lucrative booze business; but the Volstead Act, which made Prohibition the law of the land, was so unpopular, so ultimately unenforceable, that it couldn't last forever. The day would come when the couple would need another way to make a living.

So the Olmsteads had a transmitter built and a studio installed in their big, showy mansion overlooking Lake Washington, and hired an engineer named Nick Foster to operate it. At 600+ watts, KFQX was the Northwest's most powerful station.

It quickly became the most popular one as well, broadcasting not just the usual news, stock reports and weather, but live



Elsie 'Aunt Vivian' Olmstead broadcasts over KFQX in 1924. Her nightly bedtime stories for kiddies were rumored to contain coded instructions to rum-runners whose profits bankrolled the station.

dance band remotes and a daily program for children hosted by "Aunt Vivian."

Kids in droves tuned in to hear Aunt Vivian read bedtime stories in her beautifully refined, British-accented voice.

But more than one Seattlite suspected that besides the children, certain unsavory characters involved in the bootleg trade were listening for cleverly inserted code words directing them as to when and where they might safely land their illicit cargo.

Cold steel

Nick Foster always doubted there was a code.

For one thing, it was he who picked out the bedtime stories and marked them up for Elsie to read. And although he always made sure to stay uninvolved in the liquor side of the Olmsteads' enterprises, he was certain they had other ways of communicating with their operatives.

Foster reached for the master switch and pulled.

Six Prohibition agents, their boots tracking mud onto Elsie's expensive carpets, herded everyone together while they searched the house for evidence of illicit liquor. Finding none, they used Roy's phones and disguised their voices to convince underlings to bring booze to a "party" supposedly in session, after which everyone was arrested and taken downtown to the federal lockup.

In the celebrated trial that followed, the admissibility of wiretap evidence became a key issue that took years to resolve. Ultimately the U.S. Supreme Court narrowly found that wiretapping is not a violation of constitutional rights. Congress later passed legislation outlawing it in most cases. By that time, though, Roy Olmstead and many of his associates — including his attorney — had been convicted and sentenced.

Roy did four years in federal prison, after which he turned to religious work and led an exemplary life. (President Roosevelt pardoned him after Prohibition's repeal.) Elsie went free. Nick Foster was never charged, and went on to teach broadcast engineering to generations of young Seattlites.

Thwarted

KFQX remained silent. Elsie never realized her dream of building Seattle's most powerful and most prestigious radio voice.

She never got to broadcast from the impressively ornate studio, replete with imported Italian sound-deadening drapes, newly built for her in Seattle's L.C. Smith Tower, then the Northwest's tallest and ritziest building.

Yet in a way, she laid the foundation for much of the city's broadcasting future. As late as 1943, it seemed half the stations in Seattle could claim theirs was the station "started by bootleggers" — and some did. That's because the original license went one way, the company name another, the equipment yet another way and so on.

At the transmitter, Nick Foster spotted a flickering rectifier tube and crouched down to investigate. Suddenly he felt cold steel against the back of his neck.

Above all, there were telephones. Olmstead had five of them in the house and used them freely, secure in the knowledge that wire-tapping was against the law and wiretap evidence inadmissible in court.

Federal Prohibition agents tapped his phones anyway, determined to "get" Olmstead at all costs.

Then there came a rainy-sloppy Monday in November.

The "Aunt Vivian" show was on, Elsie intoning soothingly into a double-carbon microphone. Roy and one of his associates were sprawled on a bed reading the funnies. At the transmitter, Nick Foster had just spotted a flickering rectifier tube and crouched down to investigate.

Suddenly he felt cold steel against the back of his neck. "Turn that thing off!" commanded a voice, nothing like Aunt Vivian's. He turned and found himself staring at the round end of a large pistol. It was wielded by a disheveled, unshaven man who wore no uniform and displayed no badge but seemed to mean business.

For example, the classy (for that time) Smith Tower studio became home to KEVR, a small station, which ultimately grew to become KING, the broadcasting giant that went on to pioneer FM and TV in the Pacific Northwest. KXA would sign on as "owned and operated by the American Radio Telephone Company," the firm started by the Olmsteads.

As to KFQX, in 1925 the Olmsteads leased the station to Birt Fisher, who changed the call first to KTCL and later to KOMO. Fisher ultimately founded and became secretary-manager of the big Fisher Flouring Mill broadcast empire, the locally owned company, which still operates KOMO and other Pacific Northwest radio and television stations from Seattle's Fisher Plaza.

They do not advertise the theory that their prestigious operation is in fact the one that was begun by bootleggers.

David Richardson landed his first radio job in 1943. He is author of "Puget Sounds," an illustrated history of radio and TV in the Pacific Northwest.

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"Who's Buying What" is printed as a service to our readers who are interested in how their peers choose equipment and services. Information is provided by suppliers. Companies with news of unusual or prominent sales should e-mail information and photos to radioworld@imaspub.com.

Morris Communications ordered five **Broadcast Electronics** FM transmitters with digital exciters. The first replaces a vintage RCA transmitter at KBRJ(FM) in Anchorage, Alaska, with a FM-35T single-tube transmitter and FXi 250 FM digital exciter. It is one of three stations in Anchorage being upgraded to 100 kW ERP, pending removal of an FCC monitoring station. Jay White is director of engineering for Morris Communications. ...

Harris Corp. said **Clear Channel Radio** picked digital-ready DAX AM low-power transmitters for WDOV in Wilmington, Del.; WCHV, Charlottesville, Va.; WMXF, Asheville, N.C.; and Montana stations KBUL in Billings and KGVO in Missoula.

Separately, it said several members of the **Corporation for Public Broadcasting** have chosen it to supply digital-ready transmission gear, in the first of three rounds of CPB funding for digital radio. Stations that have ordered ZHD FM Digital transmitters and NeuStar codec processors include KOUW, Seattle; WDNA, Miami; KCRW, Santa Monica, Calif.; WLRN, Miami; WAMU, Washington; WABE, Atlanta; and KALW, San Francisco.

Also, KSCM(FM), San Mateo, Calif., has chosen a Harris ZHD transmitter and ERI four-bay antenna; and WXEL(FM), West Palm Beach, Fla., has chosen to upgrade its Z transmitter to a digital Z16HDc FM.

Twelve of the CPB stations will obtain

Harris NeuStar Audio Codec Processors. ...

Also, Harris chose **Blue Sky** 5.1 monitoring systems for an initiative to help digital radio broadcasters transition to 5.1 surround transmissions. Blue Sky ProDesk 5.1 systems were installed at a Seattle station that will serve as the beta test site and provide a demonstration of 5.1 surround sound radio



Creative Studio Solutions designed the new production room for KKPT(FM), which uses a Wheatstone D-8000.

broadcasting. ...

The first HD Radio station in Montana will be **KOJM(AM)** at 610 kHz, according to its president, David Leeds. It is owned by New Media Broadcasters. He said the station licensed Ibiqity software and placed an order for hardware from Harris in December. It plans to throw the switch in July. ...

Greeley, Colo., will have a new digital signal, perhaps in May. **KUNC(FM)** at 91.5

plans to install HD Radio, said Chief Engineer Larry Selzle, who said he knows of no other FMs in Colorado using HD Radio at present. **KUNC** received funding from CPB for its conversion. It is operated by **Community Radio for Northern Colorado**.

The station has completed moving to a new tower and increasing its antenna height. Chosen were a new **Shively** 6810-8R eight-bay antenna and **Andrew** 3-inch transmission line, a **Nautel** Q30 30 kW transmitter and, for HD Radio, **Harris** Z12HDS transmitter. ...

Dielectric designed and installed digital transmission gear for **WHUR(FM)** in Washington, owned by Howard University. The project includes conversion to a multiplexed Dielectric DCBR Cavity Backed Radiator panel antenna and combiner. It is the first application of a Dielectric constant-impedance combiner in an HD Radio application. ...

Premiere Networks in L.A.; and **Iowa State University**. ...

Classic rock **KKPT(FM)** in Little Rock, Ark., used **Creative Studio Solutions** to design a new production studio. The Signal Media station has a **Wheatstone** D-8000 console, **Vision Quest** studio furniture, **Neumann** TLM103 mics, **Genelec** nearfield monitors, **Focusrite** mic preamp, **Raxess** Silent Rack, **Techflex** cable management and **CSS** custom XLR patching system. ...

ESPN Radio has a new studio home at its headquarters in Bristol, Conn. The chief engineer is Tom Evans. Multiplexing and fiber optics were used; the studios include 2,000 audio router crosspoints, 32 broadcast audio workstations and eight terabytes of audio storage. **ENCO Systems** provided **DADpro32** digital audio management products. Also installed: **Harris Pacific** Digital **BMX** consoles, a **Sierra Audio Systems** 32KD router, **ElectroVoice** RE-27 mikes and **Aphex Systems** 1788 mic preamps. ...

Shively Labs shipped eight multi-station antenna and combiner systems to Iraq for the **International Broadcasting Bureau/Broadcasting Board of Governors**. The systems will carry programming of VOA and Radio Sawa. Combined with other orders, the IBB will be using Shively equipment to broadcast from at least 14 sites in Iraq. ...

A radio network in Finland placed a big order for **Aphex Systems** processors. The supplier said **YLE** purchased 32 of the Model 2020 MkIII Broadcast Audio Processors, to be installed at its main transmission site in Helsinki and regional sites. The distributor was **Noretron Broadcast Ltd.** ...

Logitek Electronic Systems shipped a console router system to FM stations **KWIT** and **KOJI** at Western Iowa Tech Community College in Sioux City, Iowa, including two networked Audio Engines, two Numix-12 consoles and a Remora 4.

Separately, Logitek shipped a large order to **Univision** in Dallas including 11 Audio Engines and network cards, five Numix-12 consoles and four Remora-10 consoles. It also shipped a sizeable order to **Colorado Public Radio**; and it reported sales to **KRIS(TV)** in Corpus Christi and **EMAP** in the United Kingdom, the latter through its distributor **Preco**. ...

Audemat-Aztec has added to its client

See BUYING, page 19 ▶

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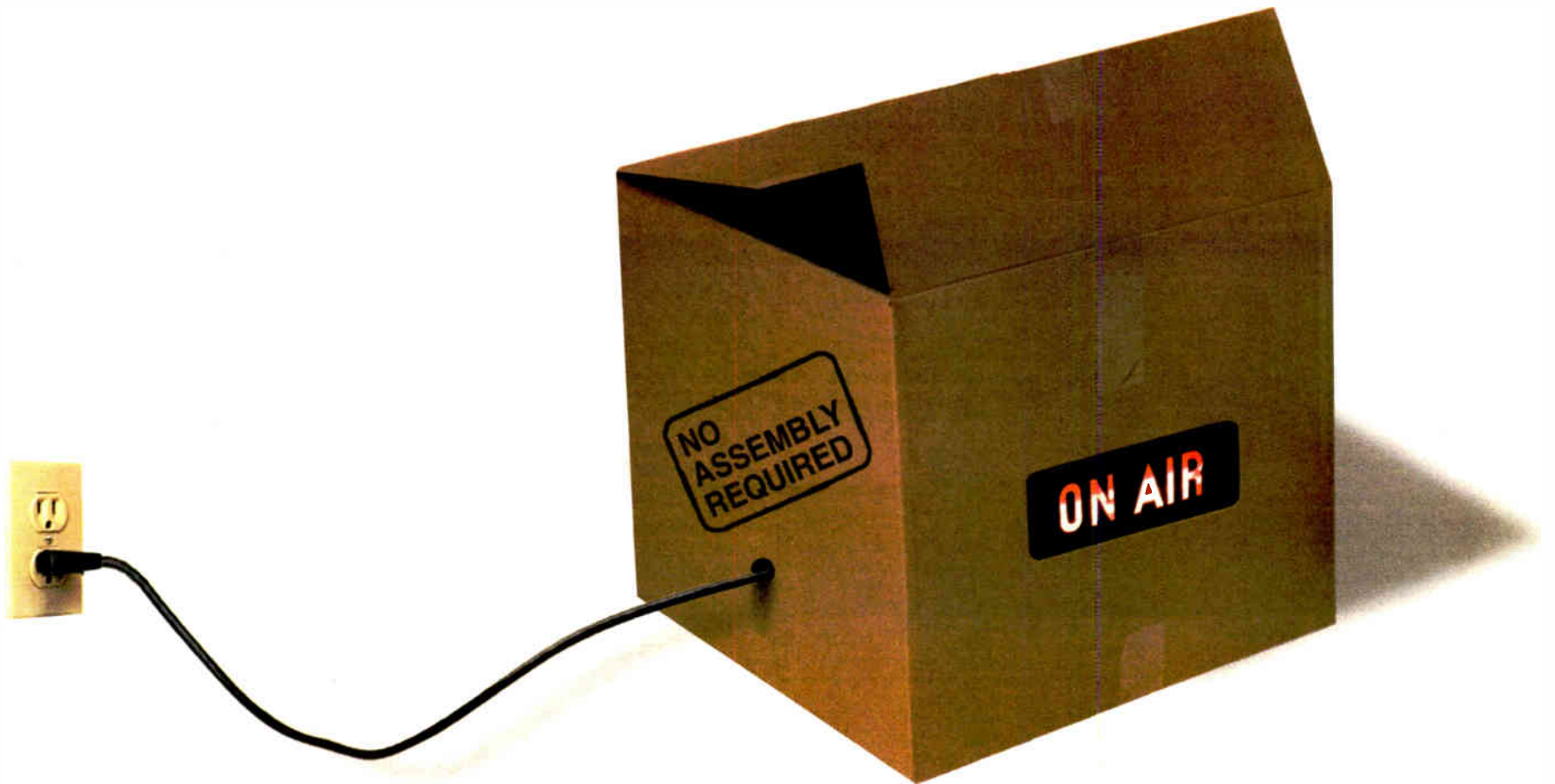
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Workbench

Radio World, May 5, 2004

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Revenge of the French-Fry Finger

by John Bisset

We'll start things off with some sage advice from Cliff Woodman.

Cliff works with the consulting firm Graham-Brock, which does quite a few Due Diligence inspections. In the largest majority of cases, they find inadequate Public Inspection Files.

folders look organized.

Remember, the Public Inspection File is one of the big inspection items, so don't blow this off. If you're not in charge of the public file for your stations, be a team player and route this link to the appropriate party — and copy the GM. She needs to know you're watching out for her station, and

in your face if you miss something and cost the potential buyer big money. Unless you hold the insurance certificate, in today's litigious society, leave this job for the guys who are insured.

Reach Cliff at cliff@grahambrock.com.

★ ★ ★

no signs of disintegration, so this wasn't the cause of the film. A coffee or soda spill would have affected more buttons, and the situation was identical on the second player.

The service techs at 360 Systems suggested cleaning the pads only with distilled water, but it turned out the stick-um wasn't water-soluble. In fact, it looked and felt like rancid fat.

The most likely culprit: French-Fry Finger.

Over time, board ops who ate before or while on air probably transferred small



Fig. 1: Step-by-step instructions to create a legal public file can be found at the Graham-Brock Web site.

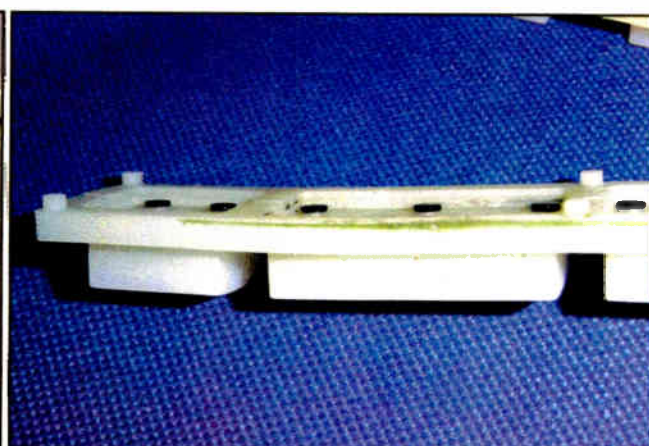


Fig. 2: The goop that fouled the Instant Replays.



Fig. 3: Burn the hose off the tank, it becomes a fire extinguisher.

The most common reply from station clients is, "I didn't know what was supposed to be in there."

The commission's rules can be intimidating and confusing. So with that in mind, Cliff put together a "user friendly" 5-Step Program to a Better Public Inspection File. It's complete with pictures, too!

Here is the link: www.grahambrock.com/public_file.htm. So far, Cliff reports the response has been positive. These guys have done it right; they even provide file folder labels you can download and print on Avery Labels, so the file

not just spending her money.

Are you a contract engineer? Here's note of another way to generate revenue while saving clients a hefty fine. Offer a fixed fee service to check the file, then charge by the hour to correct omissions.

I'm glad to see that Graham-Brock is offering Due Diligence inspections, and that potential owners are conducting these inspections before they buy. It's cheap insurance.

Although most qualified engineers can perform these inspections, few hold the liability insurance to make it worth their while. Making a quick buck can blow up

Radio World columnist Alan Peterson started a new position in March as assistant chief engineer at Radio America Networks in Washington. His first task was to work on two uncooperative 360 Systems Instant Replays.

The problem? They wouldn't always start when the Play buttons were pressed. All other functions seemed fine, so the rubber button membranes were assumed to be the faulty components.

Once the first player was disassembled, Alan noted a sticky film around the bottom edge of the Play button and a layer of goop on the PC board atop the Play button's contact pads. The rubber showed

amounts of fast-food grease via their fingertips to the Play button. The warmth of the unit let the oil flow down until it settled on the PC board. A small amount also was found on the Scroll Up/Down buttons.

While this is not recommended by the 360 Systems tech department, a cotton swab with a drop of Formula-409 household cleaner was gently used to dissolve the hardened grease, then followed up with a distilled water wipe. A new rubber pad for each player was added (about \$30 each from the factory), and both went back into service.

See LUCKY ACCIDENT, page 19 ▶

Digitally Diverse

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Omega_FM is a 100%-digital, software-based design. New Rev2 software offers a built-in scheduler for dayparting, plus advanced AGC logic, a fourth section of parametric EQ, harmonic bass enhancement and composite output filtering.

While Omega_FM's composite/MPX output feeds your existing FM exciter, the fully independent AES/EBU digital output can be configured for flat, 20kHz response with programmable delay. This allows a single processing chain to impart a common 'sonic signature' to simultaneous FM and DAB transmissions. The inherent audio quality limitations of FM (15kHz cutoff, plus pre-emphasis and its attendant 'protection' limiting) will not compromise the digital broadcast.

Despite its modest price, Omega_FM challenges the versatility and performance of any processor on the market. Even if you are delighted with what you're using now, see your preferred equipment supplier for a comparison demo at your station.

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SEE IT... Hear It... Processing doesn't get any better than this.

Lucky Accident

▶ Continued from page 18

When servicing an Instant Replay unit for intermittent buttons, take a minute and check the PC board as well. The button membrane may be at fault, but it is likely it won't be the only problem.

Also, Alan hears that 360 Systems

Buying

▶ Continued from page 16

base for the FMB80 RDS generator. FM stations that have installed the system recently, the company said, include the following: In New York, **Emmis** stations WQHT, WRKS and WQCD, as well as **Univision's** WADO; in Los Angeles, **KUSC**; in Chicago, Bonneville's **WNND**, **WDRV** and **WWDV**; in San Francisco, **Susquehanna's** **KFOG**; in Minneapolis, **ABC's** **KRQS**; in Atlanta, **Jefferson Pilot's** **WQXI**; in Miami, **Jefferson Pilot's** **WLYF** and **Univision's** **WRTO**; in Detroit, **WGPR**; in Boston, **Infinity's** **WBMX**.

Audemat-Aztec scored a coup last fall when **Clear Channel Radio** said it would install the radio data technology on 192 of its FM stations in the top 50 markets. ...

Megatrax Production Music signed a radio ID package for **Premiere Radio Networks/Clear Channel** in conjunction with the "American Top 40" radio series, starring **Ryan Seacrest**, who replaced **Casey Kasem**. ...

Recent orders for **ATA Audio Scoop E-Z POTS/GSM** codecs came from **KLKS(FM)** in Breezy Point, Minn., through dealer **Crouse-Kimzey**; **WODE(FM)/WEEX(AM)** of Nassau Broadcasting in Easton, Pa.; and **KRMS(AM)** in Osage Beach, Mo. ...

CBC Radio Canada is updating its DAB infrastructure and is using **RadioScape's** Professional DAB Broadcast System for a multiplex in Vancouver. The RadioScape system consists of a series of software modules, connected by an IP-based architecture that controls and delivers audio and data from the studio together with external service providers, encoding and multiplexing to provide a baseband DAB broadcasting solution. ...

Dielectric Communications said it has established a Preferred Customer Agreement with **Corus Entertainment** in Canada to supply RF equipment and services including broadcast antennas, transmission lines, filter systems and other RF components. ...

The first radio station with **Telos Systems** Livewire technology signed on: **WEGL(FM)** at Auburn University. Also, **Radio Mosaïque FM** in Tunisia is using the **TWOx12** Talkshow System, **Telos ONE** digital hybrids and **Omnia-3fm** processor in studios designed by **Decibel S.A.**

Omnia processing was chosen by **KISS 92.9 FM** in Athens, Greece; and **Telos** said users of its **Zephyr Xport** codec include the **NFL Network** using **Xport** for **Rich Eisen's** "NFL Total Access" show and **KFMB(AM)**, home station of the **NFL San Diego Chargers**. The latter uses **Zephyr Xport** when covering away games. ...

Audion Labs said recent users of its **VoxPro PC** and **e2** products include **Lee McGowan** of **Infinity Broadcasting** in San Diego; **Shaun Kassity** of **Salem Broadcasting** in Atlanta; **Bob Henning** of **WBTU** in Ft. Wayne, Ind.; **Skip Reynolds** of **Infinity** in Memphis, Tenn.; and **Rob Garcia** of **Equity Communications** in Atlantic City, NJ

offers a retrofit kit that lets you use quieter IDE drives instead of the noisy and whiny SCSI drives in earlier units. It also cuts back on the amount of heat generated by the player. If you are upgrading an existing Instant Replay, ask the company about the conversion option.

George Marshall is a senior engineer at **Clear Channel's** **WHTZ, Z-100** in New York. George was reading a past *Workbench* column on nitrogen and possible asphyxiation, and was reminded of an incident that he experienced in the 1980s working in the Quad Cities.

His **Class A FM** dropped off the air one Saturday morning during a thunderstorm. Upon arriving at the site and open-

ing the door, George could see charring and burn marks — from about four feet up from the floor all the way to the ceiling. What had happened here?

The best he could figure is that lightning had entered the building through the power lines and blew a lightning arrester right off the wall. This set the building insulation on fire. When the flames got hot enough, they apparently burned the nitrogen hose right off the tank.

There was no fire suppression system in the shack; and from the scorch marks this fire was going good. He figures that the tank had enough volume and pressure to flood the transmitter room and put the fire out.

The "accident" saved the building, but getting back to full power still took three days. Seems lightning had also danced through the transmitter and exciter; so

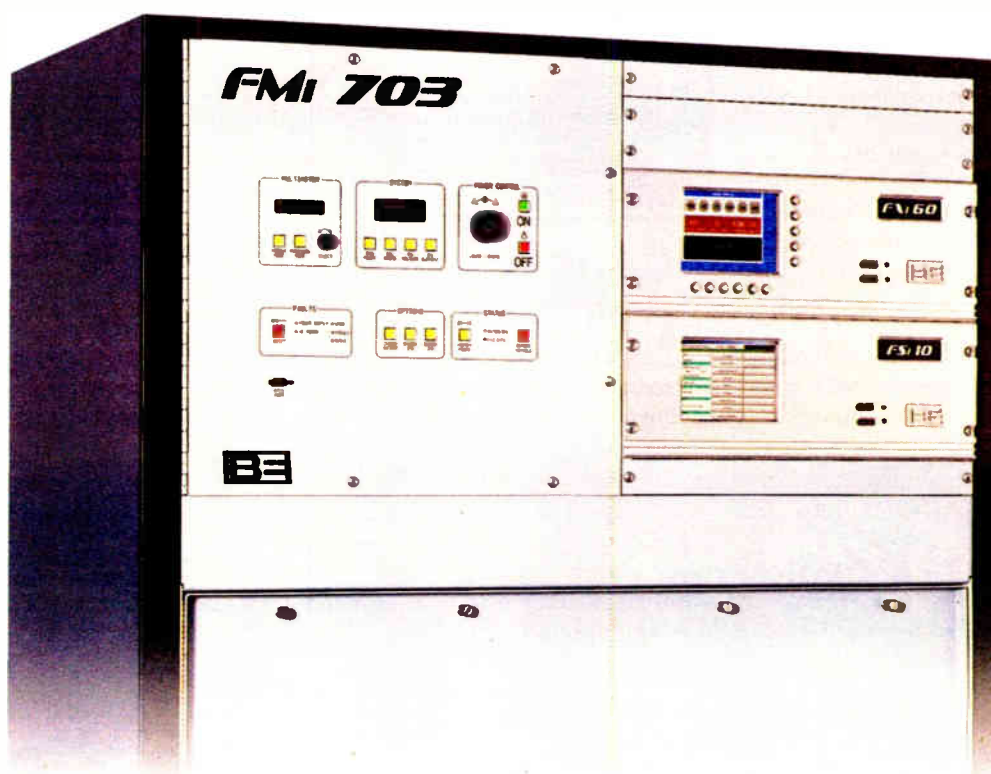
besides cleaning out all the soot. George was replacing components and removing carbon arc trails.

Oh, and as in my anecdote, when another line of storms came blowing through later in the day, George and his electrician decided it would be a good time for a coffee break instead of trying to get the power back on. Wise choice. No radio station is worthy dying for.

Reach George at georgemarshall@clearchannel.com.

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

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



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From Magnets to Megacycles

Engineers Will Find Plenty to Enjoy In Pavek Museum Near Minneapolis

by Vicki W. Kipp

When a day off comes, what's a broadcast engineer to do? Here's an idea: marvel at the equipment used by broadcast engineers, TV viewers and radio listeners of decades past.

The Pavek Museum of Broadcasting is only a road trip away. The museum is located at 3515 Raleigh Avenue in St. Louis Park, Minn., a suburb of Minneapolis. I made such a visit recently; Radio World asked me to describe it.

The mission of the Pavek Museum of Broadcasting is summarized in three tenets: to educate the community about how electronic communications affected the evolution of society; to stimulate young people to explore science and communication arts; and to preserve historically significant items relating to the development of electronic communications.

Joseph R. Pavek began his famous broadcast equipment collection in 1946 while teaching electronics at Dunwoody Institute in downtown Minneapolis. Students routinely dismantled radios to learn about the circuits. Pavek was troubled to see the elaborately-crafted radios destroyed and decided to take one home for preservation. Thus began his life-long collecting hobby.

After retiring from decades of teaching, Pavek created his own venture, Twin City Nut and Bolt Co. While traveling through North and South Dakota, Minnesota, Iowa, and Wisconsin selling nuts, bolts and paint, Pavek acquired old broadcast equipment. He stored his broadcast collection at his business site.



The Pavek Museum is in the St. Louis Park suburb of Minneapolis.

During the 1970s, Joseph Pavek sought a sponsor to help him acquire, staff and exhibit the collection. Unsuccessful in finding a benefactor for his equipment, Pavek resigned himself to selling the entire collection at auction.

When Pavek's dream seemed most elusive, hope appeared in the form of Earl Bakken.

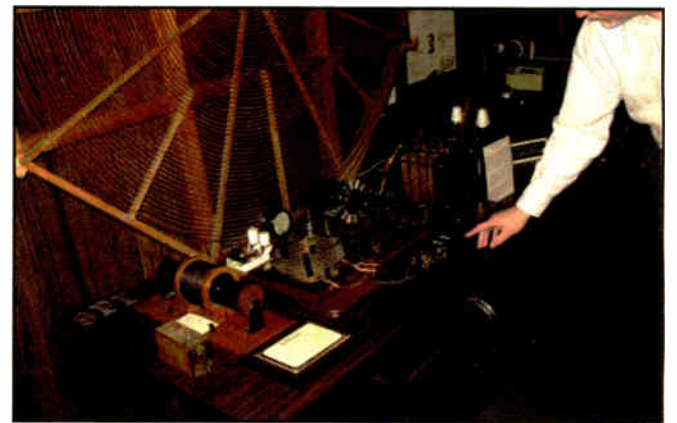
The co-founder of Medtronic and inventor of the wearable pacemaker, Bakken shared Pavek's fondness for old radios. Bakken had funded his college education by repairing radios and televisions. He envisioned the educational opportunities that Pavek's collection could provide.

Joseph Pavek, Earl Bakken and Paul

WOOEP. When he died, the Pavek Museum convinced the FCC to reassign his call sign to the museum's club station.

The Pavek club station WOOEP — "Old Empty Pockets" — is set up for communication on the 20-, 15-, 10- and 2-meter bands. A 60-foot crank-up tower holds a tri-band HF antenna and a VHF antenna. Contacts with other ham radio operators usually are made using WOOEP's 100-watt Kenwood 440 transmitter, although a 600-watt Collins KWM2 transmitter is available.

The Jack Mullin Collection covers 125 years of audio recording technology, from phonograph to television to magnet-



Sending an S-O-S on a spark-gap transmitter.



These 1920s cone speakers originally sold for about \$10 each.

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maintenance costs over an older transmitter ...and as a bonus they get exceptional reliability and that major market sound for free.

But, don't take our word for it. Talk to our customers already on-the-air with the X-1000B. Call or email for a users list and decide for yourself why owning this transmitter is a no-brainer.

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Hedberg of the Minnesota Broadcasters Association banded together to create a nonprofit organization to fund the museum.

It opened on Oct. 29, 1988, with Pavek's collection of transmitters, radios and televisions, which dated from 1900 to 1950. Joseph Pavek passed away in June 1989 at age 81 after having realized his life's ambition to create a broadcast history museum.

Here's a rundown of some of the museum's highlights.

Joseph Pavek Collection

The Pavek Collection features a working 1912 rotary spark-gap transmitter. Historically, telegraph operators were called "sparks" because a spark was generated when the operator keyed a character on the transmitter. This set cost about \$88 in 1912. The spark-gap transmitter was popular from 1900 to 1920, when it was superseded by the vacuum tube oscillator.

Pavek's collection also includes early-1920s crystal radios and a chronological-ly organized display of vacuum tubes.

Devoted amateur radio operator Joseph Pavek went by the call sign

ic recording.

The museum's Wurlitzer P-10 Jukebox, the first model manufactured by the Rudolph Wurlitzer Co., was aptly nicknamed the "Debutante." This early mechanical jukebox lifts up the record when it is finished playing and drops it into a depository below.

A recording lathe contained in the Mullin Collection was used to cut the Vitaphone discs for the first talking movies. Cone speakers on display, adorned with wood cutouts of flowers, ships, and castles, were both functional and artistic.

At the end of World War II, Jack Mullin brought two AEG Magnetophon tape recorders from a German radio station to the United States. Mullin introduced tape recording technology to America. The first recorded radio program in U.S. history occurred when Bing Crosby hired Mullin to record his radio show.

In 1952, Emory Cook introduced the "binaural" disc. Binaural records contain two separate tracks to be played simultaneously by a single arm with two pickup needles. Cook's product was doomed once the mono groove stereophonic disc

See PAVEK, page 21 ►

Pavek

► Continued from page 20 arrived in 1958.

The Charles Bradley Collection features some 60 radio and television manufacturers that had operations in the Twin Cities area.

Mystery Control

One of the first Theremins made by RCA is on display as the museum. Russian physicist Leon Theremin invented this unusual instrument in 1919. The Theremin is played by moving one's hands near the vertical pitch antenna and horizontal volume antenna without actually touching the antennas. Theremins create an eerie sound effect typical of outer-space movies.

One exhibit that particularly impressed me was a Philco radio model 39-116 with a wireless remote control called "Mystery Control." Philco released this innovative product in June 1938.

The Mystery Control resembled an old rotary dial telephone without the handset. By dialing one of the 10 dial finger holes to the finger stop, listeners could remotely switch to any of eight preset stations. To raise or lower volume, the listener dialed from the loud or soft finger hole to the finger stop, then held down the finger stop until the desired volume was reached. A pulsing mechanism connected to the dial times the return of the dial when it is released.

Inside the wooden remote control case is a battery-operated oscillator, which is normally off and only turned on during dialing operations. Using control frequencies ranging from 350 to 400 kilocycles, the Mystery Control transmits RF pulses to a receiver in the radio cabinet. To adjust volume, the control box sends a continuous RF signal.

The Mystery Control cannot remotely power on the Philco radio because the control frequency receiver in the radio is turned off until the radio is powered on.

Another memorable exhibit was the 1949 Stewart-Warner Wonder Window television. When you want to watch a show, you lift the hinged lid containing a "Photo-Mirror" screen to a 45-degree angle above the cathode ray picture tube. The mirror displayed a reflected, magnified image of the picture on the CRT screen.

Interactive

Groups can create their own radio broadcasts from the Pavek Museum's 1950s-era studio.

The Pavek Museum conducts 6,000 tours per year for school children. The children's tour includes visitor participation in a television quiz show.

Children in fourth, fifth and sixth grades can enroll in Pavek's Saturday morning "Magnets to Megacycles" class about basic electricity. Electronics-savvy volunteers teach "Magnets to Megacycles." The class



Binaural disc was an early method of stereo audio.

involves lectures, problem-solving and hands-on construction.

Adults may enroll in Pavek's "Historical Perspectives" or "Vintage Radio Service" classes. "Historical Perspectives" is for post-secondary students preparing for a career in broadcasting or mass communications. The course studies the history and development of the broadcast industry.

The "Vintage Radio Repair Service" class is for broadcast equipment collectors and hobbyists who would rather fix old equipment than throw it out. This class runs for seven Saturday mornings.

The museum offers sponsorships, in exchange for which the giver receives free admission, a bimonthly newsletter, priority invitations to museum special

See PAVEK, page 23 ►

"Logitek gives me the capabilities I want."



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"For audio consoles, I always choose the Logitek Audio Engine with the Numix control surface."

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If You Go

Take a look at the Pavek Museum online at www.pavekmuseum.org or phone (952) 926-8198. The museum is open for guided tours from 10 a.m. to 6 p.m. on Tuesday-Friday, 9 a.m. to 5 p.m. on Saturday. Admission is \$4 for students and seniors and \$5 for adults.

The Curious Challenge of Coexistence

Here's Some Food for Thought About the Future Of a Hybrid Terrestrial-Satellite Radio Marketplace

In recent issues we've been examining the relationship between satellite and terrestrial radio. This time let's consider how the two will coexist, which is likely to be the reality of the industry for some time to come.

We can base this analysis on historical precedent as well as some reliable forecasts of future consumer behavior. There's also the recent and ongoing experience of the television industry with which to contrast and compare.

Radio's 'must-carry'

As most readers are aware, there are must-carry rules in the TV world, which require cable systems to carry local broadcast TV stations in their basic tier. Similarly, the carry-one, carry-all rule applies to satellite TV services. This requires a satellite TV provider to carry all the broadcast channels

this is a market-driven decision, and not mandated by any regulatory requirement. While it is likely to remain the case for a good while, if market forces should ever dictate, there's nothing to stop the industry from making satellite-only radios. So "must-carry" for local radio is not assured. Consider also that changing from a satellite to a terrestrial channel generally requires switching bands on the radio, an extra physical step not required in the MVSP environment.

The best news in this comparison of radio to television is that terrestrial radio continues to control its own signal-delivery destiny, and does not rely on a "multichannel service provider" to carry its signals to listeners. (Internet streaming is the only exception where radio uses such a third-party, last-mile delivery "middleman," and that sector is of far lower significance to most radio broadcasters.)

The radio spots reveal a level of concern previously unheard among broadcasters.

of any market they include in their local-channel offerings.

These and other rules are intended to provide a level playing field for broadcast and non-broadcast channels alike when presented to viewers via a Multichannel Video Service Provider or MVSP, the FCC's terms for cable, satellite, DSL, MMDS, and any other such TV-service provider.

The result is that although there are hundreds of non-broadcast channels available, the lion's share of ratings still go to the alpha-net affiliates' local broadcast channels — most of the time.

A milestone in this area was achieved recently, however, when HBO began winning some evening primetime ratings. And although they still usually win the day, the overall ratings of the alpha-net stations have dropped as non-broadcast channels aggregate ratings have grown. Clearly, no service's existing position is guaranteed, and the marketplace votes with its eyes or ears based on content choice and not much else.

In radio, an essentially equivalent level field is provided by the simple fact that satellite radios include AM/FM receivers. Yet

Add to this the non-mandated and unscheduled regulatory nature of the digital radio transition, plus the lack of any spectrum giveback requirements, and radio looks like it has a much sweeter deal than TV.

Competitiveness

For the time being, at least, the unified receiver platform currently provided gives terrestrial radio channels effectively equal accessibility to satellite channels for the latter's subscribers. Competition remains a matter of attractiveness of content to listeners for either service.

But metrics of success differ widely. Terrestrial broadcasters generally are interested in attracting the most listeners to a single (or a small number of) channel(s) in a given market, which is the normal approach in any environment of scarcity. Satellite radio, on the other hand, is less interested in how many listeners each of their channels attracts as they are in the satisfaction of subscribers to the aggregate experience of a large number of services, now even including some localized information content.

In addition, the primary target customer

of most terrestrial stations is the advertiser, while satellite radio primarily targets the listener (for subscription fees), so marketing strategies diverge across the two businesses.

For the near term, at least, also there is a retail-promotion element to satellite radio (directed toward aftermarket electronics and/or car dealerships), which is required to educate and motivate potential customers to obtain the requisite new hardware. Naturally, terrestrial radio needn't bother itself with this expensive tactic.

This process alone will limit the size of satellite radio's audience — for a while, at least. Yet consider that cable and satellite TV started out that way, too, and today they reach 85 percent of the U.S. TV audience. Most industry analysts forecast strong growth in the satellite radio sector over the next several years, but it's anybody's guess just how far its penetration will ultimately extend.

IBOC's role

The digital conversion of terrestrial stations will also play a part in this coexistence, although it may be an unexpected one. As you've read in this column and elsewhere on numerous occasions, most listeners are not choosing satellite radio because it's digital, but because it offers uniquely available content.

The same applies to HD Radio, where the mainstream consumer will voluntarily purchase a new radio only when the value proposition is high enough. Audio quality alone won't reach this threshold for most users, so uniquely available content will be required to drive success of the format (as recent experience in the U.K. is proving yet again; see Radio World, March 28). The only way HD Radio can manage this is if the supplemental audio functionality envisioned by the "Tomorrow Radio" project becomes broadly deployed.

Should multiple new services be offered by terrestrial broadcasters via HD Radio, it could then become a viable defense against audience erosion through the addition of new, desirable, local services, such as the full-time traffic and weather services recently added by satellite radio for major markets.

Short of this, the main accelerant to HD Radio receiver adoption could be, ironically enough, by way of its inclusion as a feature in satellite radio receivers.

Regarding the localized services just mentioned, there is much concern of late over the potential for satellite radio to use

The Big Picture



Photo: Gary Hayes, BBC

by Skip Pizzi

these channels to lure local advertising dollars away from terrestrial stations in major markets. Yet consider that these channels will probably have the lowest TSL of any satellite radio channel, so their value for advertising is questionable.

These channels have far greater importance in their enhancement of the aggregate value proposition offered by a satellite radio service to subscribers. The same applies to these services on terrestrial radio, where a simple sponsorship announcement (rather than a spot buy) is the usual method of monetizing short-form traffic and weather announcements. Terrestrial broadcasters could use a full-time (at least during local drive times) supplemental audio channel to compete head-to-head with satellite providers in major markets, or offer similar but uncontested services in smaller markets.

An indication of the battle truly being joined in this space comes from Entercom's recent creation and distribution of anti-satellite radio spots. Sounding like political campaign ads, their negative tone and use of scripted pseudo-interviews read by actors has rankled many in the industry. Some observers also question the veracity of the spin made by these ads — again akin to the reactions many have to political spots.

Overall, however, the anti-satellite radio spots reveal a level of concern previously unheard among terrestrial broadcasters. They also risk inadvertent promotion of satellite radio's existence to the terrestrial radio audience — a risk Entercom says it's willing to take, further pointing out the depth of disquiet involved.

We should get used to this sparring, because it's likely to permeate the fabric of the radio business henceforth. Like it or not, terrestrial and satellite broadcasters will be radio roommates for the foreseeable future.

Skip Pizzi is contributing editor of Radio World. 

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To Order Contact Your Dealer

Pavek

► Continued from page 21

events, a discount at the museum gift shop, use of the museum research library and archives and use of museum equipment to transfer older recordings to newer formats. (The one-year sponsorship rate is \$30 for individuals, \$20 for students and seniors, \$45 for households and \$100 for corporations. A discounted rate is available for a two-year sponsorship.)

The most popular dub request is the transfer of wire recordings, popular from 1946 to 1950, onto cassette or compact disc. But the museum can dub from just about any audio format including LPs up to 16 inches.

cious circuit boards that make for easier understanding of how the equipment works. Glamorous lighted signs promoting vacuum tubes for receivers made me ponder the days of user-serviceable appliances and TV repair people who made house calls.

I also enjoyed the novelty of a broadcast environment constant enough that station call letters could be permanently labeled on receivers.

A day off exploring the Pavek Museum of Broadcasting is a day well spent.

Other resources that may be of interest include www.philcorepairbench.com by Chuck Schwark, and www.tvhistory.tv.

Victoria Way Kipp, WB9-WBA, is a broadcast engineer for Wisconsin Public Broadcasting.



When dialed to finger-stop and released, this 6 x 8 x 4-inch remote control causes the 39-116 receiver to retune itself to the selected station within 15 seconds.

The museum's technical shop would draw out the treasure hunter in any engineer.

The Pavek Museum's technical library features schematics for most consumer radios, televisions and hi-fidelity equipment up to 1970; 22 volumes of John F. Rider's Perpetual Troubleshooter Manuals; Howard W. Sam's Photofact Manuals 1-1200; many amateur radio schematics and operating manuals; RCA manuals; Western Electric manuals; every TV Guide from volume 1 through the year 1980; past issues of Radio Mirrors, Popular Radio, Radio News, QST, Radio and CQ; and old catalogs.

Tech talk in tech shop

The museum's director, Steve Raymer, has a background in antique radio repair. When I visited the museum's technical shop, Raymer was advising an old-radio enthusiast about replacing capacitors and resistors in his 1939 Emerson radio.

The shop would draw out the treasure hunter in any engineer. This large room contains all kinds of retired equipment, some of it for sale. The substantial assortment included Morse code keyers, vintage television sets, radios and VTRs; rotary dial telephones; ham radio equipment; transmitters; a slow-motion VTR; books about ham radio and broadcast technology; and a vast collection of working vacuum tubes for older devices.

Today broadcast equipment is highly integrated. Mechanical parts have been replaced by hard drives. Miniscule circuits with VLSI make some boards almost impossible to service.

In contrast, the Pavek Museum's broadcast equipment has mechanical parts, discrete components and spa-

Optimod-AM 9200
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now with HD radio outputs!

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Right now, our exclusive BlueBox Rookie package includes a FREE Beyer headset (a \$239.00 value) along with a cool Comrex shirt!

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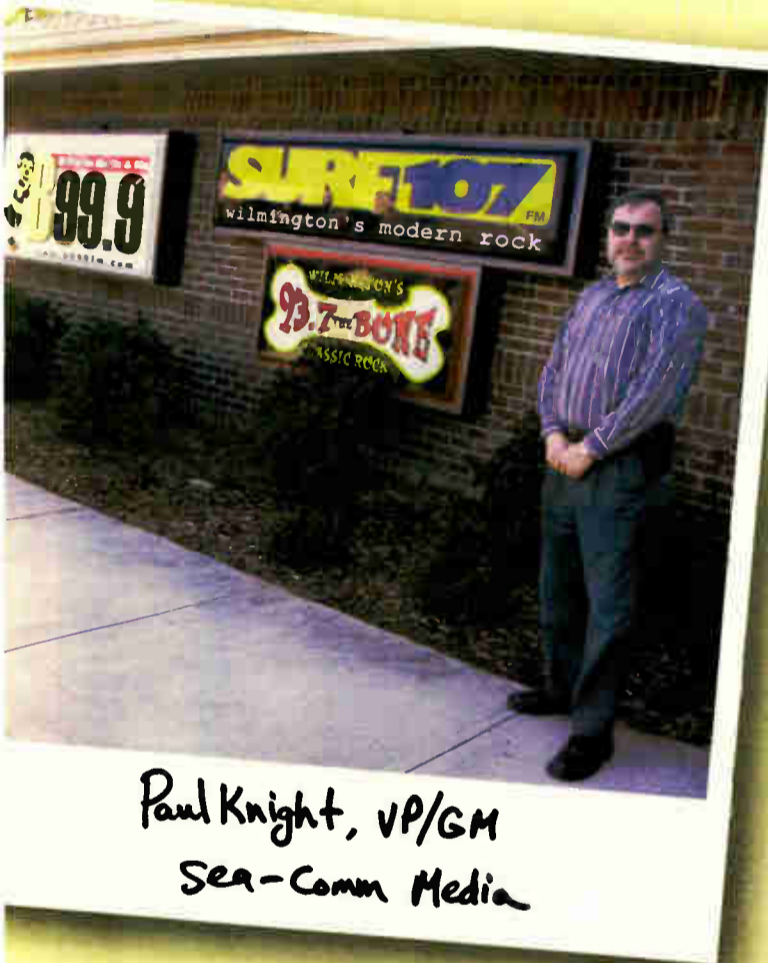
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*Paul Knight, VP/GM
Sea-Comm Media*

A long-time BSW customer, Paul Knight, VP/General Manager and Chief Engineer of Sea-Comm Media in Wilmington, North Carolina is one of the true good guys in the radio business.

Over the past 30 years, he's worked his way up from a kid hanging out at the local station to his present position. "When I was 12, I was active in my Radio Club and my favorite thing was to build transmitters on my back porch. Eventually, I became the contract engineer in town and finally I

bought my first AM station in 1991" says Paul.

"I began doing business with BSW over 15 years ago, when I bought some Marti microwave equipment" he says. "I like one-stop shopping. It's fast and easy. My salesperson knows the products that I'll be comfortable with, and sometimes he'll even point me in a different direction. I really appreciate that, because I know BSW's looking out for my best interests."

With five formats, including The Bone 93.7 and Surf 107, Sea-Comm Media has a beautiful, state-of-the-art facility. "It's a very busy station group" he says. "I could hire out the engineering today if I had to, but that's my favorite part of the job."

If keeping multiple transmitters on the air wasn't enough, Paul enjoys flying small planes in his spare time. But radio is his true love, and takes up most of his spare time, next to raising his four children in beautiful Wilmington.

Not content to sit in the GM's office all day, Paul likes to get behind the rack. For you engineers, we thought you might like this glamour shot of Paul with his cable harnesses, something you won't find in your glossy GM or DJ magazine.



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The Inovonics 520-00 is an AM modulation monitor.

FREE Spare Crown FM

Crown's FM trans stereo generation in rugged, compact un Choose from 30 wat to 2 kw models. Ord now and get a FREE spare parts kit (up to a \$429.00 value). Only at BSW

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Outfit your booth with a new mic from BSW and get a FREE ProBoom studio boom with riser! Choose from any of your favorite broadcast mics below. See www.bswusa.com for additional mic specs.

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4047SV	A-T dual diaphragm/cardioid/shock	List 695.00	549⁰⁰



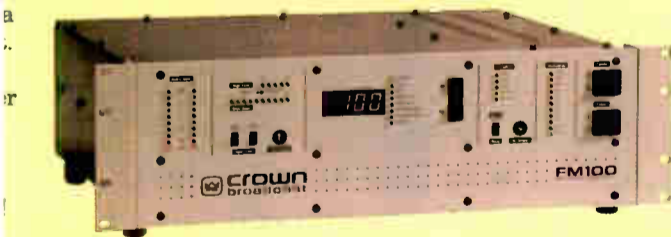
FREE BTU-4 Temperature Monitor with Burk Site Control System

Burk transmitter control and monitoring systems allow you to control single or multiple sites, with up to 256 channels of monitoring, status and command, and web/voice/computer interfaces. Call for our special sale prices through May 31st and get a free temperature monitor for your system.



Complete Parts Kit with Transmitters

Transmitter systems combine built-in audio processing and



Input Mixer

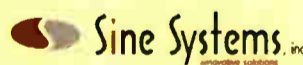
The ES stereo mixer (model #RW5653US) offers outstanding performance and an efficient, uncluttered board for easy mixing. Ten channels and 4 mono with mic and line inputs thru balanced connectors offer optimum performance, and main stereo outputs

499⁰⁰ SKB3026 mixer flight case **249⁰⁰**



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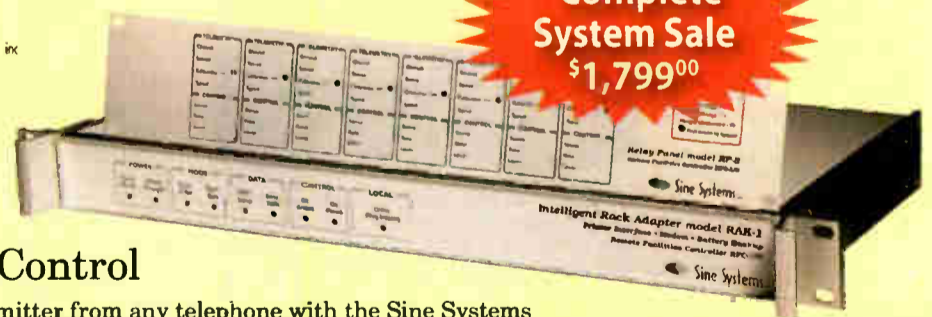
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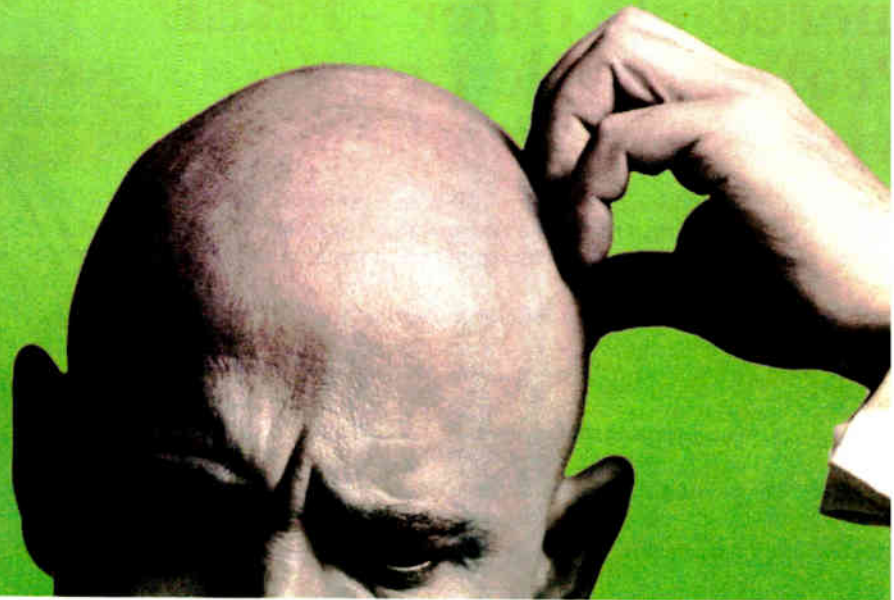
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Announcing Omnia-6EX.

There's a lot of buzz about the new HD Radio codec. We've heard it and agree with the many others who like it and say it's now time to get on with radio's transition to digital.

Because HD Radio can transmit audio frequencies up to 20kHz, listeners will finally be allowed to hear the full CD spectrum – if their radio stations choose the right on-air processor. On this point, you should know something important: Some “HD” processors simply hack off everything above 15kHz... robbing listeners of the full HD Radio experience and keeping our industry in a fidelity backwater.

The new Omnia-6EX won't short-change your listeners. We've built Omnias with sampling rates of 48kHz and higher from the start. All along, we've needed the sampling headroom to keep analog FM audio grunge-free. Now it's essential for HD Radio. Even if some listeners wouldn't notice the missing high frequencies, there's a fair chance they would hear a sharp 15kHz low-pass filter operating within HD Radio's codec range.

Omnia-6EX is also full of processing enhancements that result in yet more bass punch, yet more voice clarity, than the original Omnia-6. A sound so powerful and free of artificial constraints, you'll crave it for your station the first time you hear it.

More than 50% of the US' Top 100 FM stations have already upgraded to Omnia. Maybe you're next?



The new Omnia-6EX has enhanced processing for analog FM, and is ready for HD Radio with a second limiter section and digital output. Both FM and HD limiters and outputs are included as standard.

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KING: Nine Years Online and Counting

by James Careless

It was 1995 when KING(FM) of Seattle first took its classical music signal to the world via KING.org.

"We were one of the stations that took part on the 'Cyberian Rhapsody,' which was one of the first Web broadcasts of any kind," said Bryan Lowe, the long-serving webmaster at KING.

its online audience.

"We remain as one of the Internet's most popular Webcasters," said Lowe. "I can't give you hard numbers, but we earn enough money from Web donations to pay for our bandwidth costs, and then some. We also sell thousands of CDs online, which also helps our bottom line."

Log onto www.KING.org, and you get

seized upon it."

In its early days, KING.org had few sponsors for its Webcasts. "Then the Internet boom happened, and we had people coming to us, asking to buy time on our Webcasts," said Lowe. "Unfortunately, much of this business evaporated when the bubble broke; mainly advertisements from Internet startups that did not survive the downturn. Still, we are generating some Internet ad sales on our site, plus some of our off-air advertisers pay to be aired on the Web as well."

Even though 18,000 listeners daily isn't a gigantic audience, their buying power makes KING.org attractive to high-end advertisers.

"If you look at the e-mail addresses of our online listeners, they are generally white-collar managers with good incomes. In fact, we have a lot of hospitals, universities and government offices logging onto KING.org," said Lowe.

"Based on our research, many of these listeners are extremely highly educated and very well paid. As for sale performance: in the case of one client who bought both on-air and Web commercials, the Web side performed 50 percent better for them in terms of sales realized."

Three formats

KING streams its on-air signals using three formats: Real, Windows Media and Abacast.

The Real stream is based on a single ISDN feed from KING(FM), with Real handling the distribution and bandwidth.

For Windows Media, KING.org serves each user individually through Limelight networks at 20 kbps. It is an approach that generates a lot of bandwidth expense for KING, but the station sees this as the cost of doing business on the Web.

Both of these streams are acceptable quality stereo feeds, but to get better fidelity listeners must download the KING(FM)-branded Abacast audio player.

This is a small program that runs on the user's PC, allowing them to receive KING.org at an ear-pleasing 48 kbps.

Whenever another Abacast user logs onto KING.org, Abacast relays the stream being carried by the first user; when a third user signs on, they get a feed relayed from the second user and so forth.

In this manner, most of the Abacast player bandwidth is actually provided by the users themselves. It is a solution that allows KING to provide better sound at lower per-user bandwidth costs, without noticeably affecting the listener's Internet access or system security.

Nine years on, KING is reasonably satisfied with Webcasting.

"We are not getting rich, but we are pleased to be doing as well as we are,

See KING, page 28 ▶

GUEST COMMENTARY

Turn on The Stream Once More

Six Reasons to Consider Streaming Now

by Raghav "Rags" Gupta

The author is chief operating officer of Live365.

The online streaming world has gone through much turmoil in the past few years. From CARP rates to AFTRA to streaming vendors with questionable business models, there was much confusion.

Well, the dust has finally settled, and many stations have resumed streaming. Here are six reasons why you should consider streaming now:

It's easy. All you need is a PC or Mac and an Internet connection. The computer will have software sitting on it to encode the live audio feed coming from your sound board and then send it out to a server. We're generally able to get our clients up and running within 24 hours.



Rags Gupta

It doesn't cost as much as you think. RIAA royalty rates amount to less than \$0.01 per hour streamed. If you show just one banner ad at a \$2 CPM and play one local spot at an \$8 CPM during the hour, you break even.

Also, bandwidth prices and acceptable bitrates have come way down. A 32 kbps Windows Media or MP3PRO signal will sound like a 64 kbps MP3 signal.

Streaming prices also have dropped in the past few years, due to the telecom shakeout. Also, unlike the dot-com days, the vendors that are still around have built stable business models that should ensure they'll stay in business.

We diversified our revenue model away from being 100-percent advertising-supported to subscriptions, so that we could weather the ad recession. As we grew bigger, we were also able to negotiate aggressive prices from our vendors and pass along the cost savings to customers.

Beware the vendor promising free bandwidth in exchange for your inventory.

See STREAMING, page 28 ▶



The station also played a role in testing when RealNetworks was building the first version of RealPlayer.

Favorite station

"We just happened to be down the street from their offices, and we were their favorite radio station at work," said Lowe. "Once the first RealPlayer was ready, Real called us up and asked, 'Would you like to do this thing called streaming?' We barely knew what streaming was, but we said 'yes.'"

Today, the KING.org audio stream is heard by 18,000 listeners daily, each of whom logs on for an average hour-long session. Of these listeners, 93 percent are located in the continental United States; nearly a quarter of them are in Seattle.

As for ratings: when KING.org was last measured by Arbitron, in May 2003, the station placed 15th in the Arbitron MeasureCast Weekly Top 25 Webcasters. Since that time KING has added a Windows Media stream, which doubled

to hear the very same classical music playing on KING. There is little talk on this station — just wall-to-wall classical music, without a hint of screaming presenters.

In addition, KING.org provides local news, weather, sports and traffic, as well as BBC World Service newscasts each weekday during "The Morning Show."

In fact, the only programming difference between KING(FM) and KING.org is the commercials.

Whenever a local commercial is set to air, the Broadcast Electronics AudioVault automation system automatically swaps out the on-air commercial for an online one geared toward the KING.org audience — either a national sponsor or a pitch for listeners to keep KING.org alive through donations.

"When we started streaming KING(FM), we used to insert audio from a classical music CD," said Lowe. "However, this sounded somewhat disjointed, so when we got the ability to provide separate Web-only spots, we

Making Radio Without Borders

In the Netherlands, Radio People Gather Every Other Year for Documentary Festival

by Huub Kohnen

Marconi would have been impressed.

The fifth symposium of the Borderless Sound Documentary Radio Festival in Amsterdam, an exchange of ideas to enhance and promote interest in radio, was themed "Stories That Are Hard to Believe" — and it didn't matter if those stories were true or fiction, documentary, short or long.

Sound temple pilot

The festival was launched in 1995 with the theme "The Temple of Sound." Would radio people be interested in spending several days listening, discussing documentaries and being inspired?

To its surprise, the organizing committee discovered a voracious interest in the concept. It seemed as though everyone in the Netherlands who worked in radio and documentaries paid a visit for the event. Shortly after, radiomakers offered another program, with the motto "Film Without Images."

Last year's edition of the festival, which is now held every two years in De Balie, featured 37 hours of activities and events and attracted about 1,000 people.

The festival included workshops by experts from NRK, BBC and Chicago Public Radio; full-length audio presentations in large suites and private audio "cabins" for 35 documentary projects, varying in length from 20 minutes to 2 hours and produced in The

Netherlands, Belgium, France, Denmark, Germany, Ireland, Sweden and Australia; and tryouts of formats,



Marwil Straat, Kari Hesthamar and Alex Blumberg, from left, take part in the festival.

talk shows, lectures and debates on topics like "New Ways of Making News" and "The Impact of Soundscapes in Composing Audio."

Visitors had a preview of a nonlinear composing tool for images and sound, intended for PC-based interactive storytelling, called the Korsakow Sytem and

developed by the Berlin University of Arts. They collected information from the Dutch Union of Journalists, a governmental foundation that supports productions on radio and television and offered the opportunity to consult a "docu-doctor."

respected Prix d'Europe with her piece "Till the Major Do Us Part." While conducting international workshops, she said, she has found that for a diverse audience, it is best to talk about "how I operate in portraying people" in documentaries, rather than abstract theories.

Alex Blumberg, producer and reporter for "This American Life" and Chicago Public Radio, held a workshop on storytelling and explained his methods of keeping people's attention.

The festival is about improving the quality of radio, both national and regional, exchanging ideas and networking and support. But it also carries an element of competition.

Five producers of regional radio were selected in advance and offered an intensive one-day course by professionals in documentary productions to enrich their proposals. Henk Burger of RTV Noord-Holland described the feelings of the jury.

Finale

"We've found great passion and enthusiasm for making radio and the proposals made," Burger said. "Some of them were incomplete, not ready yet to go into production. Some will make it without extra funds. Original ideas too, such as 'Beware of Pickpockets,' by Catherine van Campen, and 'The Ugliness of Sound,' told by a hearing-disabled pianist." Van Campen received a Regional Radio Incentive Award.

"Omnia and Mamma," a 41-minute piece produced by Eun-mi Postma and Leo Knikman, tells the story of a young woman raised by adoptive parents in Holland who returns to Korea at age 16 and meets her biological mother.

Knikman was credited as being instrumental in just about every production at the festival. "Omnia" won Prix Europa's Best European Radio Documentary of the Year in 2001.

The chairman of the jury for the Borderless Sound Radioprice, Bertien Minco, commented on the high quality of the documentaries submitted. Judges made remarked on the importance of having a senior editor available for such projects, and of conducting interviews properly.

"Little Hunter, Where Are You?," a five-part series by Rob Muntz, was awarded The Borderless Sound Radioprice 2003.

The next festival is scheduled for spring of 2005. 🌐

Streaming

► Continued from page 27

Your listeners expect it. More and more listeners are heading online at work to listen to radio. For those in urban areas, reception in office buildings can be spotty.

Revenue considerations aside, streaming should be considered a necessary part of your marketing budget to keep your PIs happy and loyal.

It increases your Web site traffic, leading to more NTR opportunities. The online ad market has surpassed 2000 levels and continues to grow. Site inventory is becoming scarce and prices have firmed up; our online ad revenues have more than doubled since last year. Enabling listeners to stream means more

Web site traffic, more page views and more revenue.

AFTRA issues are not a big deal. There was a lot of brouhaha from the AFTRA issue a while back. Most ads created in the last year have taken into account the need to make them "legal" for use on the Internet, and talent agents and creative departments have made this process relatively seamless, as it is for all traditional forms of advertising.

In the event that it has not been negotiated for a specific client, the actual cost is such that it should not be considered a barrier to running online radio ads. The sidebar box at left is an example of fees for off-camera performers on the AFTRA interactive agreement. Regardless, software exists to interface with your automation system and strip out your over-the-air spots and insert online spots.

Makes for a great test bed. Experiment with new formats or tracks you're thinking of adding by creating side channels for your site. Then get your listeners to listen and rate the ones they like.

Better yet, have a local business sponsor a contest to have your listeners program their own side channels for your site, with the winner getting to be a guest DJ for the flagship broadcast.

Live365 is a broadcasting network of thousands of radio stations reaching approximately 3 million listeners monthly. Raghav Gupta joined the company in 1999.

RW welcomes other points of view. 🌐

The drama of radio

To promote the event, there was local AM and FM radio coverage for seven days, some of it covered live, including the opening of the festival.

"Live — Not on Air" was a workshop by Kari Hesthamar from Norwegian radio NRK. She addressed interviewing techniques, psychology in an interview, dramaturgy, structure and narration — how to record live scenes in a way that they tell more about a person than an interview would.

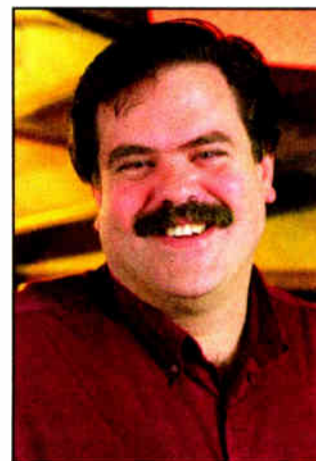
Hesthamar played parts of her documentaries and explained the thinking behind them. In 1999 she won the

KING

► Continued from page 27 given that Internet advertising has not fully recovered," said Lowe.

"KING(FM) has built a large audience, but we are interested in working with other streamers or content aggregators," he added. "We would love to be the classical voice for another large streaming operation. We have a demographic that is hard to reach with any other format online."

As for the future? "We are looking forward to making our Windows Media feeds more attrac-



Brian Lowe

tive, by adding text, advertiser logos and even links to their Web sites," said Lowe.

"Windows Media 9 can support all of these streaming functions, plus allow us to offer online 'discount coupons' for those who buy through our streams. Not only will this let us provide our advertisers with a multimedia delivery system, but it also gives our listeners a reason to look at their players whenever they are listening to us."

"In the short term, I do not see the Internet being a big moneymaker for KING(FM)," said Lowe. "But in the long term, I do believe that Webcasting will provide us with real opportunities to make money." 🌐

What About Talent?

Fees for off-camera performers on the AFTRA interactive agreement. More detail is at www.aftra.com.

Off-Camera Performers:
Day Performer (Up to 3 voices/4-hour day): \$556.20
Day Performer (1 voice/1 hour): \$278.10
Additional Voices (each): \$185.40

Ideas for Radio Station Marathons

"Let's do a marathon in a casket for Halloween," said the program director.

"Yeah, funny," I replied, my nervous laughter trailing off.

"No, really! It'll be cool. I volunteer to be buried with a listener in a casket for at least 24 hours. But the listener has to be female."

The last part of his statement made me realize that he was serious. This PD was an unbelievable hound. The rest of the idea came out of him quickly.

"We tie in a funeral home as the sponsor ... we'll do it at a drive-in (this was 25 years ago) while they're showing a horror film ... we'll get a scuba company to supply the oxygen."

So what happened?

He was the luckiest man alive. Not only did he make it through this marathon without injury; we got coverage on three TV stations. And the female listener he was buried with looked like a model.

Protect them, and you

Radio station marathons have been around for a long time and work in a variety of formats. Let's explore a few things that marathons have in common and look at marathons you may want to attempt for your station(s).

'I'll be cool. I volunteer to be buried with a listener in a casket for at least 24 hours. But the listener has to be female.'

If you're a rational person, the first thing you thought about while reading about my Halloween marathon may have been liability. The reason I didn't worry about it at the time was that I was young and naïve. I now know better and I'm not certain I'd attempt another burial, even with the insurance to cover injury or death.

Often people in radio think they're superhuman, especially morning show stunt guys. This is one thing you must consider when planning a marathon: How can my people or listeners get hurt?

Other questions you should ask yourself before getting to the planning stage:

Do I need, or can I even get, special event insurance?

Will this marathon be fun for listeners to hear about on the radio, or is it too visual?

Is the timing correct?

Will we really get listeners to participate?

Has it been done in the market in recent memory?

Will the press cover the marathon at the place we've decided to stage it?

How many other things are we promoting on the air while we're trying to

get our audience to pay attention to the marathon?

Ideas

Here are a few marathons for your consideration.

The Classic Dance Marathon: This may be the oldest-running marathon in radio. You can do it to any kind of music. It can be done in a rave tent or a ballroom.

Listeners dance to your station or songs from your format. If you want, they can each be sponsored to benefit a charity; they make so much money for every song or hour danced. They dance

until they drop out or just drop.

The Car Marathon: There are lots of variations with this one, so you need to come up with a high-concept name that explains your angle.

Your station and a dealership or auto show are giving away a car, truck, van, motorcycle, etc. A listener qualifies somehow on your airwaves or through registration at the dealership. Finalists are selected. Whoever stays in touch with the vehicle the longest wins it.

Give them 5-minute breaks once an hour and perhaps 30 minutes to eat meals.

See MARATHONS, page 30 ▶

Promo Power



by Mark Lapidus

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It's no lie - iMediaTouch is the original automation system, introduced back in 1985! Our list of 'firsts' in radio is unprecedented - from our broadcast automation system, to our industry leading digital logger and our award winning Internet streaming software. Our iMedia product lines provide complete solutions for radio.

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Scott Schmidt - Engineer
Midcontinent Radio - Sioux Falls, SD

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- Complete website integration with XML or HTML output
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Hardt Retires From ABC

Some 50 friends from radio gathered at a New York restaurant recently to bid farewell to Bob Hardt, who retired after 40+ years with ABC.

According to an ABC bio, Hardt began his career with the company at O&O station WXYZ(TV) in Detroit about six months before President Kennedy was assassinated. He moved to New York's WABC(AM) in 1968; there he was heard during Dan Ingram's afternoon show. He spent the last several decades at the ABC Radio Network anchoring newscasts.

The Jackson, Miss., native plans to retire to the Palm Springs area. In the photo, Bill Diehl, Peter Flannery and Bob Hardt celebrate.



Photo: Bill Stoller

STATION/STUDIO SERVICES

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Radio on the Horizon at Bayliss

Laurie Hovater of WGAR(FM) in Cleveland received the new Horizon Award during the Bayliss Scholarship Fund's annual Radio Roast. John David of NAB, a Bayliss board member, is shown at right.

The Bayliss board recognized Hovater "for her outstanding achievements while in college and her commitment to a radio career after her college education was completed," said Executive Director Kit Hunter Franke. "She represents the John Bayliss legacy, in our opinion."



Hovater is a morning show personality and news anchor at Clear Channel's WGAR; she co-anchors for WMJI(FM).

The Bayliss Horizon Award recognizes past scholarship recipients who are achieving early success in radio. Bayliss, who died in 1984, was a radio management and sales executive with Gannett Broadcasting and Charter Broadcasting as well as his own company.

The roast in New York raised more than a quarter of a million dollars this year, which goes toward scholarships for would-be broadcasters. Lew Dickey Jr. of Cumulus Media was the roastee.

Marathons

► Continued from page 29

You want this one to go on for at least three or four days. The longer it is, the more interesting — especially if it lasts long enough to let your audience get to know the contestants on the air. It's almost like a reality TV show.

The Bed Marathon: This is similar to the above, except you're now giving away a large suite of furniture. You do this one right in the front window of a furniture store.

Qualify about 25 people to stay in touch with or get into the bed. Same rules as above apply.

Put a phone or ISDN on the bed, so your talent can call them and wake them at all hours of the day and night. This is likely to last longer than the car marathon because people are lot more comfortable.

The Billboard Marathon: Your DJ(s) live on a billboard. It's kinda like flagpole-sitting from the early 1900s.

The Mayflower Marathon: This is a great Thanksgiving bit. Listeners or DJs move into a Mayflower or similar moving truck until they are able to fill it with

donated food for the poor, using their on-air pleas.

Ballpark Marathon: This can be done with either DJs or listeners.

If it's a DJ, they sit in every seat in the stadium until they finish. This one can take an entire week — even with rest — and requires a jock in pretty good shape. You can include a charity component in which listeners donate so much per seat sat in.

If you choose to do it with listeners, make it a competition. The listener who sits in the most seats in a day or two or three wins a big prize. The prize could be great season tickets to see that team. Have at least five listeners in the competition.

The Stay Awake Marathon: Your DJ(s) stay awake and on the air for as long as they can. They are not allowed to sleep. Again, a charity component is easy and adds to interest.

It's amazing how stupid someone can sound in just 24 hours. Hey, I'm not sounding all that bright right now, and I'm well-rested.

Have fun with your marathon. And be safe.

The author is president of Lapidus Media. Contact him at marklapidus@yahoo.com.

NEWS MAKER

The Gospel According to Harris

Crawford Broadcasting GM Takes on Clear Channel By Infusing the Christian Network With a Little Funk

by Kelly Brooks

As a child, Taft Harris would defy curfew and parental authority to stay up past bedtime and listen to his favorite gospel radio program, "Sunday Night Gospel."

In a two-hour period, he would call in to the show 10 to 15 times, requesting one song after another. An exasperated disc jockey — who would later become his mentor — suggested his mother bring him down to the station.

"He gave me the album (Myrna Summers' "God Gave Me a Song"), and I saw all the equipment — I was overwhelmed," Harris said. "I knew I wanted to pursue a career in radio."

Today, Harris is the station general manager for four Chicago-area stations: WYCA(FM) at 102.3 MHz, gospel; WPWX(FM) 92.3, formerly a gospel station but converted in 2001 to the hip-hop-oriented Power 92, Crawford Broadcasting's first foray into secular programming; and his most recent conversions from gospel, WSRB(FM) Soul 106.3, which is also simulcast from Chicago to suburban Rockford, Ill., on WYRB(FM).

Competitive drive and a belief in the medium have poised Harris to take on Clear Channel's WGCI(FM) and WVAZ(FM), his stations' primary competitors amidst Chicago's revitalized African-American music market.

In the beginning

After working part-time at KYOK(AM), Taft Harris joined Crawford's KFMK(FM) in Houston in 1969 as a junior account executive working in the sales department selling air time, and on-air host of "The Spirit of Love" gospel music show — the area's first prime-time show of its kind.

Gospel music did not have much of a presence then, as such programming aired late night and on weekends from 3 to 4 in the morning. In fact, the genre was excluded from mainstream radio until Edward Hawkins put it on the charts with, "Oh Happy Day," one of the first crossover gospel songs for the era.

"It was a format that was in its infancy and developing, but had not reached a position of respectability and prominence until the early 1970s, and it has only escalated since," said Harris.

Harris hosted the show from Houston until 1979, when he and "The Spirit of Love" were transferred to Chicago. There, he assumed the title of director of black gospel programming and sales, and continued to develop and produce "Spirit" on WYCA, which was then at 92.3. In 1987, he was appointed station general manager.

By 1992, he found himself burning the candle at both ends, acting as on-air host and station general manager for two Chicago stations: WYCA and its sister station KSTL(AM) at 960 in St. Louis. Harris was forced to step down as host of "Spirit." By 1998, Harris had been appointed station general manager for two additional new gospel stations, WYBA(FM) 106.3 and WYAA(FM) 102.3, and the Chicagoland Gospel Radio

Network was established. At that time, WYCA was the number one gospel radio network in the area.



Taft Harris, center, in glasses, celebrates at WSRB(FM) Soul 106.3 FM's launch party.

When asked about his success in the industry, Harris does not forget Carl Harris, the aforementioned host of a small gospel radio show who instilled a love for the genre and inspired him to work in broadcasting.

Crawford's departure from its gospel foundation.

Transmitting in digital HD Radio, the 50,000 kW Class B 92.3 has moved up from the number 31 position as a gospel station in the 18-34 demographic to number five (Arbitron, Mon.-Sun., 6 a.m.-

midnight). Harris takes pride in the fact that the station identifies with the surrounding community and goes out of its way to brand itself as an alternative to Clear Channel market leader WGCI(FM).

We felt that WGCI was under-serving the hip-hop market. We set out to make our station different and better.

— Taft Harris

"Carl inspired me to get into the business. He was well known and widely respected in those days. He familiarized me with the business, and became my mentor. He died about 3 years ago. From that foundation, I have been able to build the career with which God has blessed me," he said.

Carl Harris — the two are not related — is credited with getting young Taft in the door by helping him to obtain the part-time job at KYOK. He was then introduced to Curry Juno, general manager of Crawford's KFMK(FM), by his pastor, Rev. Curtis Lacey, who had a radio program on the station. Juno introduced Taft to Donald Crawford, who gave him his first full-time job as host of "Spirit." "I got the opportunity directly from the owner himself," said Harris.

Sound decision

In 2001, after evaluating a saturated gospel programming market, Crawford Broadcasting decided to change the format of WYCA from religious to secular and launched the hip-hop oriented WPWX(FM) Power 92, thus marking

Soul 106.3, simulcast from Chicago's WYRB to Rockford's Class A WSRB and also transmitting IBOC, is following suit. In 2002, Harris again sought the chance to stand out in a crowded market, channeling his love for classic R&B and jazz music and revamping WYCH's gospel format into that of WSRB/WYRB's "old school" soul. He remained true to his fervent marketing approach, launching the station with non-stop music 24/7 for a two-month period.

"We are hearing so many favorable comments from listeners. The difference is our expansive, extensive music format. We play old school music from the '70s and '80s in abundance, current music — we play it all. Listeners complain about the repetitive nature of other stations, and how there is no variety. Well, we have a massive variety, and this station will take you back," said Harris.

"You'll hear popular songs from Stevie Wonder, plus his latest music today. The Supremes, Marvin Gaye. It's a mix of the old and new, and much more variety than our primary competitor, (Clear Channel's) WVAZ(FM)."

In keeping with its promise of variety while celebrating Crawford's roots, the station also features a gospel show broadcast live from a different church every morning.

"We bring them the music as part of the community, enjoying a fellowship with them. We want to meet our listeners, shake their hands, feed them, and we want them to see us. I feel it's a better approach," he said.

Harris added that it is important to celebrate a variety of African-American musical formats, as they were not always available.

"From my perspective, we had no option to select from back in the '60s. Soul music was just soul music. Now we have soul, hip hop, rap, jazz ... The hip-hop music you hear today is born out of sampling from '60s, '70s and '80s music," he said. "Now there are different varieties of African-American music to choose from. Most stations specialize, just playing gospel or just playing rap. Now you can get your old school on its own station, and hear *your* kind of music."

Asked to comment on the stations' competitive revenue performance, a spokeswoman for Crawford said the company does not reveal its finances.

John Gehron, a spokesman for Clear Channel Chicago, said Crawford Broadcasting "made the market more competitive. They've helped grow total listening by African-Americans. So, it's been good for both of us."

So what's next for Harris?

"Never before has Chicago had this many FM radio stations for African-American radio programming serving the community. It used to be only V103(FM) and WGCI. We came on with Power 92 and Soul 106.3, so now there are four FM stations serving the African-American community, which is rather historical," he said.

Harris said, "The fight is on. I'm waging the battle of my professional career, here — a real David and Goliath scenario. Clear Channel is the largest broadcaster in the world. We are David, and we have decided to take on Goliath. We want to be number one," said Harris.

Kelly Brooks is associate editor of Radio World's Studio Sessions and Buyer's Guide sections.

Buyer's Guide

Tech
Updates
Inside

Radio World

Transmitters

May 5, 2004

USER REPORT

Mini-HD Eases Conversion for WNNK

by Dave Supplee
Regional Engineering
Coordinator
Cumulus Broadcasting

HARRISBURG, Pa. Over the past several years, Cumulus Broadcasting has been closely watching the industry progress toward HD Radio, and the various methods available for conversion to and implementation of the technology.

One of the roadblocks to HD Radio conversion is obvious: the cost. And to many higher-power FM stations, that cost can be high.

WNNK(FM), for example, runs a transmitter power output of 23.5 kW with a 25 kW transmitter, so low-level combining is not yet an option. Up until recently, conversion would have required the installation of a new main transmitter capable of comfortable operation at 26 kW, a minimum 2,500-watt HD transmitter and the necessary combiners. We would have needed to upsize our HVAC, as well as expand the transmitter building to accommodate the additional equipment.

This scenario is no longer the only option available to high-power FM broadcasters, thanks to the introduction of several products including the Harris Mini-HD transmitter.

Solution genesis

Our story begins last year at the NAB convention, where Dielectric Communications announced the development of its interleaved HD Radio antenna. We began having discussions with Dielectric as well as Harris to test the system.

With all of the details worked out, we decided to install an entirely new Dielectric four-bay (two bays analog, two digital) DCR-M series antenna. Harris then asked us to consider beta-testing a

product they were developing, the Mini-HD transmitter, and we agreed. We completed the installation of the HD Radio antenna and the Mini-HD in January 2004.

The Beta version of the Mini-HD came in several pieces. At the heart of the transmitter is a Dexstar exciter. The digital signal feeds a pre-corrector box, the MD-1 driver and finally the MD-3 HD power amplifier. A large power supply mounts beneath the MD-3 amplifier. The



The Harris Mini-HD is a low-power HD Radio transmitter. Dave Supplee is with Cumulus Broadcasting.

Mini-HD comes in two flavors, a 300-watt version with two power cards and a 600-watt with four cards. Both fit into the same package.

The production version will differ slightly from the prototype I used, in that the entire transmitter will ship in its own equipment rack. The other difference is

in the remote control; a DB-25 connector accommodates on/off, raise/lower, status and metering functions of major parameters.

Installation and setup were simple. A 240 V, 20 A circuit for the amplifier and a 120 V and 15 A circuit were needed for the entire transmitter. Power came preset to one percent of the main TPO.

Assistant Engineer Mike Walsh and I mounted the equipment and hooked up the various interconnections and had the

in the testing. The Mini-HD had been installed in an open equipment rack and we used fairly long jumpers between the components. Due to the close proximity of the main analog antenna — only 140 feet above ground and nearly 25 kW power — we were getting analog RF bleeding into the HD Radio transmitter between the exciter and the pre-corrector. Using a higher-quality jumper and rearranging some of the units in the rack solved the problem, and the remainder of the testing proceeded smoothly.

The problem was most apparent with small, inexpensive (\$9.95) radios in a few locations, particularly ones close to the tower site. Once the issue was identified and corrected, the interference disappeared. Production models will come with an enclosed rack, so this should not be an issue.

Hitting the road

For our field testing we were fortunate to have Tom Walker from Ibiquity, who brought the company's test van. This allowed us to check the coverage of the interleaved antenna/Mini-HD system.

Harrisburg is a major trucking hub for the Northeast due to the highway and rail configuration. The area lies on the border of the Piedmont Plateau to the south and southeast and the Appalachian mountains to the north and west.

One of the more heavily traveled highways, U.S. 22-322 (the "river route") runs parallel to the Susquehanna River nine miles north before crossing a bridge. Approximately 50,000 vehicles travel this highway each day. Travelers include truckers heading north to other interstate highways, as well as a large number of commuters, such as myself, who travel to the Harrisburg area for work each day.

At the point the highway crosses the bridge, only 10 miles from the WNNK transmitter, the FM signal must pass through three mountains over 1,000 feet

See HARRIS, page 35 ▶

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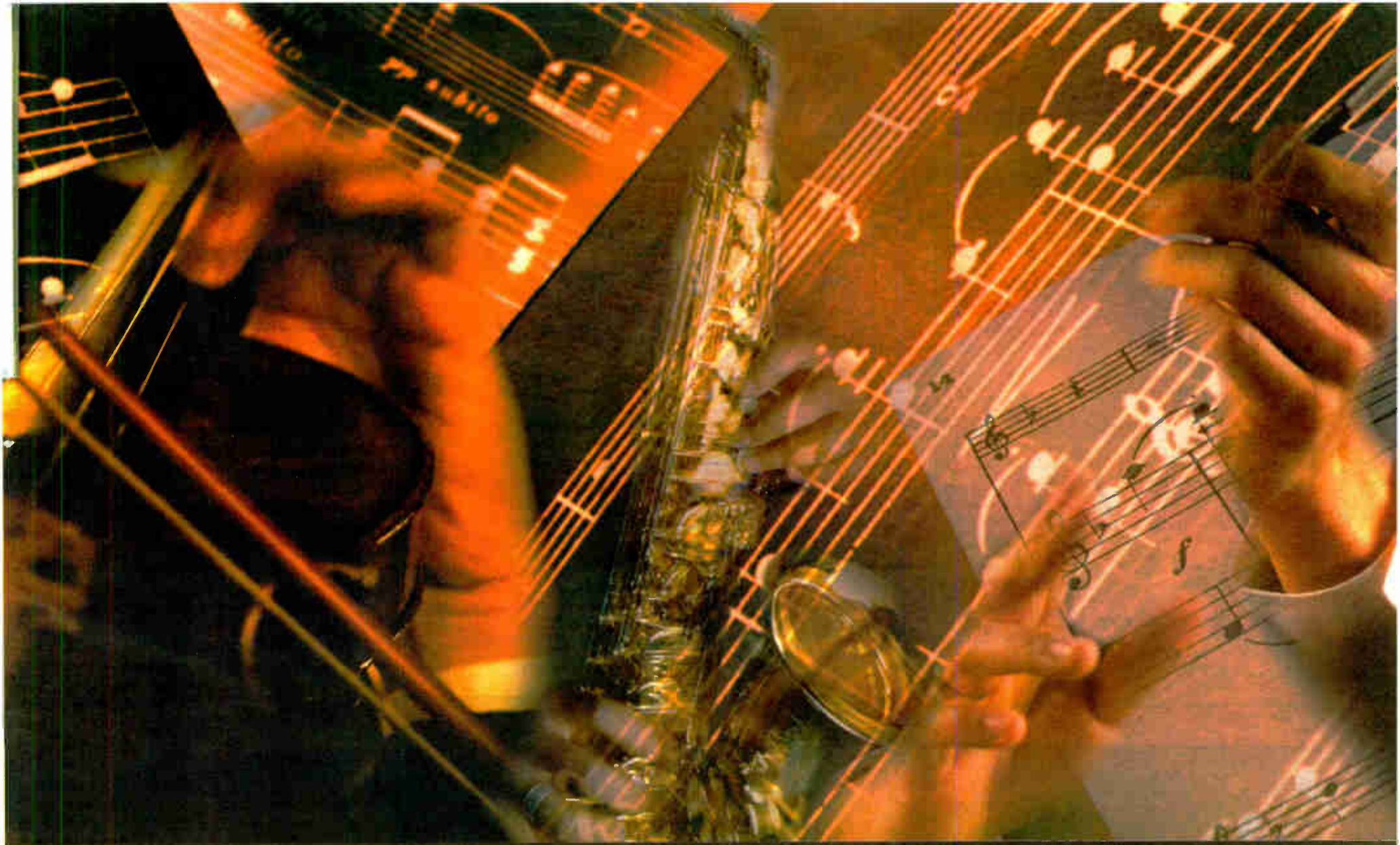
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USER REPORT

California FM Outfits With Bext

by **Dave Fortenberry**
Chief Engineer
KFIA(AM), KTKZ(AM),
KKFS(FM), KCEE(FM)
Salem Communications

SACRAMENTO, Calif. When Salem Communications purchased a CP for a new station in Grass Valley, Calif., KCEE(FM), I went shopping for new equipment for the transmitter site. It was important that I be able to contain the entire transmitter equipment complement in one rack, as we were limited in space due to our lease agreement with the site owner.

We looked at several manufacturers but chose **Bext Inc.** due to size considerations and its presence on the market as an RF company. The compact size of the Bext FD-2000 amplifier and XR-30 exciter enabled us to "pack the rack" with everything we needed to get the job done, including our Burk ARC-16 remote control, Harris Intraplex T1 unit, Inovonics Omega processor, Bird Watcher wattmeter panel, rack-mount power strips, Inovonics mod-monitor, CD player for tests, FM tuner and more.

The FM exciter and 2 kW solid-state FM amplifier are just eight rack spaces, 14 inches total in height. For ease of transport, installation and general handling, it is possible to separate the power supply section from the RF section. The two can be connected or disconnected to each other in seconds.

The XR-30 exciter and the FD-2000 amplifier have a large menu-based LCD

Harris

► Continued from page 32
 in height to reach listeners. You can imagine the severe multipath and signal attenuation, even on Class B stations such as WNNK.

Here is where the results were truly amazing: the HD Radio signal held up, fully digital except for two small locations where there was literally no signal on either sideband with which to work. Where we had grown accustomed to multipath-induced distortion and noise, we heard perfect digital. Having driven that highway every day for years, I knew exactly where the signal was bad and where it was good. And I am comfortable saying that the HD Radio signal is nearly impervious to multipath situations.

Another highway takes us toward Allentown, Pa., where co-channel WAEB(AM) is short-spaced with WNNK. Interference begins less than 20 miles out, when we begin to hear some noise. By 30-35 miles, the analog is for the most part unlistenable, with audio from both WNNK and WAEB intermingling.

My conclusion is that the Mini-HD transmitter combined with a separate antenna or separate-feed antenna is an effective, lower-cost method of employing HD Radio for higher-power stations.

For more information, including pricing, contact Harris' Broadcast Communications Division in Ohio at (513) 459-3400 or visit www.broadcast.harris.com.

display surrounded by pushbuttons to perform all functions and view parameters from the front panel, which also features an RF monitor port. The amplifier generates low heat and performs with efficiency. Installation was easy, as was interfacing to our remote control system.

One plug, to be installed on the power cord, was provided with the shipment. But being a proprietary type, if for some reason we were to one day misplace or break the plug itself, we would be forced to buy a new one from Bext instead of being able to walk into our

The compact size of the FD-2000 and XR-30 enabled us to 'pack the rack' with everything we needed to get the job done.

The 2 kW amplifier can be wired in the field for three- or single-phase power. The exciter has a full-range 90 to 260 V auto-sensing/auto-adjusting AC power input, and a 24 VDC input that can be used to connect a back-up battery, in addition to the main AC line, or as an alternative 24 VDC power source.

Plus and minus

We like Bext's use of the FD 2000 as a building block to develop higher-power amplifiers in multiples of 2,000 W.

This means that, should we need an increase in transmitter power output at any time, all we need to do is purchase more of the same equipment and a combiner; by simple plug-and-play we can suddenly go to 4, 6, 8, 10 kW or more at any time.

One thing we did not like on the amplifier's AC input was that the company uses a proprietary AC power connec-

tion. One plug, to be installed on the power cord, was provided with the shipment. But being a proprietary type, if for some reason we were to one day misplace or break the plug itself, we would be forced to buy a new one from Bext instead of being able to walk into our

local electrical supply store and buy a standard, approved, off the shelf type, which we would prefer.

Being microprocessor-controlled, the XR 30 comes with a RS-232 port, which allows a connection with a PC directly or through a modem, enabling the user to read or change any of the parameters of operation. Because the whole system is broadband, the remote PC connection would enable a connection to a broadband antenna, where it can be kept on standby as a back up for multiple stations. Just dial the frequency on which you want the unit to come up, and give it the command to go on the air at any time by remote.

Power output is adjusted by raising or lowering the drive from the exciter, which can be done locally from the front panel or remotely via the RS-232. However, we would have preferred the option of also doing that with simple, direct contact closures on the amplifier



KCEE(FM)'s transmitter rack.

itself, and this is not an option on the solid-state model.

The Bext two-year warranty is a nice bonus, although so far we haven't had any reason to even contact the company's 24/7 support engineers. This has been a reliable unit. In fact, since we have put it on the air for KCEE, it has not had a single hiccup.

It offers a crisp, clean sound.

For more information, including pricing, contact Bext in California at (619) 239-8462 or visit www.bext.com.

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USER REPORT

LPFM Sounds Full-Power With Crown

by Daniel Slentz
Contract Chief Engineer
WNHS(LP)

NEWCOMERSTOWN, Ohio WNHS(LP) signed on the air Aug. 27, 2003, run by the students of Newcomerstown Exempted Village Schools and interested adults who live in the community.

On the air 24 hours per day, seven days per week thanks to digital computer automation, the station airs both live and pre-recorded shows. Even the transmitter chain is built for complete remote control and unattended automation; it can "heal itself" if there are problems in part of the system. And, in the rare event it can't fix a problem, the transmitter will call me or WNHS Station Manager Pat Cadle and tell us what the problem is.

We determined early on that this station would meet or exceed commercial broadcasting technical quality and standards. The station had to be indistinguishable from commercial stations and perform reliably on the air. "Shack" gear, home CD players, DJ mixers and an old "home-brew" transmitter were out of the question.

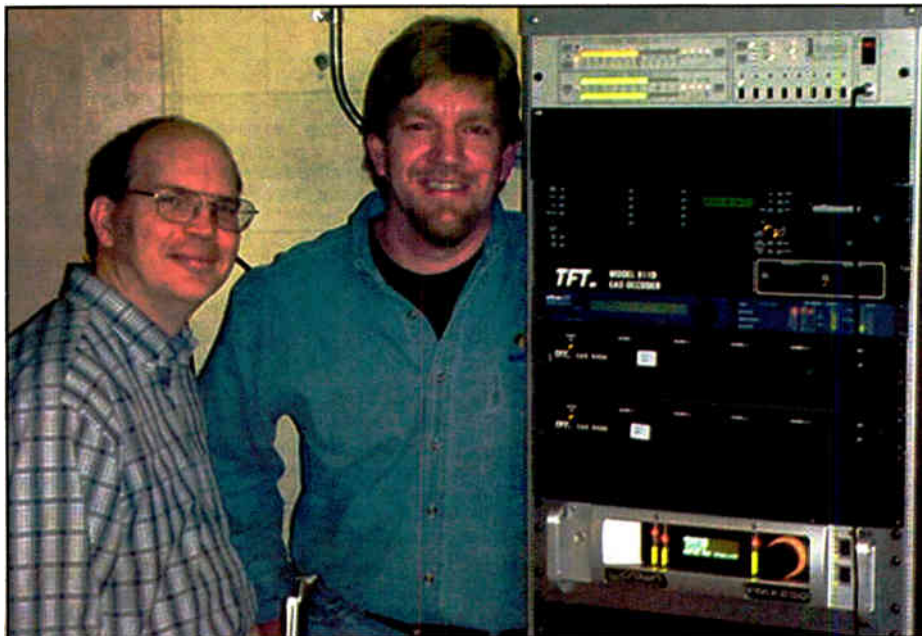
Featuring DMS, RMS

A lot of thought went into the transmitter chain, as it would determine the quality and reliability of the station. Crown Broadcast's reputation for service and support made the selection easy. My experience with Crown (International Radio Electronics Corp.) — the company split its audio and broadcast divisions after Harman International purchased Crown Pro Audio in 2000 — had always been great. The simplest preventive maintenance, such as keeping filters clean, provides years of uninterrupted service with its equipment. Its transmitters sounded good.

At the NAB convention a few years

back, Crown was introducing its FMX series of transmitters. I was impressed with the features that were to be incorpo-

rated into the line, including an on-board Omnia processor and full remote control. Discussion with Crown helped us in determining that we would purchase an FMX250GT. The G series designation is its "signal clear" version, providing excellent wideband intermodulation attenuation. Our authorization gives us 100W, but the line loss and a two-bay antenna meant we needed 107W of output. The Crown FMX100 would have enough headroom to reach that power, but I'm a believer in giving any gear plenty of headroom.



WNHS Station Manager Pat Cadle and the author pose in front of the transmitter rack.

Besides its reliability and my past experiences with Crown, a couple of other factors were at play in choosing the Crown FMX, such as the Digital Management System or DMS, a control

rated into the line, including an on-board Omnia processor and full remote control. Discussion with Crown helped us in determining that we would purchase an FMX250GT. The G series designation is its "signal clear" version, providing excellent wideband intermodulation attenuation. Our authorization gives us 100W, but the line loss and a two-bay antenna meant we needed 107W of output. The Crown FMX100 would have enough headroom to reach that power, but I'm a believer in giving any gear plenty of headroom.

Besides its reliability and my past experiences with Crown, a couple of other factors were at play in choosing the Crown FMX, such as the Digital Management System or DMS, a control

monitor performance, making any necessary changes. Additionally, it can call us if there were ever a problem.

The RMS was a good feature to add, particularly for LPFMs, as it took away the need to attempt to interface a third-party remote-control system. It's easy, flexible and provides the confidence of a "listen line."

As the FMX-G was in early production, Kent Koselke and Don Pettifor of Crown provided a loaner FMX, one of the prototypes, to get us on the air. When our final production model arrived, I pulled the loaner 250 and installed the new FMX250GT, tied in the remote unit to the PBX switch, made the necessary connections and powered it up.

Two minutes with a user-friendly

menu, and it was set for 105.7 MHz and 107 watts and ready to rock. It was easier to set up than programming a home VCR. Final power was turned on and it performed like a champ. Levels were perfect out of the box and VSWR was minimal.

A "hitch" to the installation of the remote was the recessed hex screws. They are small, and the depth of the amp and remote meant I needed a small but long hex key, not in your typical hex key set. I made the recommendation to Crown of adding that tool, and the company now includes it with the RMS module. That's listening to the customer. Having a laptop or PC handy is helpful, as the manual is on CD ROM as a PDF.

The Omnia card is still in its final stages of development, so I am running the new transmitter with processing off a borrowed outboard unit. I also had to install the RMS remote module onto the back of the power amp. I'm excited about getting the card when it's released, for I know the FMX250GT is going to sound even better.

The real test of the little LPFM signal and audio was to drive around town and in the hills, listening on my Pioneer Supertuner car radio. In all cases, WNHS sounded as good or, in some cases, better than the commercial stations. Reception and sound quality were excellent, and multipath was non-existent.

Newcomerstown now has its own local station, and I don't think a single person in this town of just over 4,000 can tell they are listening to an LPFM vs. a full power. This is not only a testament for programming but also the installed equipment, including the Crown transmitter. It's also nice to know that Crown has an upgrade path for the older FM series to the new FMX.

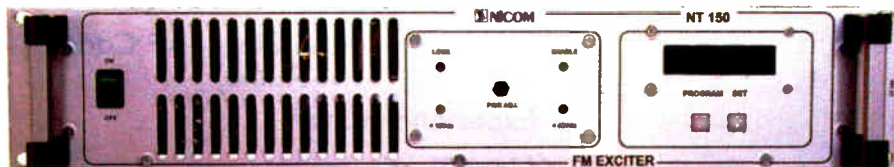
Thanks to the company for an awesome product, great design and engineering, and for standing behind its equipment.

For more information, including pricing, contact Crown Broadcast in Indiana at (866) 262-8919 or visit www.crown-broadcast.com.

TECH UPDATE

Nicom Downsizes NT150/LCD Tx

NicomUSA Inc. upgraded its NT150/LCD transmitter/exciter with programmable settings via LCD that are protected by a password, and remote-control software that can display the main parameters of the unit, including internal temperature, on a computer's monitor.



The power is adjustable from 5 to 150 watts (max power 175 W). The NT 150 has automatic power control and a fold-back system to prevent damages in case of high VSWR.

In response to requests for compact units, the company said, its engineers minimized the NT150/LCD into a 2-rack chassis unit and reduced the weight to 22 lbs. This item can be sold individually or as an LPFM package with antenna and audio processor/stereo coder. NicomUSA's transmitters and exciters are FCC-certified to comply with rules for LPFM.

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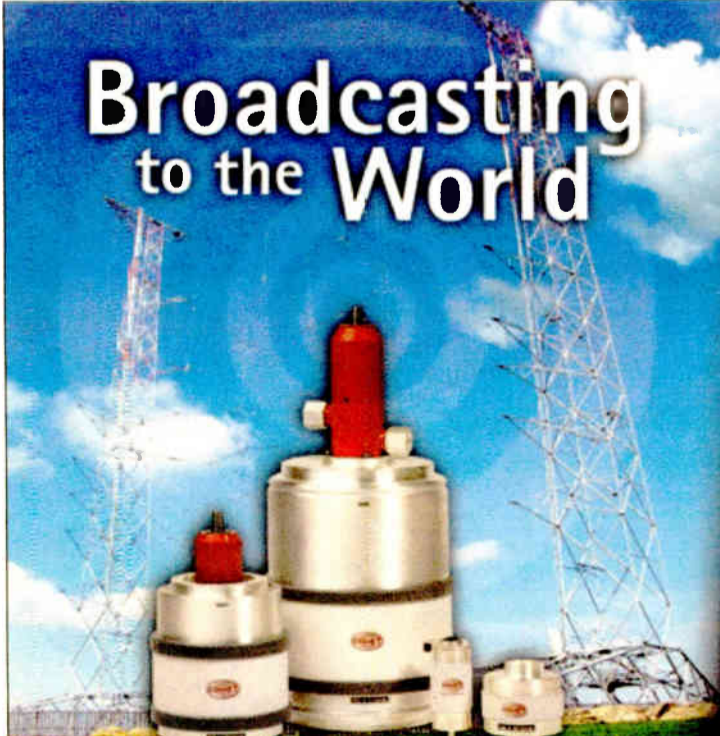
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USER REPORT

Station Revives Site With FM-30T

by Joe Farrington
Chief Engineer
Des Moines Radio Group

DES MOINES, Iowa The Des Moines Radio Group, part of Saga Communications, is a group of four FM and two AM stations committed to excellence in broadcasting. We recently purchased the tower site that one of our FMs, KIOA, had been renting for years, and proceeded to make improvements to the plant in an effort to strengthen its infrastructure.

There had originally been no generator at this site, so the backup was at one of our AM sites. This had been the best option at the time, but limited our coverage area significantly. After installing a backup power generator at KIOA, we looked for a new main transmitter that would have better reliability and efficiency than the current transmitter, and allow us to use the current transmitter as a full-power auxiliary. We decided on the Broadcast Electronics FM-30T.

The FM-30T uses a folded half-wave cavity that eliminates unreliable DC plate-blocking capacitors and sliding RF contacts. The high volume, low-pressure airflow improves heat transfer while

reducing ambient noise. The stack temperature on my FM-30T is only 110 degrees Fahrenheit running at 17.75 kW, whereas the old transmitter ran at over 160 degrees Fahrenheit.

This, however, required me to redesign the heat recirculation for the building, given that the FM-30T runs cooler. The temperature rise across the final is only 42 degrees vs. 70 degrees on the old

transmitter runs so hot, it would only get six months to a year of use from its tube.

Installation was smooth, although I did have to do some building remodeling to allow for the overall length of 91 inches — a transmitter 56.5 inches wide coupled with a power supply of 34.5 inches

We looked for a new main transmitter that would allow us to use the current transmitter as a full-power auxiliary.

transmitter. While I have only had this unit in service for a few months, I can hardly wait to see how much life I will get out of the 4CX20,000A final, the final tube in the transmitter. Because the

wide. The FM-30T uses an external second harmonic filter, so I had to take that into consideration as well.

The only real problem I encountered was with the power line monitoring on the FM-30T. The new tower lights we installed introduced some harmonics on the power line, thus causing the new power generator to vary the frequency of the line. The FM-30T would see that as an unstable power line and shut off. I added a filter in front of the feed to the tower lights to fix this issue.

I have since installed my second FM-30T transmitter at the KSTZ site. This installation was fairly uneventful, the only issue being a poor connection on the RF forward sample. The shield on the sample line did not get soldered to the control circuit board at the facto-

ry. This caused the auto power control to vary the RF output, sometimes causing the transmitter to trip off on a plate current overload. The connection is on the backside of the control board and could not be seen, until they sent a new



Joe Farrington and KIOA(FM)'s FM-30T Transmitter

control board and I swapped them out. The technician at the factory was very helpful in working with me to find and fix the problem. The only maintenance I have had to do so far is to replace the corrugated paper air filters.

Everyone here has been happy with our new transmitters, and I would not hesitate to use these at our other stations. They have been stable and the sound quality is great.

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

TECH UPDATE

RVR Makes Compact URP

RVR has debuted its URP portable FM exciter/transmitter, which the company touts as designed for emergency backup and solar- or battery-powered applications where compact size and ease of transportation are issues.

The unit weighs 4.5 pounds and works in the 87.5-108 MHz frequency range. It is programmable in 100 kHz increments (shift 50 kHz) with a variable output of 0-10 watts.

The URP has relatively low power consumption and operates on 12V DC. It can be used in mono or MPX, and comes with a balanced/unbalanced XLR microphone. Line input that includes a pre-amp/limiter for direct microphone use also is featured.



The URP exciter/transmitter comes in a heat-dissipating enclosure. Additionally, the "T" version package includes a carrying case, rechargeable batteries and magnetic mount antenna.

The company said spurious and harmonic suppression of the URP meets or exceeds FCC and CCIR requirements, as does modulation capability. URP is available through RVR USA or one of its representatives.

For more information, including pricing, contact RVR USA in Miami at (305) 471-9091 or visit www.rvrusa.com.

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TECH UPDATE

Fanfare Translator Demod Features 'Carrier Sense'

The Fanfare FT-1AP translator demod receiver features usable sensitivity in the range of 1.5 uV (mono), or 30 uV for 50 dB quieting in stereo, with 80 dB alternate attenuation. Composite Out is 1,000 ohms and adjustable from 1 through 4.5 Vpp. The +6 dB XLR audio outputs provide 600 ohms at 0 dB.



The company says tuning reliability is established through the use of digitally-controlled phase locked loop, the PLL circuit that keeps a receiver on frequency. Return to "last state" is held in memory and automatically invoked in the event of catastrophic power failure. Auto-resetting "carrier sense" provides a signal whenever the received carrier drops below 20 dB for longer than 120 seconds. RS-232 data I/O port provides remote access to panel functions, providing feedback for each command, including carrier sense. Agile tuning includes fast scan, along with eight programmable presets.

Additionally, the FT-1AP has crossover capabilities as an off-air monitor for studio and remote applications.

Joining the FT-1A this year is the FTA-100P, an AM/FM/AM-stereo receiver that features the capabilities of the FT-1AP, plus adjustable wide (10 kHz)/narrow AM.

For more information, including pricing, contact Fanfare in New York at (716) 683-5451 or visit www.fanfare.com.

Nautel Adds Virtuoso V10, Maestro M50

Nautel's Virtuoso V10, a 10 kW FM HD Radio broadcast transmitter, enables digital transmission and integration with the company's NE IBOC digital signal generator. The transmitter is a linear, adjustable-bias, broadband design; it is frequency-agile, requiring no tuning for operation between 87.9 and 108 MHz.

The company's integral Maestro M50 direct-to-channel digital exciter offers adaptive pre-distortion by continuously sampling the final RF output and dynamically applying digital pre-correction. The company says this ensures the HD Radio signal is transmitted within spectral limits and without a need for an external band pass filter.

The V10 will seamlessly switch between FM analog mode, HD Radio digital mode and hybrid FM plus HD Radio mode. Automatic software control of the RF amplifier bias level improves operation for analog Class C, hybrid Class B or digital Class A/B amplification. The transmitter is capable of up to 3.2 kW digital power, 7.5 kW hybrid power or 11 kW analog power. Broadband power modules are hot-plug and each has its own switch mode power supply.

The model is touted for its redundancy features and duplication of M50 digital exciters, IPA modules, IPA power supply modules and low-voltage power supplies. Control and monitoring are provided through a microprocessor controller and graphic user interface. Features include a direct-reading power meter, diagnostic flow diagram and 128-event, time-stamped log.

For more information, including pricing, contact Nautel in Maine at (207) 947-8200 or visit www.nautel.com.



DRS, Formerly Continental Electronics, Offers One-Tube FM, SW

DRS Broadcast Technologies, formerly Continental Electronics, offers the Continental brand of FM transmitters, including a line of single-tube FM transmitters and antenna equipment ranging from 11 kW to 70 kW, as well as the 802B analog exciter and 802D-1 digital exciter. A line of solid-state FM transmitters ranging from 2.5 kW to 20 kW is being introduced on a continuous rollout, and will be capable of analog and IBOC transmission.

The 816R series of self-contained transmitters range from 11 kW to 35 kW, and use one final power amplifier tube, 4CX15000A or 4CX20000E. The IPA is solid-state and requires no tuning.

The "soft-start TM" circuit gradually brings the transmitter to full transmitter

power output, while low-voltage controls enable the transmitter to recycle and return to the previous operational status. The 35 kW model has the high-voltage rectifiers and plate transformer in a separate chassis. It may be placed up to 100 feet from the main cabinet, as there are no controls, fuses or circuit breakers on its cabinet.

The 418F 100 kW shortwave broadcast transmitter is the descendant of a line of CEC 100kW transmitters, with its operation enabled through the standard amplitude modulation, AM, with controlled carrier-level modulation (CCM) or optionally with SSB. 418F has been field-tested with the Digital Radio Mondiale system. Its amplifier tube is the 4CV100000C tetrode.

Features include frequency change with selection of up to 10 pre-selected frequencies; transmitter efficiency of more than 72 percent; remote control and monitoring; and optional single-sideband capability using a phase amplitude system for a PEP program output power of up to 300 kW.

The company's 802B FM exciter features a variable output from five to 50 watts and an internal harmonic filter, and can be used as a low-power transmitter. 802B accepts the composite baseband signal from a stereo generator and STL system or monaural audio and SCA program input.

The 802D-1 FM digital exciter uses a floating-point digital signal processing board, incorporating four Analog Devices Super Harvard Architecture Computer (SHARC) chips, which perform the actual signal processing — FM generation, interpolation, stereo generation, pre-emphasis, SCA generation and filtering.

For more information, including pricing, contact DRS Broadcast Technology in Dallas at (800) 733-5011 or visit www.contelec.com.



The 816R series of transmitters can be placed up to 100 feet from the main cabinet.

JT Has Exciter Upgrade for LPFMs

JT Communications offers the PLFM-100A, a self-contained drop-in exciter module that replaces most of the RF component of an exciter.

The company says it is suitable for LPFM applicants that are on small budgets and have limited LPFM type-certified exciters to choose from.

"Fortunately, the FCC has a specific rule in place — 73.1690(e) — that allows older, obsolete transmitters to be upgraded to current technology without FCC notification or authorization," said President Jim Trapani. "This includes replacement of components and assemblies, and complete upgrades to their transmitter/exciter."

Some examples of upgrades, he said, are the old Collins 310B exciter; Gates M6095 exciters; and several Sparta and other older exciters pre-1980.

"Most of those exciters required crystal ovens to maintain frequency control. Some of the components that utilized frequency control are no longer available, which would seem to indicate that the exciter would be useless as an LPFM exciter."

The drop-in exciter module is a 3x5-inch assembly that operates at 12VDC. It contains a DIP-switch PLL synthesized oscillator, capable of +20 dBm (100 mW) into a 50-ohm load. Any frequency can be selected with 100 kHz increments anywhere on the FM band. The PLFM-100A contains composite and 75uS pre-emphasized audio inputs. Application notes are available on some older exciters.

The process of drop-in to an older exciter will vary depending upon the exciter and the technical expertise of the installer.

"If you don't have experience, it is recommended you enlist a person with the proper technical knowledge to make the necessary changes," Trapani said. "Of course, the user is responsible for maintaining the proper equipment performance measurements once these changes are made" under rule 73.1590.

For more information, including pricing, contact JT Communications at (352) 236-0744 or visit www.jtcomms.com.

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ERI SHPX 9KW rototiller single bay 9KW tuned to upper Educ or lower Comm in excellent condition, \$600 +shpg. WW Fulgham, KBRA FM, 850 Brandon Ave, Jackson MS 39209. fultec@ksco.com.

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Cablewave 3" heliax, 160' of 3" air dielectric with end flange connectors, \$500. Bruce Campbell, Dove Media LLP, 209 S Danville Dr, Ste B-105, Abilene TX 79605. 325-677-3900.

ERI Rototiller, 10-bay FM antenna tuned to 104.9 MHz, removed for upgrade, \$7500/BO. Bruce Campbell, Dove Media LLP, 209 S Danville Dr, Ste B-105, Abilene TX 79605. 325-677-3900.

ERI Rototiller, 4-bay high power on 99.9 in great shape, BO. Clay Freinwald, Entercom-Seattle, 1820 Eastlake Ave East, Seattle WA 98102. 206-726-7071.

ERI Rototiller, 6-bay on 107.7 in great shape, BO. Clay Freinwald, Entercom-Seattle, 1820 Eastlake Ave East, Seattle WA 98102. 206-726-7071.

Rohn 65G, 440' tower, painted, on ground ready for pick up, \$16,000. Ken Diebel, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

Stainless 24" face, 260', on ground, solid rod, see photos at www.scott-inc.com/tower/stainless.htm, \$3200. Chris Scott, WKYU, Western KY Univ, 1 Big Red Way, Bowling Green KY 42101. 270-745-3834.

Talltower operating strobe system of 12 flash heads, one beacon, controller and photocell, four years old, \$15,000. Contact: paul.reynolds@cox.com, or 210-615-5427, F.O.B. San Antonio, TX.

AUTOMATION EQUIPMENT

Want to Sell

BE Audio Vault AV100 system includes 3 workstations, production/back-up computer and server. Includes 5-AV100 cards, 3 "daughter" cards and 3 memory upgrades. Buy all or separately. Engineer Bob, WMSA, Massena NY. 315-769-3333.

Scully 270 1/4" R-R play (4). New pinch rollers required, heads good, \$125 each or all for \$400 +shpg. WW Fulgham, KBRA FM, 850 Brandon Ave, Jackson MS 39209. fultec@ksco.com.

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SMC MSP 6 or 12 channel automation systems. Rick Keefer, KICA, 1000 Sycamore St, Clovis NM 88101. 505-762-6200.

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ATI Vanguard BC8D5L, 8 pot stereo mixer with linear faders, brand new, still in factory carton, never used, mint condition, with factory installed options, vacuum fluorescent display, input expander, for total 20 inputs, remote start-stop switchers, \$4750 +shpg. Ken Hayes, Rodken Enterprises, 140 Park Pl, Pittsfield UT 05762. 802-746-8672.

Harris Medalist 10, 10 channel stereo console, sliders, \$950. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

LIMITERS/AUDIO PROCESSING

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CBS Labs AM Volumemax limiter, \$200. Rick Keefer, KICA, 1000 Sycamore St, Clovis NM 88101. 505-762-6200.

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Orban Optimod Composite clipper card, \$200. Rick Keefer, KICA, 1000 Sycamore St, Clovis NM 88101. 505-762-6200.

dbx 266XL professional model, dual compressor/gate in excellent condition, \$100 +shpg. Bob Rivkin, KPLM/KJZZ, 441 S Calle Encilia, #8, Palm Springs CA 92262. 760-320-4550.

Inovonics Model 222 "NRSC" (AM) audio processor with instruction/maintained/operating manual, \$1500. Don DeRosa, WAMF, 315-593-1300 or wamf1300@alltel.net.

Optimod 8000A stereo FM processor, \$1000. Tom Toenjes, KJTY, 6120 Riley Creek, St Marys KS 66536. 785-640-6047.

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

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MONITORS

Want to Sell

Belar Electronics AMM-1 frequency & modulation monitor with instruction book, \$1200. Don DeRosa, WAMF, 315-593-1300 or wamf1300@alltel.net.

RECEIVERS/ TRANSCIEVERS

Want to Sell

GE MVS 35 watt UHF transceiver 450-470 MHz 16 channel, scan, new mic, \$15. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Vertex VX-500 handhelds, UHF, 440-470 MHz 32 channel, scan, 5 watt with chargers. Will program for you, 4 units @ \$75 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

RECORDERS

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SATELLITE EQUIPMENT

Want to Sell

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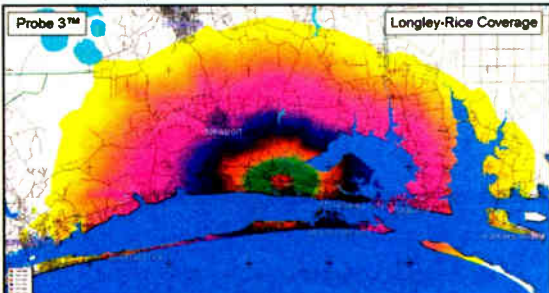
Channel Master 1006IFD satellite signal meter, brand new, Nicad pack powers LNB, \$75. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Wagner DR-96 satellite receiver digital Rx, \$500. Ken Diebel, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

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ATI Audio Distribution Amplifier 2016-1. We have about 10 of these as a result of studio renovations. They cost over \$1,100.00 new but will let these go for \$160.00 each plus S&H. Contact Michael Raley at (704) 523-5555 for more information or e-mail Mraley@rb.org for a picture.

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

Enberg BA - 6 Annunciator. Have several of them in great condition with no more than eight years of use in them. Original cost was \$359.00 each but we will sell them for \$150.00 each "as is" plus s/h. Call Mike R at (704) 523-5555 or e-mail Mraley@rb.org for more information.

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TFT 713 AM Frequency and Modulation Monitor. Cost \$3,400.00 new but will sell for \$1500.00 plus S&H. Needs re-calibration. Call Michael Raley at (704) 523-5555 or e-mail Mraley@rb.org for a picture.

Two Denon DNM 1050R Professional Mini-disc Rec/PB Deck. Both units manufactured in 2001 and were used on our test bench in our downlink room. Has low impedance and headphone jack. We are asking \$500.00 for each unit plus shipping and handling. I can e-mail two pictures and the "Main Features" portion of the manual. Please contact Mike Raley or Ron Muffley at (704) 523-5555 for more information or e-mail Mraley@rb.org for pictures.

Two RTS 416 Distribution Amplifiers. Has slight problem pushing +4. Cost \$1,173.00 new but will take \$325.00 for each unit plus S&H. Call Michael Raley at (704) 523-5555 or e-mail Mraley@rb.org for a picture.

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Collins 830 electro engineering works, 3PH power transformer, 5KW with low volt taps, \$600 +shpg. WW Fulham, KBRA FM, 850 Brandon Ave, Jackson MS 39209. fulltec@ksco.com.

Continental 315R1 AM 5 kilowatt transmitter. Used as a daytimer for 18 years. Well maintained with many spares. Tuned to 1260 kilohertz, 500 watt cutback, \$12,000 & you pick up. Ken Loggins, 615-446-0752 for more information.

Collins 300 watt xmtr with stereo processor, BO. Ken Diebel, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

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Harris 1KW AM xmtr, 1972, Model BCIG, DuQuoin Bdctg Co, 618-542-3894 or wqdnradio@oneclq.net.

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Dallas Brian Lucas, DocHolliday3400@direcway.com. Willing to travel. Qualities: creative mind, excellent personality, very determined. Recent graduate of American Broadcasting School.

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Jim Hoge
 President and GM
 WPOZ/WEAZ
 Orlando, Fla.

GUEST COMMENTARY

AM Must Roll or Risk Gathering Moss

by Thomas R. Ray III, CPBE

While the industry has been revving up for IBOC, there has not been much information available. This has led to misunderstandings, as in the March 10 letter "Slingin' Hash" by Jim Jenkins.

As an early adopter of HD Radio at WOR(AM), I'd like to address four concerns brought up by Mr. Jenkins and others regarding IBOC.

Concern No. 1: IBOC will make all radios in the United States obsolete — There is no mandate to shut off the analog carriers, and your radio (AM or FM) will work just fine with IBOC. This isn't HDTV, where analog carriers have a definitive cut-off date set by the FCC. I listened to WOR(AM), which transmits an IBOC signal, on the analog radio in my car for 14 months before I had an IBOC-capable radio to listen to. This analog radio was far from obsolete.

Radios eventually will become obsolete, when and if a mandate to turn off the analog modulation comes about. I do not, however, see this coming in the next 20 years.

Concern No. 2: The cost to small-town radio — Yes, there are costs involved to convert to IBOC. But again, there is no mandate or timetable to do so.

We're constantly reading about loss of listenership. Much of this has to do with programming. But when your station's listeners leave for a service such as XM or Sirius, then discover that you offer programming similar to what they like on satellite, frankly your 1955 vintage transmitter won't be enough to woo them back.

Much as small-town television has had to respond to HDTV, small-town radio eventually will need to convert to IBOC. The time to start planning and budgeting is now — not when and if the FCC mandates digital service.

Concern No. 3: The listeners, particularly in poorer areas, won't be buying the new radios for years — So we should stop progress for stations not in poor areas? How long did it take for FM and FM stereo to catch on? How long did it take for color television to catch on?

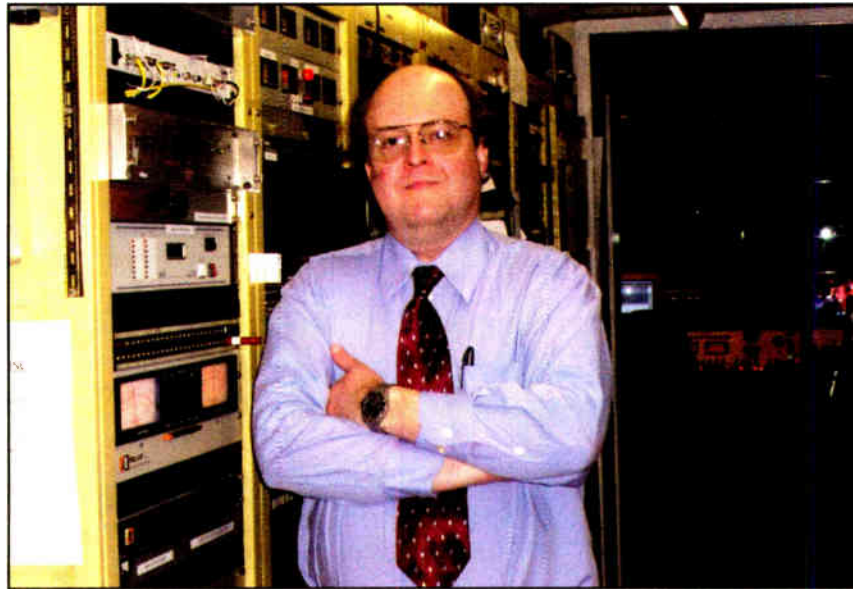
It is going to be the same for IBOC implementation. It will take a while to become mainstream. No one has said otherwise. If we don't move forward, you may find that all stations will be in big trouble in 10-15 years, particularly those in poorer areas. They will be the first to struggle and go belly up.

Will IBOC be the savior of radio? No. But digital services are in demand by consumers, and consumers are smart. If we stick with the status quo "because we're radio" or "because the listener won't know any difference," we're all going to be out of business. Everything around us is changing technologically yet we are not. By refraining from changing to accommodate younger listeners who have grown up on Internet audio and MP3 players, even more nails are driven into the coffin of AM radio.

We can't ignore this transition. Mr. Jenkins feels that we are mindlessly pushing a flawed technology, but show me a technology that is inherently perfect.

He states further that we are only going digital because it's "different." However, I have made countless recordings on linear

DAT off my HD IBOC car radio, and play them to WOR staff members (not just engineers), clients and listeners on studio monitor speakers. I've given CDs to sales staff and neighbors, and asked them to hold sound tests in their cars and report back on what they find objectionable. Those who



Tom Ray feels that misinformation and AM purists may impede the progress of digital radio technology.

participated find it hard to believe these recordings were made off an AM radio (granted, HD-capable), and ask when it will be available on more stations. They also ask where they can get an HD Radio.

Concern No. 4: No one in the "trades" has addressed the frequency response curve and modulation limitation questions — I am a frequent contributor in this particular trade publication. Ready for these issues to be addressed?

There are no modulation limitations. WOR is still banging away at -97 percent, +122 percent with the IBOC carriers on, with aggressive processing — the same as we were pre-IBOC. This was our specification to Ibiquity when WOR became a test station in 2002.

We do not lose analog loudness when the IBOC carriers come on at sunrise, and we do not gain analog loudness when the IBOC carriers go off at sunset. We are still louder and prouder than our immediate competition, and make no apologies for that. IBOC did not hurt WOR's analog modulation, as we have checked with oscilloscopes and spectrum analyzers.

We did, however, discover a few radios where WOR's analog audio appears to reduce slightly when the AGC circuit senses the additional power in the sidebands with the IBOC carriers on. Frankly, I see this as a design flaw with the radio. Should we abandon IBOC because there are a few radios in the market with an inherently flawed design?

WOR has worked closely with Ibiquity's engineers to make sure that the IBOC portion of the signal is the best it can be, and the analog portion is not impacted. Ibiquity listened to us and corrected issues with analog positive peak capabilities and its audio filter.

This resulted in the "WOR Patch," a service pack that has been incorporated into the final version of the software. We would not let the analog suffer, and Ibiquity came through. There is no impact on analog performance, and the new HDC codec has solved the artifact issues.

Regarding the frequency response curve,

what needs to be addressed? On the analog carrier, you are limited to 5 kHz. The majority of AM radios I have encountered generally do not reproduce anything above 3-4 kHz. The stock radio that was in my Ford Explorer reproduced 6 kHz, but only when I was sitting in front of the transmitter build-

ing. Extending your analog frequency response beyond 5 kHz will severely degrade your digital coverage area and digital performance. If the greater portion of AM radios cannot "hear" anything above 4 kHz, what is the issue?

There are two general operating modes for hybrid AM IBOC. The normal mode, which limits the analog frequency response to 5 kHz, enables the HD Radio to constantly look at the sidebands and decide from which one to decode the data, upper or lower.

The second mode of IBOC operation allows for an analog bandwidth of 8 kHz. In this mode, however, the radio must decode both sidebands at all times to recover the data and generate HD audio. Obviously, if there is a problem with one of the sidebands, the radio cannot reproduce an HD signal. This will reduce your HD coverage, and the recovered data will not be as robust.

The choice of operation is up to the individual station, but if the majority of radios do not reproduce analog audio above about 4 kHz, what is the point of limiting your HD coverage?

Issues

Yes, there may be some issues due to the IBOC sidebands. Once again, no one has ever said otherwise. Consider that the IBOC system is designed to fit under the NRSC mask, as mandated by the FCC. Energy that fits under the mask is completely permissible under FCC regulations, regardless of what anyone wishes to read into this rule.

I refer readers to the FCC regulations, Part 73.37, to get the definition of the coverage area for a particular class of AM station. Contrary to what some believe, there are coverage definitions in the FCC rules for AM stations. There may be some background hiss heard out, around and beyond the 0.5mV/M contour of a station that has an IBOC neighbor. In listening tests, this was deemed more acceptable than the "Donald Duck Talk" from present adjacent sideband splatter.

And let's face it. Because of the electrically noisy environments we live in, if you

can even hear an AM station out to the 0.5 mV/M contour, you're a lucky dog. If you can't hear the station reliably in these areas anyway, there should be no reason to prevent implementation of IBOC.

If you think your typical listeners are listening to your station when the signal degrades to noise out to and beyond the 0.5 mV/M contour, perhaps you should survey the average American's radio listening habits.

My son knows what AM radio is, yet he and his friends refuse to listen to it. This has nothing to do with programming — they simply do not care for its sound. Additionally, I have observed neighbors punching the button at the first sign of noise on an AM or an FM station. They don't like it, won't put up with it and won't listen to a station regardless of the programming, once the signal gets noisy.

Regarding the cascading of algorithms, yes, with IBOC, we're all going to have to be more careful regarding data reduction use. At WOR, we record the Bill O'Reilly program for later playback, and do so in a worst-case scenario where the audio is put through numerous coding changes. Listening in the car, you don't hear any "swimming" or raunchy data cascade effects. The average listener won't notice.

However, if you put the air product up against a studio recording of the O'Reilly program, you will definitely hear the result of the algorithm cascading. We did a test with Westwood One, recording identical segments at every point in the path where the audio coding would change, from studio to on-air at WOR. It's amazing to hear the changes along each leg of the path.

The overall result, however, is that the average listener will not notice — unless they are audiophiles or know what the studio product sounds like. Don't forget that audio memory is extremely short. If you don't know what you are listening for, chances are you won't hear it, unless the result of the cascading is so raunchy that you can't help but notice.

Pre-emptive rebuttal

Before I am once again accused (and it was here in letters to Radio World) of being anti-small market radio and anti-AM in general, consider this: Buckley Broadcasting is one of the true small operators left in the United States.

WOR is an anomaly in our company, as most of our stations are smaller stations in much smaller markets. We don't have the deep pockets of investors to pick, as do the Clear Channels and Infinities of the world. When we make a technology decision, it is something the company must believe in — and it is my job to bring the pros and cons of any new technology facing the company to the president.

We are in the process of finding out what it will cost to outfit our 19 radio stations for IBOC operation. In looking toward the future of radio, we believe IBOC to be a useful tool.

I grew up on AM radio, but I am a realist. If we continue on the same path, we will all be in trouble.

IBOC isn't the three-headed monster it's been portrayed to be. It's time for a change in our industry. Education about IBOC is the key to understanding and using this new technology to our greatest advantage. Remaining the same while the world marches past us will place terrestrial AM and FM broadcasting among the dinosaurs, rendering us irrelevant.

Tom Ray, CPBE, is corporate director of engineering for Buckley Broadcasting/WOR Radio in New York.

◆ READER'S FORUM ◆

New Home for CKLW's MW-50

We at Koor Communications Inc. have been fighting the local zoning ordinance in Lebanon, N.H. about the construction of towers needed to build the 720 kHz, 50 kW CP for WQTH(AM) for many years.

Readers may be familiar with our CP, which has been in the news over our tower litigation in the New Hampshire Supreme Court, from coverage in Radio World. We finally won a decision giving broadcasters a federal preemption for the height of towers over local zoning height limits based on arbitrary criteria such as aesthetics set by local zoning boards.



Photos courtesy of Russ McAllister

The forklift tips slightly on the loading dock under the 2,500-pound weight of a MW-50 cabinet, which Bob Vinikoor and crew took from the historic CKLW transmitter building.

headed north to pick up their MW-50. When we arrived on Tuesday at the historic CKLW transmitter site, the MW-50 was running full power into their new five-tower array. Jenkins showed us how the transmitter worked and what had been done over the years to update it and keep it performing at peak performance. I must say "cleaning" was top of the list.

Jackson, McAllister and I spent the next day taking the transmitter apart and carefully backing the fragile parts for the 680-mile trip back to New Hampshire. During that same time, CKLW was running on its older spare MW-50 while installing their new Harris 3DX50. The CKLW team was making better time with



CKLW(AM) Chief Transmitter Engineer Russ Jenkins, middle, shows Dennis Jackson at left and Bob Vinikoor at right the MW-50, which was still kicking out 50 kw at CKLW on Feb. 10, 2004, when the group arrived to pick it up.

The transmitter we recently acquired from CKLW(AM) 800 in Windsor, Ontario, brings us one step closer to building the CP for WQTH.

This adventure all started when we bid on e-Bay back in October 2003 for the Harris MW-50 of KLOK(AM) 1170, ultimately won by Citadel's COO Judy Ellis. M-Street Journal ran a story about that bidding and reported that "New England Broadcaster Bob Vinikoor was in the hunt, too; he needs a 50 kW transmitter to build WQTH in Hanover, N.H."

CKLW's Chief Transmitter Engineer Russ Jenkins saw that story and dropped me an e-mail to see if I was still interested in an MW-50 as they had just bought a new Harris 3DX50 and their main MW-50 was for sale.

We quickly came to terms and Feb. 9, 2003, Connecticut broadcaster Dennis Jackson, our engineer Russ McAllister and myself were

their plug-and-play radio than we were with taking out capacitors and backing tubes carefully for the ride home. We had previously ordered a new 720 crystal, and Jenkins had it installed and working in the MW-50 oscillator before we were wheels up on Wednesday.

McAllister took many notes on how the MW-50 was configured, so putting it back on the air should go pretty smoothly. We took out all the fragile parts for shipping, and I can report they all arrived without damage. We're hoping to get the MW-50 back on the air in its new home in the next 12 months.

Thanks to Dennis Jackson, Russ McAllister and Russ Jenkins for all their help in making WQTH one step closer to reality.

*Bob Vinikoor
Koor Communications Inc.
New London, N.H.*

Tom Ray's presentation during the "IBOC and Digital Facilities Implementation" session at NAB2004 launched us on a compelling train of thought.

IBOC is coming and may at last bring parity to the AM and FM bands. So will everybody have superior digital sound and the world smell of roses evermore?

Believe only half — the other half is up to you.

As corporate director of engineering for Buckley Broadcasting, Ray, who also writes about digital radio on page 45, got to do what a lot of us would love to: drive around town listening to his station's IBOC signal with one of the first commercial/consumer-type IBOC receivers available. Before the convention, Ray shared several WAV files made of off-the-air recordings of WOR(AM) in New York. The transition between the interference-riddled analog AM signal to the IBOC stream was breathtaking to those of us here who heard it.

It is enough to make you want to believe that IBOC will be the salvation of the AM band. But WOR is a well-maintained and technically superior facility with a big-market complement of studio and RF equipment.

What will happen when IBOC must be applied to those sadly neglected facilities that were "thrown in" with the sale of the FM? Or those marginal directional operations 30 miles out of town, run by absentee owners? All an IBOC signal will do is make a bad operation sound bad in digital.

We heard it 25 years ago as the difference in audio quality between the pristine satellite feed and the muddily sounding carts in the local carousel, and again in the mid-'80s when CDs were played between vinyl cuts.

Mismatched audio quality, upcuts, distortion, hum and inconsistent levels will not be cured just because "it's digital now."

Whether you own an AM or an FM, put plans into motion now for the arrival of IBOC. Clean up your audio path, rebuild your radials, get your technical and on-air staff on the same page and put some real effort into making your facility not only competitive, but IBOC-ready.

The new technology will be like a huge sonic magnifying glass, revealing every last bit of inadequate audio you put on the air. Listen now with your analog ears before the future gets here, because it may be too late when you get your digital ones.

— RW

Listening With Analog Ears

Who's on First?

In the Jan. 2 issue, there is a statement on page 2 that Dielectric planned to install "its first interleaved analog/HD Radio FM antenna" at WNNK(FM) Harrisburg, Pa.

Dielectric's Central Tower division installed what we believe was the first commercially manufactured interleaved transmitting antenna for HD Radio at our WYCT(FM) in January 2003. It is a Shively model 6810-8/5IAD.

*David E. Hoxeng
ADX Communications
WYCT(FM)/WBUB(AM)
Pensacola, Fla.*

Clear Channel Promotions

I just wanted to thank Leslie Stimson for such a nice article on the new RVPE structure ("Clear Channel Shuffles the Tech Deck," Jan. 14).

These guys work their butts off, and it's nice to see them getting some recognition.

*Jeff Littlejohn
Senior Vice President,
Engineering
Clear Channel Radio
Covington, Ky.*

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Radio World

Vol. 28, No. 10 May 5, 2004

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NEXT ISSUE OF RADIO WORLD MAY 19, 2004

For address changes, send current and new address to RW a month in advance at P.O. Box 1214, Falls Church, VA 22041. Unsolicited manuscripts are welcomed for review: send to the attention of the appropriate editor.

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Radio World (ISSN: 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Joanne Munroe, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966. Copyright 2004 by IMAS Publishing (USA), Inc. All rights reserved.

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