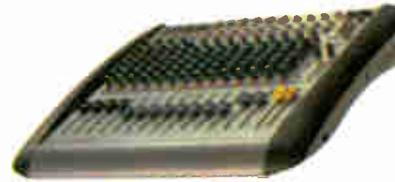


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The Newspaper for Radio Managers and Engineers

July 16, 2003

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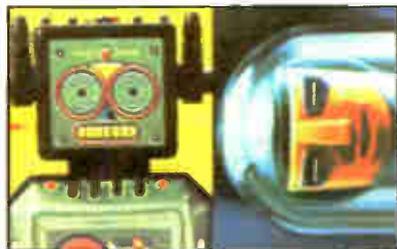
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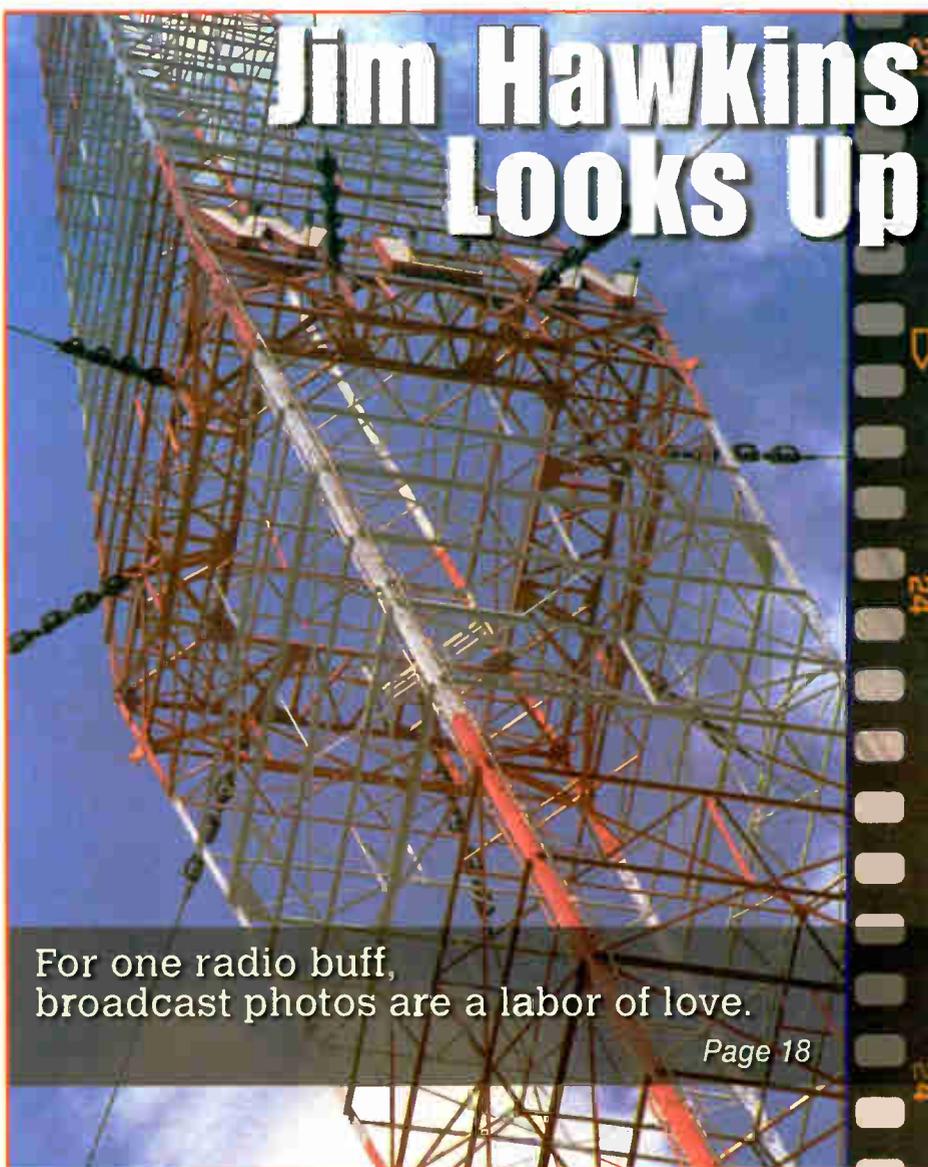
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Jim Hawkins Looks Up

For one radio buff, broadcast photos are a labor of love.

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Lawsuit Looms for Automation Suppliers

by Randy J. Stine

DALLAS There's a legal battle brewing over those familiar touchscreens — found in thousands of broadcast studios — that could eventually add to the cost of what broadcasters pay for the audio management systems.

Media Digital Corporation Inc. has filed a complaint in United States District Court for the Northern District of Texas alleging patent infringement by five broadcast equipment companies.

The plaintiff claims ENCO Systems, Radio Computing Services, Broadcast Electronics, Broadcast Software International/Cumulus and Prophet Systems Innovations/Clear Channel are selling touchscreen equipment with applications retained in a patent assigned to John Connell, formerly of MediaTouch, and now president of Media Digital.

The original patent application, titled "Computer TouchScreen Radio Station Control System," was filed with the U.S. Patent and Trademark Office in 1985. Several continuation applications were granted before the patent was issued in

See TOUCHSCREEN, page 5 ▶

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Congress Pushes Back

by Leslie Stimson

WASHINGTON A Senate panel swiftly rejected the FCC's media ownership rules in June, a sign of bipartisan anger over the new rules, critics of the changes say.

The committee's measure drew the ire of NAB and major radio groups, but praise from consumer groups.

The Senate Commerce Committee passed a bill to restore some media ownership rules relaxed by the FCC on June 2. The panel approved rolling back the TV audience cap to 35 percent and re-imposing a cross-ownership ban to prevent one entity from owning a newspaper and a TV or radio station in the same market.

The measure, introduced by Ranking

Minority Committee member Sen. Fritz Hollings of South Carolina and fellow Democrat Ted Stevens of Alaska, would allow cross-ownership in small markets in some cases.

NAB opposes the legislation although President/CEO Eddie Fritts said he was pleased that the committee voted to roll back the national TV cap to 35 percent.

"The bill also adopts provisions that reinstate the newspaper-broadcast cross-ownership ban and require radio companies to divest legally acquired stations. Consequently, NAB will strongly oppose this legislation."

Walt Disney's ABC quit NAB membership over the TV audience cap issue; see page 6.

An amendment by Chairman John McCain, R-Ariz., which passed the committee requires radio groups to divest stations in markets where the station count goes over limits under the new radio market definitions. The FCC had not required retroactive spin-offs.

"This is an attempt to single out one company for being successful and punish them for playing by the rules. All of these stations were legally acquired in accordance with the Telecommunications Act of 1996," said Clear Channel lobbyist Andy Levin.

"We are deeply disturbed that the committee would attempt to force companies to divest assets simply because it decides to change the rules in the middle of the game."

A second McCain amendment that passed clarifies that the commission may strengthen ownership rules during a review as well as relax them.

The measure went to the full Senate, where it faced an uncertain future. Hill analysts believe a companion House bill was even less likely to pass.

A spokesman for House Commerce Committee Chairman Billy Tauzin, R-La., said his boss does not intend to take up the bill.

Commissioner Michael Copps, who opposed the FCC's changes, urged fellow commissioners to defer to congressional action and stay its decision until Congress completes deliberations on media ownership.

The committee also acted on a measure sponsored by McCain to reauthorize the FCC.

McCain incorporated several ideas supported by commission Chairman Michael Powell on the media ownership rules. The measure would change how often the FCC reviews media ownership rules from every two years to every four years.

McCain also modified the review standard specifically to allow the agency to repeal, strengthen, limit or retain media ownership rules. Courts have found the current standard only lets the commission relax or eliminate the rules.

Powell praised the clarifications and stated they will make the FCC a more effective agency.

The bill to reauthorize the FCC also puts more teeth into the agency's ability to enforce its rules, by increasing fines and forfeitures by a factor of 10.

McCain said the commission sought the increase to ensure "communications providers do not simply accept fines as a 'cost of doing business.'"

Hollings attached an amendment to provide additional sanctions for the broadcast of obscene or indecent material.

Staff travel budgets would increase. The measure would prohibit a nongovernmental sponsor of a convention from paying travel expenses for agency officials and staff. McCain stated recent trips for FCC travel paid for by industry were legal and appropriate, but that such travel should be "without the appearance of impropriety."

The measure would reauthorize the agency through fiscal year 2008. The committee passed the bill in late June.

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Can Radio Get Rid of the Swish?

Organizations Seek to Minimize Coding and Transcoding Issues in an Increasingly Digital World

by Michael LeClair

Bit-reduced digital audio. How many times can it be compressed and decompressed to send it where it needs to be, without sacrificing quality?

It's a question National Public Radio has wrestled with for a while and seems on the verge of improving. Its programming and distribution partner, Sirius, is studying the issue.

Long before word came out in May that the standards-setting NRSC was questioning the performance of Ibiqity Digital's PAC codec for low bit rates, other radio organizations have been struggling with coding questions — in fact, they've done so for the past decade.

"Everybody should get over the fact that digital audio at rates below around 96 kilobits per second is CD-quality. The least objectionable audio is what we are going to have to live with at rates lower than 96 kbps."

So said Mark Kalman, vice president of Sirius' national broadcast studio, beginning a discussion about audio coding and transcoding issues for distribution and broadcasting during NPR's recent Public Radio Engineering Conference.

Sirius research

Kalman shared results obtained by Sirius, which uses the PAC audio encoder developed by Ibiqity Digital and statistical multiplexing, giving Sirius the ability to allocate data capacity intelligently across the range of audio streams, placing more data on channels with higher instantaneous demand. Sirius allocates approximately 60 kbps to a stereo music channel.

MP3 audio files, popular because they can be sent via e-mail, have been a particular source of audio problems.

"A major source of audio artifacts is noise in the original source material," Kalman said. He suggested that carefully pre-processing audio to remove all sources of noise, with gating or other techniques, can improve the delivered sound quality, removing much of the "swishy" noise associated with digital audio artifacts.

Sirius is conducting research into transcoding, the concatenation of audio coding in the distribution chain. The effects of multiple passes of audio coding have not yet been well documented, although examples of problems are well known and have been widely discussed in broadcasting.

Privately, some station engineers have complained about the audio quality of NPR programming on Sirius channels. Kalman said Sirius was not satisfied with the initial sound quality on these chan-

nels, but said some improvements had recently been completed.

The goal of the company's research is to identify which types of digital coding cause the most degradation of audio quality when run in tandem, so that these combinations can be avoided. Kalman also suggested that identifiers could be attached to digital audio files to inform subsequent audio processing about previous generations of audio coding, allowing them to adapt.

More processing equals worse audio.

— Mark Kalman

Finally, Kalman said audio dynamics processing and limiting have an adverse affect on low-bit rate coded audio. "More processing equals worse audio," he said.

Marty Bloss, director of distribution technology for National Public Radio, is developing the next-generation satellite distribution system that will replace one deployed in 1995. Through the use of non-real time distribution, "the new system may be able to eliminate some of the transcoding that currently exists in the satellite channel," said Bloss.

Complex path

To further demonstrate why the network is concerned about audio transcoding, Shawn Fox, engineering manager of NPR West, described how a typical digital audio file moves through the production system. Starting with the reporter,

audio is compressed at a 6:1 ratio when recorded on the standard MiniDisc format used by NPR.

In the Washington headquarters, this audio is converted to analog and compressed again as it is dubbed into NPR's desktop digital editing system. Depending on the number of edits a particular story must undergo, this analog conversion and digital compression can happen several times before the story is assembled for distribution to affiliates.

An additional 6:1 compression then is added via the satellite system. All of this occurs before the audio reaches an affiliate station, which may add further audio processing and digital compression of its own.

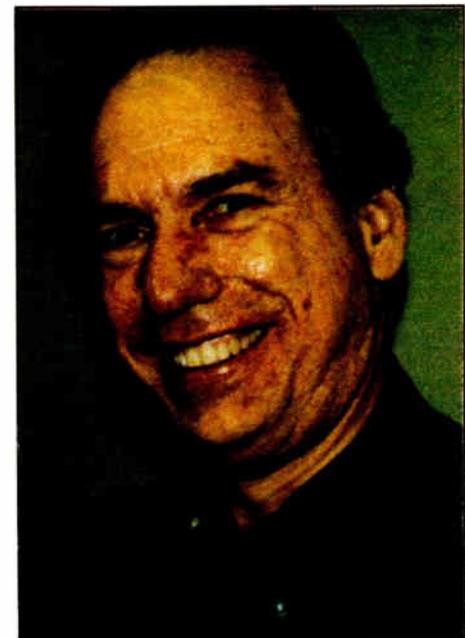
Fox said MP3 audio files, popular because they can be sent via e-mail easily, have been a particular source of audio problems.

Reducing the number of generations of analog conversions and digital compression is important, said Fox. But there also is a need to continue to educate program producers on how to avoid this problem at all stages of production.

Because most program producers have no means to test the final sound quality once it has been finally distributed, they often don't hear the problem until it is too late.

Better things ahead?

Program producers cannot detect the noise in their headphones while they're editing, said Fox, who described an



Mark Kalman of Sirius

had sounded okay. The issue is complicated and training is important, said Fox and other engineers at the session.

"IBOC is likely to make the problem worse since it adds another non-linear channel," said Fox.

Kalman believes the industry is only beginning to explore the limits of digital audio encoding.

"Digital audio encoding below 96 kbps is an art," said Kalman. As the technology progresses and more experience is gained with low bit rate digital audio, the hope is that improvements will continue. ●

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Cris and The Local Oscillator

A man for whom I have a great deal of respect is W.C. Alexander, a frequent contributor to Radio World and the director of engineering for Crawford Broadcasting.

When another trade publication recently named its "most admired engineers," I wasn't the least surprised that No. 1 on its list was Cris Alexander. (By the way, more than a third of the 30 members of that list have been featured in stories here in RW.)

One of the many things Cris does right as a manager is fostering communication with and among his staff. And one way he does it is to publish The Local Oscillator, the newsletter of Crawford Broadcasting corporate engineering.

It's a model for any radio manager who wants to do a better job keeping staff informed despite constraints of time and distance.

"We have been publishing The Local Oscillator for almost 14 years now," Cris told me. "It is published monthly to disseminate information of a technical nature to the engineers, producers,

managers and corporate management in our company as well as a few key vendors and industry figures."

The main goal is for the staff's engineers to learn from the experiences of others in the group.

"Most of our 31 stations have identical or very similar equipment complements, so a console problem in New York, for example, may have bearing on the same type of console in our L.A. station. Vendors and manufacturers can learn how we are using their equipment and understand problems we may be having. Frank Foti at Telos/Omnia, for example, is on the list and has been very responsive based on things he's seen in the newsletter."

Distributed via e-mail in PDF format, it is rich with useful information. It pools the knowledge and skills that already exist in the engineering department and presents it in a helpful way.

In June, for instance, Cris updated readers on the HD Radio situation after the "PAC Pause," with comments about what it meant for the company. Brian Cunningham

in western New York talked about the importance of checking ground systems, AM ball gaps and replacement fuse inventories. Art Reis in Chicago wrote of an ongoing HD Radio project at WPWX and gave a status report on several projects.

Stephen Poole in Alabama checked in to describe homemade suppressors for protecting phone lines against lightning. Tom Gardull in Detroit, John White in Portland, Rick Sewell in St. Louis, Ed Dulaney in Denver and Bill Agresta on Santa Catalina Island all offered tips, ideas, updates. Several included photos.

Perhaps most valuable of all, Cris offered reflections on the recent death of his father. He wrote of the "thinking, remembering and embracing" he did after his dad's death, and the "deep sense of responsibility for the legacy that I will leave my own children." Off-topic? Perhaps. Relevant? Absolutely.

Cris also maintains an e-mail list server titled TechTalk for the company's engineers to post problems and fixes.

The lesson here is that desktop publishing, digital cameras and e-mail are powerful and affordable tools that you can use to craft a communication channel specifically for the needs and interests of your staff. Cris writes most of the newsletter and puts it together with the aid of an assistant. Total circulation: about 75.

Will The Local Oscillator ever replace Radio World? I trust not; but if he keeps up his good work on it, he and I are going to have to have a little talk.

★ ★ ★

"Your RW NewsBytes is some of my best reading — many thanks!"

This nice note is from Steven Moravec of Phoenix Media Group in St. Paul, Minn. He reminds me to remind you that our print edition is but one part of the Radio World experience.

Thousands of your fellow readers receive a summary of the week's radio

From the Editor



Paul J. McLane

headlines every Friday morning in their e-mail boxes. It contains a quick overview of the week's news from the Radio World Web site, plus links to the stories. Best of all, it's free.

This is where we broke the story to the industry that the NRSC had put HD Radio standards-setting on hold. This is where we cover goings-on at the FCC and Capitol Hill here in our backyard, where we report on which companies are gobbling one another up and tell you about new products aimed at radio stations.

The weekly service is a great complement to your print edition, and it costs you zippo. Sign up at www.rwonline.com. And if you can't wait until Friday, check each day at the site for fresh news and updates.

★ ★ ★

Al Peterson, our comic savant extraordinaire, dropped me a note with a new industry acronym he thinks might catch on.

"I can't work it into a column fast enough, but you might find occasion to plug it into Page 4," he wrote. "OOMT, pronounced OOM-tee. It means Out Of Market Tracker, an announcer who voice-tracks a station in another city."

There you have it, the next buzzword. But if your local OOMT starts doling out Oompa-Loompas and talking about Charlie Bucket and Augustus Gloop, blame Al, not me. ☺

The winner of this week's prize is Chuck Conrad, general manager of low-power FM station KZQX in Chalk Hill, Texas (which is too small to have a post office, so it gets its mail in Kilgore).

He snags a Sony MZ-NF610 Net MD Walkman recorder from the super folks at Bradley Broadcast & Pro Audio.

This unit has a digital tuner that lets you keep up with the latest tracks when you're tired of hearing favorites. You can record and edit downloads and analog and digital tracks anywhere. A Tuner Remote allows access to the player's AM/FM/TV and Weather stations. A

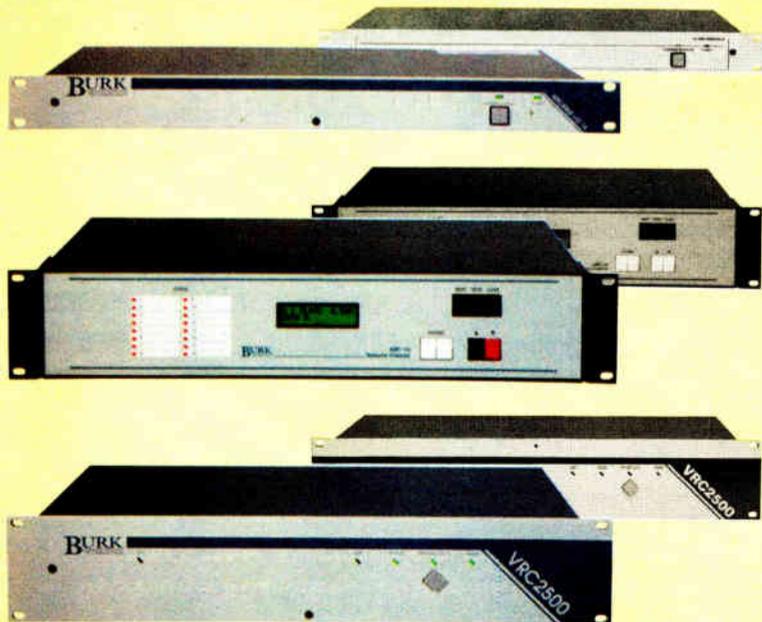
Remote Commander makes life even easier; you can slip the recorder into a pocket and control playback, radio and editing operations without removing it. Bradley adds a Kaces Gig Bag to store stuff along with five discs.

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Touchscreen

► Continued from page 1

2000 to Connell, who was part-owner of MediaTouch until approximately 1995.

Dennis Mills, Doug Cyr and Norman Buck are listed as co-inventors of the technology but are not named as plaintiffs in the complaint. All three worked for Professional Computer Group in Bangor, Maine, at the time, which owned 10 percent of MediaTouch, according to Connell.

Unstated cost

"They all signed releases at the time of the patent application. Since I had controlling interest of MediaTouch, I was listed as the assignee of record," Connell said. The other co-inventors could not be reached for comment for this article.

Connell is a 63-year old entrepreneur who founded MediaTouch in 1984. The former broadcast engineer declined to say how much the pursuit of the patent has cost him or how much he believes the alleged patent infringements by the suppliers have cost him over the years.

Connell was chief engineer at WEEI(AM) in Boston, then owned by CBS, when he conceived of the "touchscreen" concept for radio applications, he said.

"This was at a time when everything was still very experimental with PCs, networking, file transferring and sharing and managing audio files," he said. He left

WEEI in 1984 to start MediaTouch with the help of several minority investors.

The patent abstract describes the patent in part as "a computerized audio or video signal control system controlled by an announcer and having a display of the available signal sources and scheduled events which can be activated, mixed, faded and cued by the announcer in a scheduled order or in an order the announcer desires."

Claims contained in the patent refer to a "touchscreen means for displaying information and for receiving input information."

According to the original complaint, "Media Digital Corp. has been irreparably damaged to an extent not yet determined." The company is seeking unspecified monetary damages.

Media Digital Corp. is based in Salem, N.H. Attorney Edward Casto, the lawyer representing Media Digital, declined to

comment on the complaint.

Connell had assumed the patent application was never approved and did not know until 1999 that the patent was still considered to be on appeal with the Patent Office.

"This was a very long period of time from when I first filed it with the patent office. It had been rejected several times and lost by the patent office several times over the years," he said. "Several search-

mobile DJ entertainment industry. The company currently does not sell broadcast gear.

Contacted by Radio World for reaction, RCS, BE, ENCO Systems, BSI and Prophet Systems Innovations declined to comment.

Lawyers representing Connell and Media Digital sent a letter outlining their copyright infringement concerns to the five broadcast equipment companies asking for a response by June 6 to their request to work out a resolution without resorting to litigation. Without an adequate response, the letter states, "We will have no other choice but to serve the complaint and commence litigation."

Connell said the date for the automation suppliers to respond to the letter had been extended to July 8.

At least one supplier of touchscreen automation equipment has agreed to pay Media Digital a royalty for each touchscreen system it sells.

"We pay a \$300 fee for each touchscreen we sell," said Dave Scott, president of Scott Studios Corp. and its sister company, Computer Concepts Corp. "I also paid a \$50,000 retroactive fee."

Connell's lawyers contacted Scott Studios more than a year ago about the alleged patent infringement, Scott said. "Our equipment does not infringe upon the MDC patent, but we decided agreeing to the royalty fee was a less-expensive resolution. I still believe the patent is invalid."

A source familiar with the patent complaint said several other broadcast suppliers could receive letters from lawyers for Connell and Media Digital later this summer. 🌐

Media Digital Corp. has been irreparably damaged to an extent not yet determined.

— Media Digital Corp. complaint

es on the patent came up with nothing, including one by Ron Paley when his group bought MediaTouch in 1995. We eventually just ran out of money to keep pursuing it."

Connell said he had discussions with MediaTouch for nearly a year, beginning in 2000 when the patent was finally issued, to ensure he was legally able to go forward and enforce the patent.

"We had to be sure we could move ahead with this. It has been a very long and tedious process," he said.

Connell said Media Digital Corp. markets and sells touchscreen systems to the

Reporters Dish About Iraq War Experiences

"So many of my equipment pieces broke, I had to make stuff up."

He wasn't making up stories, though; he was improvising how to get his audio back to KGO(AM) in San Francisco. Greg Jarrett told the story to attendees at NAB's Service to America Summit during a discussion of the embedded reporting process in the Iraq war. Jarrett was embedded with a Marine expeditionary force and flying with a Marine helicopter squadron.

The correspondent filed 80 percent of his stories live because sand destroyed so much of his equipment, including two MiniDisc recorders. Jarrett ended up using what was supposed to be a back-up tape deck to record sound.

Moderator Gordon Peterson, an anchor at WUSA(TV) in Washington, said when he got into news, it was common for reporters to have military experience; but that's no longer true. Of the four embedded reporters on the panel, Jarrett and CBS News television reporter Bryon Pitts had covered conflicts before.

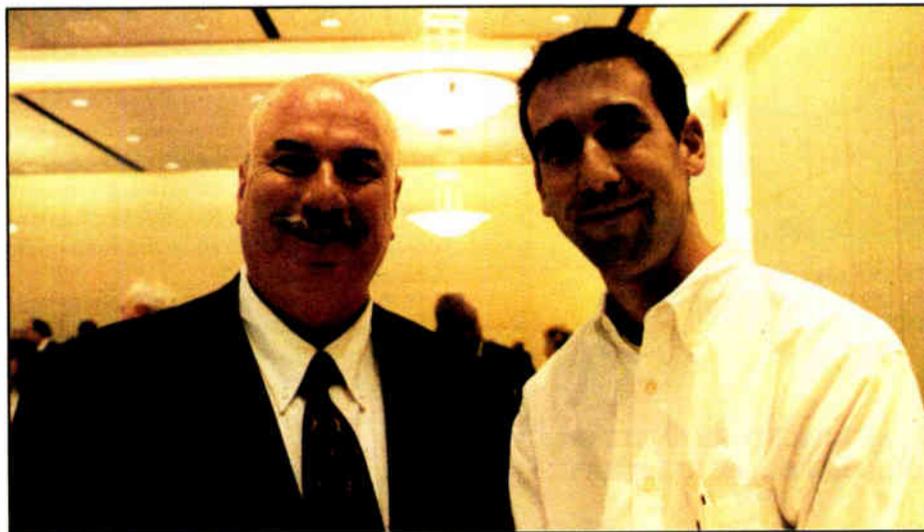
Aaron Katersky of KTRH(AM) in Houston, was embedded with a Marine fighter attack squadron. He said the Marines in his unit "took me on as a project." He said he tried to leave their "colorful" language intact in his reports.

Asked whether they felt used by the Pentagon, the reporters said they did not, but acknowledged that the embed experience gave them only a slice of the overall war picture. They said they also briefed military officers on each day's news events.

Pitts, who was embedded in Baghdad, said soldiers asked him two questions more than any other: what were the latest sports scores, and could they borrow his satellite phone to call home.

Several panelists said they relied on the Internet to e-mail their stories as audio files to their news desks.

— Leslie Stimson



Greg Jarrett of KGO(AM) in San Francisco and Aaron Katersky of KTRH(AM) in Houston were embedded with Marine units in Iraq.

StudioHub *on Location*

ABOVE: (L to R standing) Greg Bunce, PD and Alan Miller, Partner Manning Kimmel, Partner (sitting)

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StudioHub+ wiring installed by Technet Systems', (L to R) Lindsay Collins supervising engineer, Bob Smith, Mark Bisbee with Stu Albert, contract engineer (in white) in front of the newly installed Radio Systems' StudioHub Interconnect System.



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◆ NEWSWATCH ◆

NAB Changes Course on Exhibit Passes at Fall Show

WASHINGTON The NAB is dropping a policy change that had been vexing exhibitors in advance of the NAB Radio Show in Philadelphia.

Radio World Online reported in early June that the NAB had decided it would no longer supply unlimited free exhibits-only passes for suppliers to hand out. Instead, each exhibitor would be offered 20 "VIP Day Passes" for favored customers for one day each. It also planned to conduct sessions on two stages on the show floor.

In late June, however, representatives of the NAB Conventions Department held a conference call with 16 exhibitors.

"We are responding to their request to continue the previous Guest Pass program," a spokesman said. "The only change from the previous policy is that there will be an online form available for each exhibitor to customize for their guests, as opposed to a printed pass used previously."

He said the NAB also is removing one of the stages on the show floor and moving those sessions into the meeting rooms. "The remaining sessions on the show floor will be open to all show participants."

According to an e-mail sent to exhibitors, companies participating in the conference call included Radio Systems, Comrex, ENCO Systems, Harris, OMT Technologies, Logitek, Prophet Systems, Audemat, Ibiqity Digital, Arbitron, Energy-Onix, Staco, SAS, Robinson Media Group, Intertech Media and Family Net.

"Those who participated were very clear in their position that to limit Guest Passes would inhibit their ability to secure more visitors to the event, particularly since we are on the East Coast for the first time in many years," the NAB's e-mail stated. "We also learned that although radio exhibitors are interested in seeing conference attendees,

they are equally interested in seeing radio buyers who are engineers and might not be your typical conference attendee."

Several exhibitors expressed relief.

One vocal critic had been Radio Systems President Dan Braverman. "We had all of the important vendors rallied behind this cause; and the NAB was responsive, ultimately, in listening to our concerns and demands," he said. "We expect this to make a dramatic difference in the attendance and the ultimate success of the show."

Harris, Comrex, Prophet Systems and OMT Technologies were among companies that reacted with approval.

NAB Confident Despite ABC's Departure

NEW YORK Employees of ABC radio stations won't enjoy the benefits of NAB membership, thanks to a dispute involving TV ownership.

Walt Disney's ABC has pulled its TV and radio stations and its network from NAB membership, although ABC panelists will still take part in the fall NAB Radio Show.

ABC quit NAB over the TV 35 percent audience cap. NAB supports that figure; the TV networks want the cap eliminated. The FCC recently raised the cap to 45 percent.

Despite the loss of roughly 60 ABC radio stations, NAB still has more than 7,400 radio members.

"We regret ABC chose to leave NAB over the 35 percent TV cap, which has been a long-held position by NAB," said spokesman Dennis Wharton. He said the association would remain effective as a lobbying organization and has support from both members and non-members on recent legislative battles.

CBS/Infinity left NAB in 2001, while NBC and Fox left in 2000 over the same issue.

Wharton said ABC left NAB member-

ship once before, in the early 1990s, over a cable ownership issue, then returned.

ABC Radio personalities Sean Hannity and John Walsh will participate in the fall convention. "NAB and ABC Radio plan to honor our agreements and to move forward with plans as promoted for The NAB Radio Show in Philadelphia," stated NAB EVP/Radio John David.

Haskey's Firm To Close

MESA, Ariz. Western Wireless Works will close. Founder and owner Richard Haskey died in June and his family made the decision to dissolve the company.

Haskey died of "accelerated natural causes," said company spokesman Peter Costantino. Haskey had been hospitalized for about a month.

Beginning in the 1960s, he was a telecommunications and broadcast consultant who also bought and sold new and used equipment. He later moved into studio and transmitter work, RF measurement equipment and custom audio design.

"He had a very big heart and was a gentle person," said Costantino, a technician who worked with Haskey until his death.

Digigram Restructures U.S. Ops

ARLINGTON, Va. Supervision of U.S.-based Digigram Inc. will be handled by Digigram S.A. Managing Director Philippe Delacroix in France, who assumes the title of president for Digigram Inc.

The changes come after the departure of Digigram Inc. President Neil Glassman, who had helped the parent company launch its North American presence.

A spokesman said there would be no other change in current staff. The U.S. sales staff of James Lamb and George Butts will be headed by Miranda Hageman-van de Pol, recently appointed sales and communi-

cations director for Digigram S.A. She also will manage some key U.S. accounts.

Hageman-van de Pol and Digigram S.A. Communications Manager Frank Seidel will manage communications.

Glassman stepped down as president in June after six years. The company and Glassman issued a joint statement announcing his decision.

"My goals when I started with Digigram were to establish the company in North America, build its reputation and hire a superlative staff," he stated. "I feel confident that all of those objectives were accomplished."

Glassman planned to rejoin the marketing communications company he and Cate Cowan created earlier. Glassman also is familiar to the radio industry from past stints with Radio Systems and Bradley Broadcast Sales.

FCC Pulls More Peninsula Licenses

WASHINGTON The FCC has revoked licenses held by Peninsula Communications in Alaska for full-power stations KWVV(FM) in Homer and KPEN(FM) in Soldotna.

This case stemmed from an earlier action in which the agency revoked the licenses for seven FM translators that were effectively operating as full-power stations and it said Peninsula continued to operate them after the licenses were revoked.

The latest decision was to determine whether Peninsula should lose the remainder of its licenses. While taking away the two, the FCC decided not to revoke Peninsula's additional licenses for KGTL(AM), Homer and KXBA(FM), Nikiski and three FM translators.

AP to Leave Rockefeller Center

NEW YORK The Associated Press will move its headquarters from Rockefeller Center to larger offices on the West Side of Manhattan next year. The organization said it would consolidate four New York news and management operations under one roof.

AP will occupy the top three floors of a 16-story building at 450 W. 33rd St., west of Madison Square Garden and Penn Station, under a 15-year lease. That building also houses news and business offices of the New York Daily News, New York offices of U.S. News and World Report and public TV station WNET.

"AP's current lease, in the building at 50 Rockefeller Plaza that has borne its name for 65 years, expires in September 2004," the company stated.

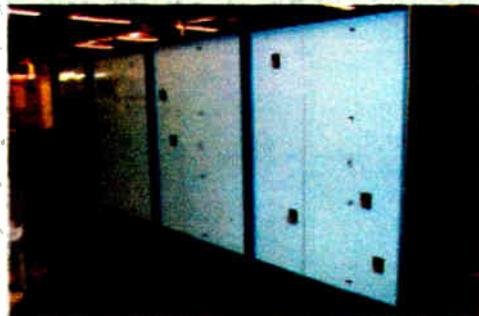
As attractions of the new facility, it cited "bigger, more open floors and high ceilings" for AP's television, radio, text, image and multimedia services. AP also said it would have incurred a "substantial" rent increase at Rockefeller Center if it had stayed. It moved to the Rockefeller Center site in 1938.

More history from the AP statement: "It will be AP's sixth New York City headquarters. The cooperative first opened its doors in 1848 at 150 Broadway, near where the World Trade Center would rise more than a century later. Only one of those earlier buildings survives today, an ornate 19th-century structure on Chambers Street facing the back of City Hall. AP had its headquarters there from 1913 to 1924."

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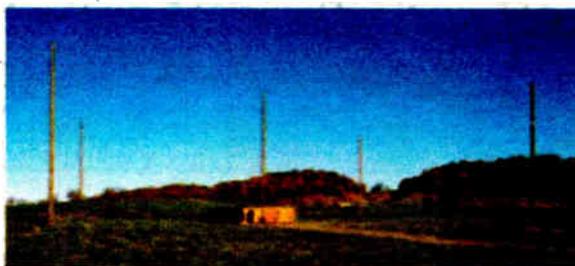


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DIGITAL NEWS

DRM Launches Big

GENEVA Many shortwave and long-wave international broadcasters — including Voice of America — are going digital. The Digital Radio Mondiale consortium launched its digital service during the World Radiocommunication Conference in Geneva.

DRM is a digital technology that uses existing spectrum for frequencies below 30 MHz, including long-wave, medium-wave/AM and shortwave.

The initial signals were transmitted from a mountain in France. Simultaneously, shortwave broadcasters started using digital transmitters in other parts of the world. Transmissions received at the launch celebration featured voices in Chinese, French, English, German, Russian and Spanish, followed by music.

Broadcasts will be aimed at Europe, North America, the Middle East, Australia and New Zealand. The BBC, Voice of America, Deutsche Welle, DeutschlandRadio, Radio Netherlands, Radio Canada International, Radio France International, and Swedish Radio were among the first stations to commit to the June 16 inaugural broadcast date. They have pledged to continue the DRM transmissions indefinitely.

Digital Radio Mondiale uses aacPlus as its codec.

Coding Technologies GmbH said production of a second-generation, DRM-capable, world-band receiver is underway for distribution in late 2003. Further commercial DRM-capable receivers should become available in stores within two to three years.

48 Million Satellite Subscribers Predicted

ANN ARBOR, Mich. SkyWaves Research Report, a research publication, projects that the two satellite radio broadcasters will share as many as 48 million subscribers by 2012.

The study found that even a “minimum growth” scenario gives Sirius and XM Satellite Radio 29.7 million subscribers by 2012. SkyWaves Research predicted a combined total subscriber count of nearly 800,000 subscribers by June 30 of this year and at least 1.5 million by the end of this year.

Separately, in June Sirius said it had passed 100,000 subscribers; XM reported more than 600,000.

Lawmakers Concerned About Local XM

WASHINGTON House Commerce Committee Chairman Rep. Billy Tauzin, R-La. and Rep. Gene Green, D-Texas, have restated concerns first expressed a year ago suggesting that XM Satellite Radio disclose its plans for offering localized programming in markets where it seeks permanent terrestrial repeater licenses. The NAB has been vocal on this topic.

“Our concern regarding permanent licenses has significantly increased with the recent announcement by XM of a new service that would transmit localized weather programming to marine, aviation and emergency subscribers,” state the lawmakers in a letter to FCC Chairman Michael Powell.

“It is clear that nothing now stops XM from taking this a step further and offer-

ing local programming in the terrestrial radio market to hundreds of thousands of automobile subscribers.”

Tauzin and Green believe final repeater licenses should prohibit XM from using the devices to carry local programming, as the current temporary authorizations do.

XM says the weather service is national and that the satcaster continues to comply with FCC rules. The Next Generation Radar Weather Information Service is available for about \$49 per month in addition to an XM subscription). It’s marketed to pilots, boaters or emergency personnel who can load the weather program on their laptops and carry the devices with them, so they can see weather graphics and receive regional information, a spokesman said.



DRM Chairman Peter Senger used his cell phone to call engineers at a nearby transmitter site in Mount Saleve, France. Once he got the all-clear that DRM signals were coming through live, the audience in Geneva counted down and DRM officially began.

FreeDom

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When Dom Deluise drops in weekly on the Carey Brothers' home improvement radio show, On The House, all three sound like they're broadcasting from the same studio. Listeners have no idea that the Careys are in their state-of-the-art studio while Dom is sitting in the comfort of his home, hundreds of miles apart. Since they use Comrex's high-quality, low-delay, Turbo Codecs on ISDN, they do not have to deal with the awkward pauses created by standard MPEG feeds...particularly with multiple hops.

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STATJS REPORT

Stay Tuned for End to HD Radio Pause

by Leslie Stimson

Several sources close to HD Radio development say Ibiquity Digital Corp. is close to a decision on whether it will change codecs — and that the industry should know something more definitive by the end of this month.

Broadcast sources said the company is pursuing parallel paths, still working on improving the performance of its Perceptual Audio Coder at low bit rates, yet also running tests to compare its system using both PAC and aacPlus compression algorithms. Some of these sources presumed the company was trying to reach a licensing agreement with Coding Technologies over the use of aacPlus.

Observers differed over whether Ibiquity and Coding Technologies could reach an agreement that made business sense for both companies. Even if they did, said observers, unknown at press time was how dropping in a new codec might affect the transmission and receive ends of the HD Radio system, and how long it might take to work out any glitches that might occur along the way.

Status quo

Ibiquity would not comment on the rumors. A spokeswoman said the company continued to work on a software fix for the AM audio quality. "We have nothing to announce now."

When Ibiquity does decide to go public with what path it has chosen to pursue, it must inform the DAB Subcommittee of the National Radio Systems Committee. In May, the group's steering committee temporarily suspended standards-setting activities for Ibiquity's AM and FM system. The group doesn't believe PAC on AM at 36 kbps is suitable for broadcast and has questions about its performance at intermediate levels below 96 kbps for FM.

NRSC Spokesman John Marino, vice president, NAB Science and Technology, said, "We have no new information on the future of PAC — whether Ibiquity is continuing to work on improvements to PAC, or whether they intend to implement another codec."

Once Ibiquity makes a decision, Marino said, "It's up to them to prove they've fixed the problems at low bit rates. ... They have to prove they've fixed the problem to the satisfaction of the NRSC."

There would be more steps with the NRSC after that.

"If they do switch, or if they tweak PAC, they would have to come back to the working group with another series of

See IBOC, page 10 ►

GUEST COMMENTARY

HD Radio Data Poised to Explode?

Ibiquity Touts HD-BML as the Foundation For Next-Generation Radio Services

by Joseph D'Angelo

The author is director of wireless data business development for Ibiquity Digital Corp. RW welcomes other points of view.

Equally important to the significantly enhanced sound quality that HD Radio delivers are the benefits offered by its wireless data capabilities. With the adoption of HD Radio technology, broadcasters will be able to introduce a variety of new offerings, such as text and graphics-based information, secondary or on-demand services, interactive audio programming and, ultimately, nearly any service containing audio, text, graphic or video components.

Getting to consumers

These capabilities will be critical to the future of radio broadcasters and their advertisers, and they will also prove compelling to a variety of third-party service providers and products, such as telematics. This is due to radio's relatively low-cost delivery model — free to the end user — and ubiquitous coverage blanketing nearly all of the United States.

The arrival of this technology creates a broad universe of potential contributors of content and applications to HD Radio stations, which raises the subsequent need to develop common conventions to ensure interoperability among all of these sources.

At the simplest level, systems are needed to ensure that any type of audio track can be used to reliably trigger graphical displays while also accounting for the disparity in screen formats available in different receiver models and other electronics devices that may be used to display these materials.

The introduction of richer media and more-elaborate programming and applications only increases these challenges. While today's ability to deliver program and non-program associated data as text can be met by ID3 — a widely used, basic tagging protocol — these next-generation approaches require a more-powerful solution.

In order to address these issues, Ibiquity Digital has joined with its industry partners in the development of the HD Radio Broadcast Multimedia Language, or HD BML.

HD BML leverages the SMIL (pronounced "smile") or Synchronized Multimedia Integration Language. This is the World Wide Web Consortium's endorsed, XML-based standard that has been used since 1998 to ensure the interoperability and consistent display of multimedia programming on the web.

If you've experienced an interactive, synchronized online presentation using graph-

ics, text and streaming video simultaneously, you've probably experienced SMIL. HD BML plays a similar role for HD Radio.

The decision to use SMIL as the basis for HD BML reflects a variety of benefits. First and most important, SMIL has achieved widespread adoption and support from industry heavyweights like Apple, IBM, Microsoft, Panasonic, Philips and Real Networks.

taking advantage of new and emerging opportunities that can be addressed by HD Radio's wireless data capabilities.

At the same time, Ibiquity also is heavily involved in the creation of new Application Program Interfaces that allow third-party applications to integrate with HD Radio exciter and receivers.

For example, Accuweather might take advantage of the Services API in the real-time delivery of updated weather via HD Radio broadcasts, while an on-board telematics system from Delphi or Visteon



A mock-up of a next-generation Visteon receiver shows how listeners will be able to control what they hear and when they hear it using the data capabilities of HD Radio.

SMIL has been employed in a number of implementations that extend beyond the Web, including cellular communications and such radio-focused applications as satellite broadcasting, FM subcarriers and Eureka-147, a European version of digital radio. SMIL also provides the foundation for DAISY, the Digital Accessible System, which is the worldwide standard for reading services for the visually impaired.

In addition, SMIL is a low-cost, royalty-free approach that uses open source intellectual property. With an army of developers having used it over the past five years, it has gained widespread access to trained programmers. Finally, its modular structure allows for modifications and the creation of new extensions to meet the needs of radio broadcasters.

Following several years of meetings that secured input from about 100 organizations, this spring, Ibiquity released the initial draft definition of HD BML for industry comment (to see the document, go to Ibiquity's Web site, www.ibiquity.com). We will continue to refine the standard based on the feedback we receive before the formal endorsement and final release.

While this process will produce the foundation for the use of wireless data in HD Radio applications, it is only the beginning, as we expect to continually work with the industry to upgrade the standard as needed,

could use the Data Client API to pull information from the receiver in determining alternative routing.

Like HD BML, the draft definitions for the Services and Data Client APIs are scheduled for a July release. Ibiquity expects to release the first formal versions of these protocols in October.

Where this leaves us today is with great digital sound across the AM and FM dials with ID3 being used to deliver text-based messaging independently as program-associated data. However, in the near future, broadcasters will be able to leverage HD BML in the introduction of a variety of new services that will redefine radio.

These standards will not only be key to the display of advanced graphical programming, but they will also enable time-shifting or on-demand audio as well as the delivery of secondary audio programming. We will no longer be bound to the traditional limitations of radio as broadcasters can take advantage of their low-cost, wide coverage model to offer data to a variety of devices.

At the same time, stations can benefit from the broader universe of content and application providers that they can access through the use of a common standard shared with the rest of the media world. 🌐

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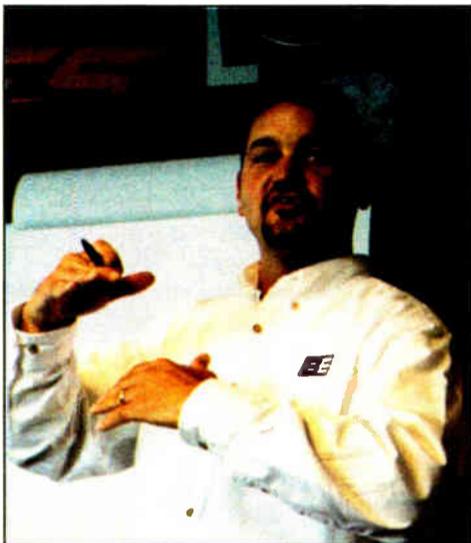
* Fine Print: Free Omnia-3 Offer expires August 31, 2003. Trade-in processor must be removed from main or current backup use, and be in serviceable condition – inoperable systems will not qualify. Trade-in must be authorized by Omnia Support or Sales Return Authorization number, shipment pre-paid. Offer cannot be combined with any previous or existing Omnia offer. For complete set of rules, conditions and qualifying processors see omniaaudio.com/upgrade or call (216) 241-7225

BE Takes HD Radio Training on the Road

LANHAM, Md. Transmission possibilities interested the engineers who attended an HD Radio training session sponsored by Broadcast Electronics in suburban Washington in June.

BE's Director of RF Engineering Richard Hinkle detailed three transmission implementation options for HD Radio: separate amplification (high-level combined), separate amplification (separate antennas) and common amplification (low-level combined).

In high-level combining, separate exciters and power amplifiers generate the analog FM and digital IBOC signals. Typically, a station's existing transmission equipment generates the analog and a new IBOC exciter and power amplifier are added, as well as a combiner, to combine the output of the transmitters before the signals reach the antenna system.



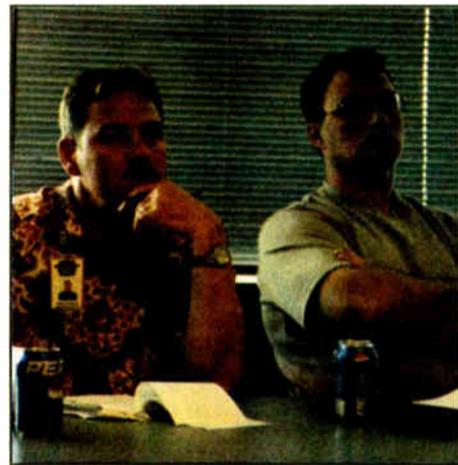
Richard Hinkle details a point about facility conversion to engineers attending an HD Radio training session at Infinity stations WPGC(AM-FM) and WHFS(FM) in Lanham, Md.

Yet with this method, 90 percent of the digital and about 11 percent of the analog output go into a reject load. "That's why people are looking at different antenna options," said Hinkle.

An ad hoc NAB antenna group has been developing criteria under which it hopes the FCC would approve the use of separate antennas. If approved, broadcasters would still need to apply for Special Temporary Authority for this type of implementation. However, maintaining coverage and power levels using separate antennas "may be more efficient," Hinkle said.

Electronics Research Inc. Director of Worldwide Sales Marty Sacks discussed master FM antenna system conversions and other antenna projects.

"Some of our existing multiple-station antenna clients are interested in a technique that we have developed to



Jim Bowman, left, and Jeff Koscho, electronics instructors at the Defense Information School in Fort Meade, Md., listen to HD Radio training.

simultaneously feed analog and IBOC signals into their existing ERI 1080 series panel antennas," he said. "This method allows them to use one antenna for both signals for optimal performance and is also very efficient in terms of transmitter power and tower loading."

Broadcast Electronics has sponsored about 23 HD Radio training sessions over the past 20 months. The next is slated for Lincoln, Neb., on Aug. 14. For information, contact BE National Accounts Manager John Abdnour at jabdour@bdcast.com.

— Leslie Stimson

IBOC

► Continued from page 8

audio test results," said Milford Smith, chairman of the NRSC DAB Subcommittee. "It was always in the evaluation plan, they'd have to re-run the tests (with the final codec), to make sure changing the algorithm has not negatively impacted the audio system."

Ibiquity continued to work on AM nighttime interference studies in June. The technology developer met with another ad hoc NAB committee to review test results from two studies: computer modeling to predict groundwave interference at night on AM and field tests on AMs WLW in Cincinnati and WOR in New York to study skywaves.

Ibiquity Vice President and General Counsel Al Shuldiner said the computer

If they have an auxiliary antenna and transmitter that meet the criteria, they could just plug in an IBOC transmitter and go with it.

— NAB's John Marino

He said the format of the test has already been developed by the NRSC. The standards-setting body would be looking for Ibiquity to have the tests done with an NRSC observer. Smith said such new tests could be conducted and evaluated by the NRSC "in a relatively short period of time."

Antenna options explored

Meanwhile, an ad hoc NAB group working on antenna solutions for HD Radio was close to filing a letter with the FCC in late June to request approval for the so-called dual antenna transmission implementation for FM stations using HD Radio. Marino said stations would still need to request Special Temporary Authority for this antenna scheme, but they would not need to purchase a combiner nor modify their transmission system.

"If they have an auxiliary antenna and transmitter that meet the criteria, they could just plug in an IBOC transmitter and go with it."

In its interim authorization for HD Radio, the FCC allowed only certified single antenna implementations.

Marino believes the FCC would approve the concept. NAB planned to submit test data to the commission to support its premise.

"It will help these stations get on air quickly," he said.

modeling report is complete and Ibiquity was still working on the field test report. "They want to see the whole package before they do anything," he said of the committee. Ibiquity hopes to have that work completed by the end of this month.

The pause in standards setting has been felt at the FCC, where notifications for stations converting to HD Radio has dropped off, said a staffer. (See our station conversion list on page 12.)

Other companies have taken advantage of the pause in HD Radio standards setting to publicize their technologies.

APT is looking for stations in the U.S. willing to use its apt-X compression algorithm to "enhance" their analog and digital audio if they use HD Radio technology. Spokesman Jon McClintock said, "We think apt-X has a place in the broadcast chain."

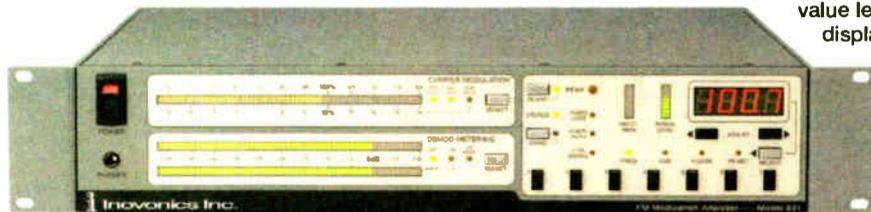
Some radio groups in the U.K. that have implemented Eureka-147 use apt-X as their codec. McClintock said apt-X should be used farther up the chain than PAC, before the signal reaches the transmitter. "We don't want to compete against Ibiquity. We want to complement them."

Since apt-X uses adaptive differential pulse code modulation, he said, it's not a psychoacoustic masking algorithm, and therefore less destructive to the audio, he said. 🌐

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Symphony Goes Interactive

by Leslie Stimson

AUSTIN, Texas Having gone public with its Symphony Digital Radio project last fall, Motorola now says some versions of the digitally-processed analog radio will be interactive.

After-market versions of the radio are due in the fourth quarter of the year, and original equipment in-dash versions will come next year, said John Hansen, director of marketing, driver information systems, for Motorola.

Some radio groups, including Clear Channel, are interested in the concept.

Motorola estimates its Symphony radios would cost approximately \$20 more than current analog radios at retail. Motorola says the radio will sound better for a longer period of time before losing the signal than current analog radios, for a fraction of the cost of an HD Radio and minimal cost to stations.

get a few pennies off what's sold," said Christensen. Stations can use the technology to send information to their loyal listeners via a station Web site or text messages delivered to listeners' cell phones and further develop those relationships, he said.

Stratos Audio makes money from the distribution of content; Stratos Audio and stations split the revenue from anything the consumer buys. Motorola will sell Symphony chips to receiver manufacturers.

"We see interactive advertising as a real potential for revenue" with real-time demographic and reporting services that would be interested in the purchase information, said Christensen.

The premise is similar to what Arbitron wants to accomplish with its Portable People Meter, he said, but not as broad as Arbitron's scope because the audience research company is trying to track listening for every station in a market. Symphony, on the other hand, would

HD Radio Scorecard (Sorted by State)

Stations with one asterisk (*) have special temporary authority to broadcast HD Radio; two asterisks (**) are confirmed on the air. Additions or changes in status since May are in bold. Some without asterisks may be on with experimental authorization/limited testing. Others have ordered equipment or indicated a commitment to HD-R. Note, the FCC is moving to a notification-based procedure. List is partial. Are you on? E-mail us to radioworld@imaspub.com.

Call Letters	State	Market	Frequency	Owner
AM				
WJLD ***	AL	Birmingham	1400	Richardson B'csting
KCBS *	CA	San Francisco	740	Infinity
KNX *	CA	Los Angeles	1070	Infinity B'csting
KTNQ	CA	Los Angeles	1020	Hispanic B'csting
KNRC	CO	Denver	1150	Newspaper Radio Corp.
WHSR	FL	W. Palm Beach	980	Beasley
WJNA *	FL	Royal Palm Beach	640	S. Florida Radio
WKAT *	FL	N. Miami	1360	Spanish Media B'csting
WQBA	FL	Miami	1140	Hispanic B'csting
WRHB *	FL	Kendall	1020	New World B'csting
WRHC	FL	Miami	1550	WRHC Management
WWEE	FL	Miami	670	Fenix
WWNN *	FL	Pompano Beach	1470	Beasley Broadcast
WSB ***	GA	Atlanta	750	Cox
KMRY	IA	Cedar Rapids	1450	Sellers B'csting
WIND	IL	Chicago	560	Hispanic B'csting
WIL0 **	IN	Frankfort	1570	Kasper B'csting
WOW0 *	IN	Ft. Wayne	1190	Federated Media
WBZ *	MA	Boston	1030	Infinity B'csting
WWIN	MD	Baltimore	1400	Radio One
WCHB **	MI	Detroit	1200	Radio One
WWJ *	MI	Detroit	950	Infinity B'csting
WTWZ *	MS	Clinton	1120	Wood B'csting
WCCT *	NJ	New Brunswick	1450	Sentinel Publishing
WMTR *	NJ	Morristown	1250	Sentinel Publishing
WTRT *	NJ	Bridgewater	1170	Sentinel Publishing
KXNT *	NV	N. Las Vegas	840	Infinity B'csting
WADO	NY	New York	1280	Hispanic B'csting
WOLF ***	NY	Syracuse	1490	Wolf Radio
WOR **	NY	New York	710	Buckley
WRMR *	OH	Cleveland	1420	Cleveland Classical
WSAI	OH	Cincinnati	1530	Clear Channel
WPEN *	PA	Philadelphia	950	Greater Philadelphia Radio
WWDB	PA	Philadelphia	860	Beasley
KOAL *	UT	Price, Utah	750	Eastern Utah B'csting
WKDL ***	VA	Alexandria	730	Mega Communications
WXGI	VA	Richmond	950	Gee Communications
WTMJ *	WI	Milwaukee	620	Journal Broadcast
FM				
KCPB	CA	Thousand Oaks	91.1	Univ. of So. Cal.
KDFC ***	CA	San Francisco	102.1	Bonneville
KFAC	CA	Santa Barbara	88.7	Univ. of So. Cal.
KFOG	CA	San Francisco	104.5	Susquehanna
KIIS	CA	Los Angeles	102.7	Clear Channel
KKBT *	CA	Los Angeles	100.3	Radio One
KKDV *	CA	San Francisco	95.7	Bonneville
KKJZ	CA	Los Angeles	88.1	Cal State Univ/Long Beach
KKSF	CA	San Francisco	103.7	Clear Channel
KLVE	CA	Los Angeles	107.5	Hispanic B'csting
KOIT *	CA	San Francisco	96.5	Bonneville
KOST	CA	Los Angeles	103.5	Clear Channel
KPSC	CA	Palm Springs	88.5	Univ. of So. Cal.
KROQ ***	CA	Pasadena	106.7	Infinity B'csting
KSAN	CA	San Francisco	107.7	Susquehanna
KSOL	CA	San Francisco	105.7	Hispanic B'csting
KUSC	CA	Los Angeles	91.5	Univ. of So. Cal.
KLOW	CA	Seattle	94.9	Univ. of Washington
KYLD	CA	San Francisco	94.9	Clear Channel
WEDR	FL	Miami	99.1	Cox
WFLC	FL	Miami	97.3	Cox
WHQT	FL	Miami	105.1	Cox
WKIS *	FL	Boca Raton	99.9	Beasley Broadcast
WPYM	FL	Miami	93.1	Cox
WRMA *	FL	Miami	106.7	Spanish B'csting
WRTO	FL	Miami	98.3	Hispanic B'csting
WUSF ***	FL	Tampa	89.7	Univ. of So Fla.
WALR ***	GA	Atlanta	104.1	Cox
WBTS ***	GA	Atlanta	95.5	Cox
WFOX ***	GA	Atlanta	97.1	Cox
WHTA	GA	Atlanta/Hampton	107.9	Radio One
WSB ***	GA	Atlanta	98.5	Cox
KZIA *	IA	Cedar Rapids	102.9	KZIA Inc.
WBEZ *	IL	Chicago	91.5	WBEZ Alliance
WDRV *	IL	Chicago	97.1	Bonneville
WNUA **	IL	Chicago	95.5	Clear Channel
WOJO	IL	Chicago	105.1	Hispanic B'csting
WPWX	IL	Chicago	92.3	Crawford B'csting
WTMX *	IL	Skokie	101.9	Bonneville
WUSN *	IL	Chicago	99.5	Infinity B'csting
WVAZ **	IL	Chicago	102.7	Clear Channel
WSHW **	IN	Frankfort	99.7	Kasper B'csting
WASE ***	KY	Elizabethtown	103.5	W&B B'csting
WAAF *	MA	Boston/Worcester	107.3	Entercom
WBOS *	MA	Brookline	92.9	Greater Boston Radio
WBOT	MA	Boston/Brockton	97.7	Radio One
WKLB *	MA	Lowell	99.5	Greater Boston Radio
WMJX	MA	Boston	106.7	Greater Media
WQSX ***	MA	Lawrence/Boston	93.7	Entercom
WROR *	MA	Framingham	105.7	Greater Washington Radio
WTKK *	MA	Boston	96.9	Greater Boston Radio
WDMK ***	MI	Detroit	102.7	Radio One
WDTW	MI	Detroit	106.7	Clear Channel
WMGC ***	MI	Detroit	105.1	Greater Boston Radio
WRIF	MI	Detroit	101.1	Greater Media
WCSX *	MS	Birmingham	94.7	Greater Boston Radio
WRAL ***	NC	Raleigh	101.5	Capitol
WDHA	NJ	Dover	105.5	Greater Media
WJRZ	NJ	Manahawkin	100.1	Greater Media
WMGQ *	NJ	New Brunswick	98.3	Sentinel Publishing
WRAT	NJ	Pt. Pleasant	95.9	Greater Media
WCAA	NY	New York	105.9	Hispanic B'csting
WNEW *	NY	New York	102.7	Infinity B'csting
WCLV	OH	Cleveland	104.9	Cleveland Classical
WNWV ***	OH	Elyria/Cleveland	107.3	Elyria-Lorian B'csting
WYGY **	OH	Cincinnati	96.5	Susquehanna
WMGK *	PA	Philadelphia	102.9	Greater Philadelphia Radio
WMMR	PA	Philadelphia	93.3	Greater Media
WMWX *	PA	Philadelphia	95.7	Greater Philadelphia Radio
WFID *	PR	Rio Piedras	95.7	Madifidie
WIVA *	PR	Aguadilla	100.3	Arso Radio Corp.
WPRM *	PR	San Juan	98.5	Arso Radio Corp.
WZAR *	PR	Ponce	101.9	Uno Radio of Ponce
KSOC	TX	Dallas/Gainesville	94.5	Radio One
KBKS *	WA	Tacoma	106.1	Infinity B'csting
KBSG	WA	Seattle	97.3	Entercom
KISW	WA	Seattle	99.9	Entercom
KMTT	WA	Seattle	103.7	Entercom
KNDD	WA	Seattle	107.7	Entercom
KQBZ	WA	Seattle	100.7	Entercom
WKWS ***	WV	Charleston	96.1	W.Va. Radio Corp.
WVAF	WV	Charleston	99.9	W.Va. Radio Corp.
WVAQ **	WV	Morgantown	101.9	W.Va. Radio Corp.

Listener Response



History Mode

Button Press

Return Channel:
Wireless Network

Some Symphony Digital Radios will have interactive capabilities.

Symphony uses digital signal processors to filter and improve signal reception in place of analog circuits. The radio combines the DSPs with an RF front end and intermediate-frequency analog interface.

The resurgence of RBDS

Motorola is pairing its Symphony Digital Radio chipset with capabilities from StratosAudio and Hyundai Autonet. They hope to demonstrate by September what they say is a competitively priced interactive receiver and broadcast system with content identification and one-button purchase capabilities.

Features the three companies are developing include real-time response, purchase and digital download of on-air events.

Kelly Christensen of Stratos Audio said, "We're incorporating Stratos Audio Software on a Symphony chip. We're essentially using RBDS on a return channel using wireless networks," so a company contacted by a listener can communicate with that listener and complete a purchase.

To be involved with the project, stations would need specialized software loaded into a radio data system/radio broadcast data system encoder at their facilities so their FM subcarriers could carry the data to the receivers. In exchange for providing the free software, Stratos Audio and Motorola ask the stations to promote the service on-air.

Stations would not receive lease income under the Symphony plan. This begs the question: Why would stations adopt it and how would they make money on it?

"The broadcaster is sending out the information on their subcarrier. They can

track purchases or requests for information for some individual radios tuned to participating stations.

For example, with Symphony, there is the potential to track how listeners at certain stations are responding to promotions or ads. "We can track how often they pushed the button, and did they buy it or not," said Hansen.

The StratosAudio Broadcast Management Software is designed to deliver a real-time playlist data feed to the RDS encoder for identification of on-air content in addition to data population of the station Web site, mobile devices such as cell phones and interactive Symphony digital radio receivers.

One large broadcaster, at least, is interested.

"We are intrigued by the marriage of Motorola Symphony digital radio's enhanced audio and StratosAudio's interactive services and look forward to experimenting with those capabilities," said Jeff Littlejohn, senior vice president of Engineering, Clear Channel Radio, in a statement released by Motorola.

Littlejohn said listeners seem to want title and artist information, and Symphony marries that concept with listener fulfillment. The radio group has not decided which markets to test the concept in, nor when to begin the trials.

"Clear Channel is looking at it, experimenting with it, and thinking about what interactive radio in 2003 will mean to Clear Channel," according to Hansen, who said that other radio groups it could not yet name are also interested in testing Symphony's interactive abilities.



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World Radio History

Wi-Fi's Impact on Digital Media

It is hard to pick up any technology publication, whether trade or mainstream, without seeing some mention of wireless data. It is the darling du jour and looks to remain so for some time. As fellow occupants of the media space, broadcasters would do well to study how this has come to be and how it could affect radio's prospects.

Even the name most notably associated with the technology — "Wi-Fi" — hits close to home for any purveyor of audio media, many of whom can still remember the beginnings of the "Hi-fi" craze that FM radio leveraged with great success in the 1960s and '70s.

Computer networking has been around seemingly forever, at least in the digital age; but it's only recently that the trend toward wireless networks has taken hold, in both the domestic and the enterprise spaces.

Semper-fi

Interestingly, among networked homes, about two-thirds still use *wired* systems, according to a recent Forrester study, with the majority of these preferring Ethernet. The remainder generally use either HomePNA (over the home's phone lines) or HomePlug (over power lines) systems, thereby avoiding the need to install the Cat-5 wiring required by Ethernet.

Of course, Ethernet typically offers up to 100 Mbps in the today's domestic environment, while the others are limited to 14 Mbps or less.

Among the one-third of home nets that are wireless, however, it's all 802.11. The previously competing format, HomeRF, has been sent packing by Wi-Fi's success and is defunct. Wireless bandwidth is moving forward rapidly as 802.11a devices proliferate, offering 54 Mbps in the less-crowded 5 GHz band, and the first 802.11g systems arrive, with 54 Mbps bandwidth in both the 5 GHz and 2.4 MHz bands.

The latter units will be backward-com-

The Big Picture



Photo: Garry Hayes, BBC

by Skip Pizzi

patible to 802.11b, allowing existing Wi-Fi users to enhance their existing systems incrementally with a 5x increase in throughput as new hardware is installed. It is also likely that the Wi-Fi name will become broadened to generic application for all these new variants by consumers.

Given that a primary usage of home wireless networks is for Internet connection sharing, even Wi-Fi's 11 Mbps speed is well beyond the <1 Mbps provided to the home by DSL or the typical <2 Mbps of domestic cable modems. And these are the *downstream* speeds of generally asymmetrical distribution systems — upstream speeds are considerably slower.

**Wi-Fi may help
online radio greatly
expand its reach.**

On the other hand, as Wi-Fi and other unlicensed wireless systems become more popular and interference increases, the actual bandwidth enjoyed by users may be substantially slower than advertised networking speeds, so the overhead created by this differential could evaporate.

One takeaway from this analysis shows that strong growth potential remains in the wireless networking market segment. As broadband Internet prices drop and speeds to the home increase, demand for Wi-Fi and its successor systems likely will continue to soar for some time.

For broadcasters, this may also mean that consumer demand for rich online content will increase dramatically over the next several years.

Freeloading

Wi-Fi was intended as a LAN technology, meaning that it was assumed that consumers or businesses would install 802.11b access points for strictly internal use in their respective homes or offices.

It wasn't long before a bit of freeloading began, however, because these wireless LANs often extended beyond the physical boundaries of their owner's premises. Wi-Fi's access control mechanisms, discussed in a previous article, provided a method for curtailment of unauthorized access, but much of this usage was simply ignored.

See Wi-Fi, page 16 ►

New Simian 1.5

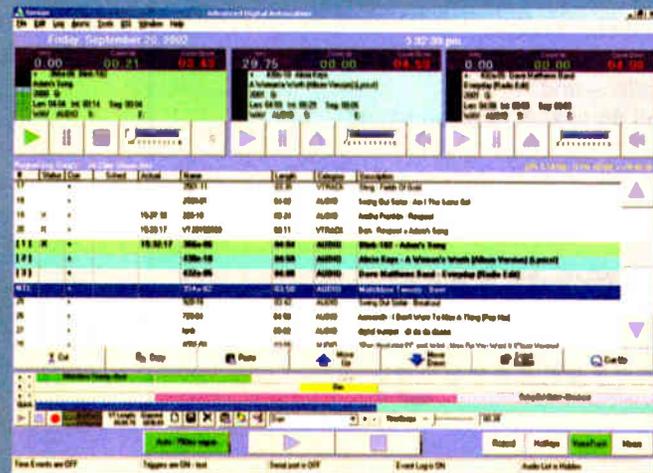
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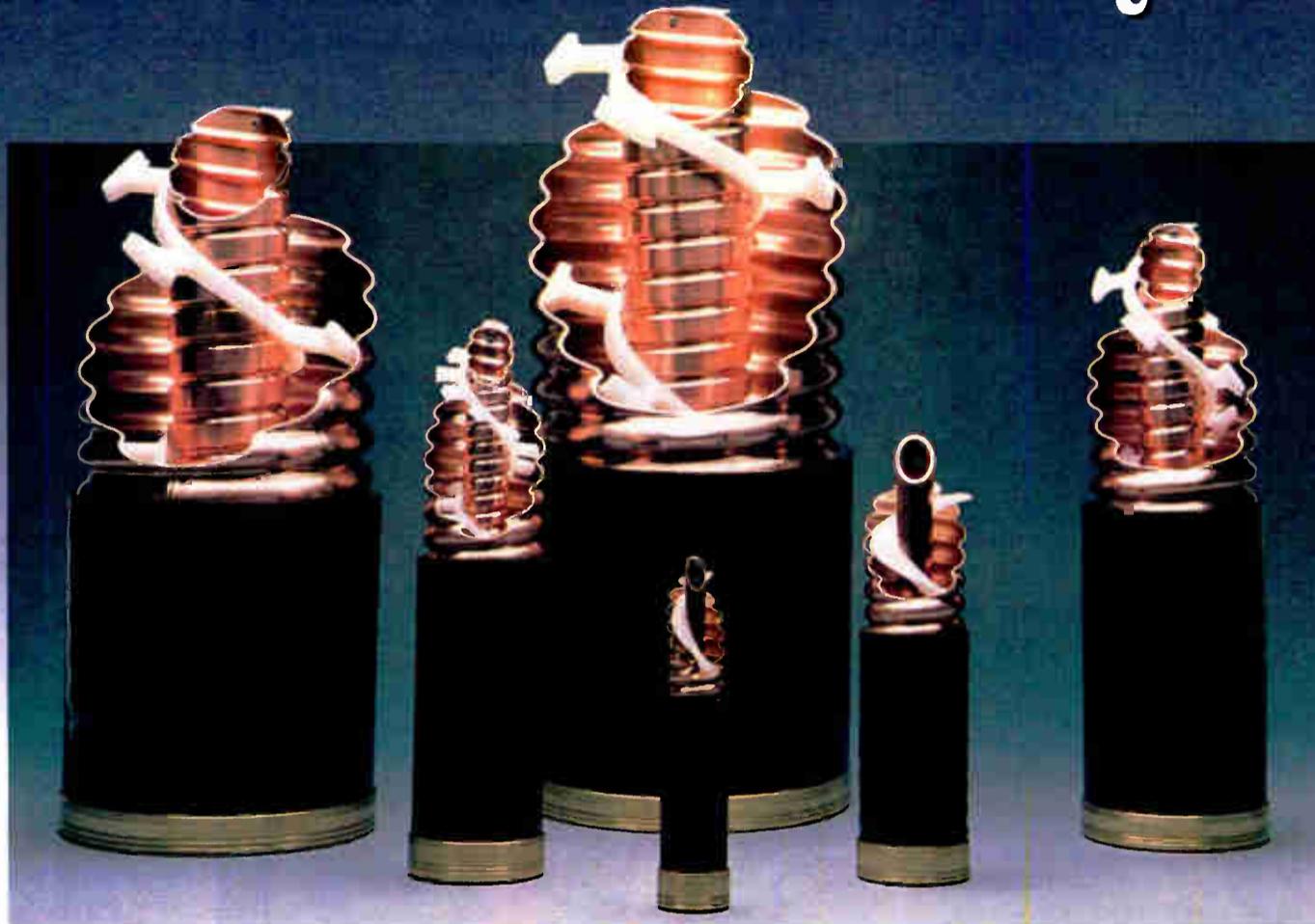
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Wi-Fi

► Continued from page 14

Such "extended" access soon stimulated an unintended application for Wi-Fi, as "hotspots" began to be set up anywhere, allowing wireless Internet access to be provided for a business's customers or the public at large. Thus what began as a "last-meter" system is now turning into a "cloud."

At present, there is movement toward more coordination of such deployments. Rather than independent implementation of separate hotspots by numerous shops at a mall, for example, the mall operator can more efficiently deploy a unified system covering the entire property. Other examples include airports, hotels and

conference centers, corporate or college campuses, and urban retail districts. Landlords can collect incremental revenue from tenants in such federations, as well as add value and more competitive

who volunteered to do most of the access point installations.

Now some larger cities are taking on the task in a more municipal fashion. The Bryant Park section of New York City

For broadcasters, Wi-Fi's success means consumer demand for rich online content will increase dramatically.

appeal to their environments.

Similarly, a city's government can do the same for its citizens. Aspen, Colo., was perhaps the first example of this, in an effort instigated by an activist citizen

and the Westminster district of central London are examples. In the London case, the city plans to reap some return itself by equipping its staff (e.g., police, building permit inspectors, etc.) with Wi-

Fi terminals and allowing them to access city databases and other services directly from the field in this area. The city's closed-circuit video cameras used for traffic monitoring and surveillance of public areas also will be backhauled and controlled via Wi-Fi.

While this is generally considered a positive development, several unresolved issues remain. This part of London also has a number of commercially provided hotspots, setting up a strange public-private competitive environment for Wi-Fi enabled citizens in the area. Some have also voiced concerns about adequate security on such a mixed-use network.

Most important, the success of such a system requires adequate bandwidth; otherwise its popularity will be its undoing. Reports from a recent trade show that offered Wi-Fi connectivity to its attendees but was unprepared for the popularity of the service showed that users experienced access speeds of as low as 10 kbps during periods of peak demand, far slower than dial-up service.

In search of a business model

The marketplace is at play for Wi-Fi at present, with a widely varying array of business models proposed. These range from a populist, egalitarian citizenry mutually offering free bandwidth to their neighborhoods, to a highly competitive service-provider battle-of-the-hotspots. Examples of the latter include T-Mobile's deal with Starbucks to provide Wi-Fi in many of its coffee shops and Verizon's recent announcement that it will establish hotspots around some of its payphone installations.

How to best capitalize these commercial services is an open question. T-Mobile requires users to establish a subscription, while Verizon simply will offer the service only to its existing DSL subscribers. Many Wi-Fi users already have objected that these service deals are not portable. An 802.11-enabled device works anywhere that the technology is offered, but these service providers are attempting to slice the Wi-Fi pie into proprietary slices, which runs against the grain of the established user base. Without some sort of "roaming" plan among such service providers, it is unlikely that this service-provider model will gain much traction.

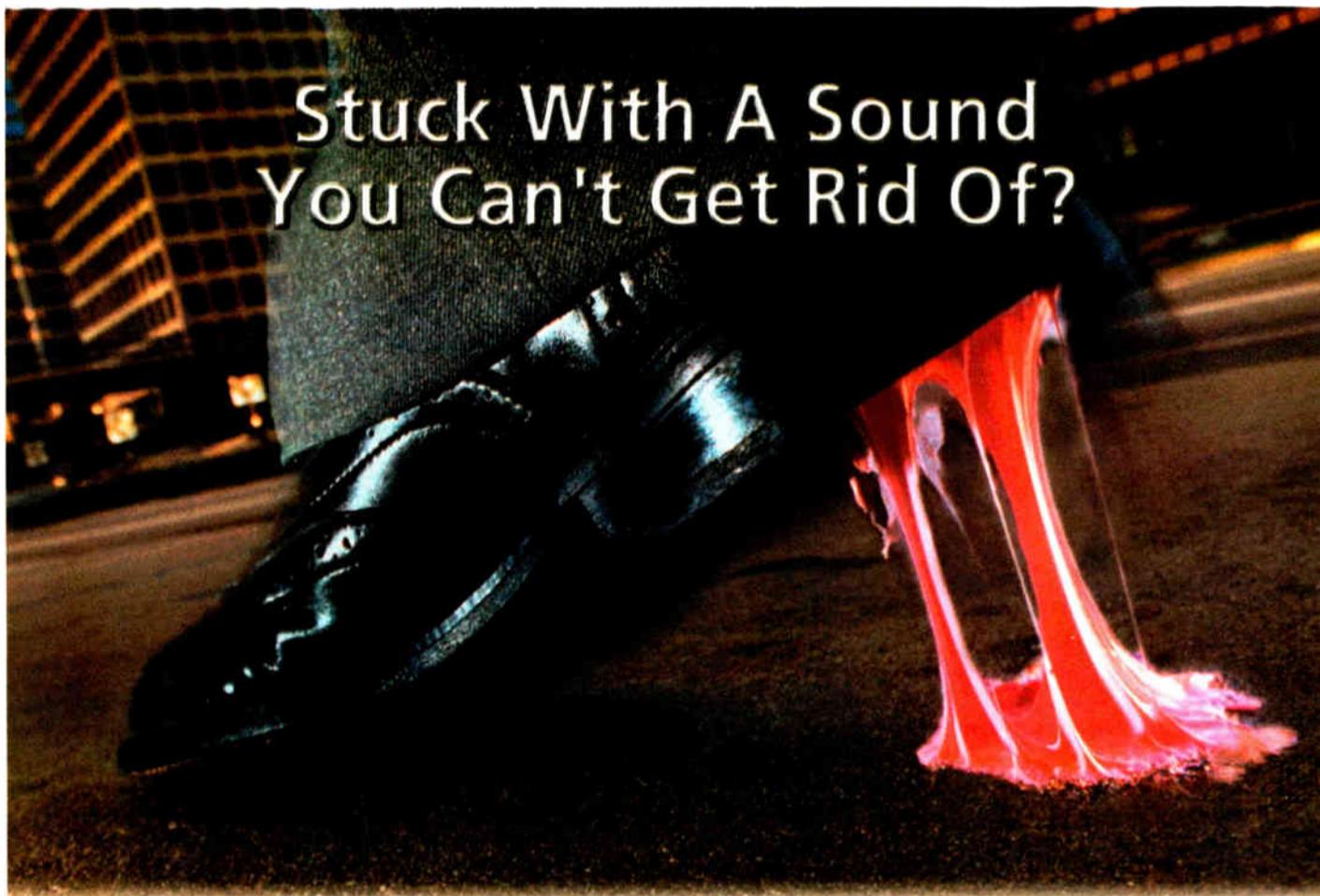
Meanwhile, the private and municipal systems are finding favor among such users, along with the freely accessible commercial venue sites at hotels, airports, malls, etc., all of which simply provide Wi-Fi service as a value-add to their citizens or customers.

In this respect, the carefully crafted professional business plans of established telecom operators are being rendered moot by a citizen-driven force with no direct interest in capitalization of the service. As this phenomenon pushes the Wi-Fi movement toward ubiquitous, free, broadband wireless access, it simultaneously will allow online radio services greatly to expand their reach, eventually rivaling, and perhaps someday eclipsing, the coverage provided by on-air services.

Next time we'll conclude with a look at what's next for wireless computing technologies.

This is the third in four articles on this topic. Earlier parts are online at www.rwonline.com.

Skip Pizzi is contributing editor of Radio World.



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Images of Radio Technology

In 1951 James P. Hawkins lived with his parents in North Bergen, N.J., only two blocks from the 760-foot WOR(TV) tower. His mother later told him that he was fascinated by the tower for the two years that they lived there.

So the seeds of his fascination for radio and related structures were sewn at a young age. His testimonial to this fascination is manifest through a Web site, Jim Hawkins' Radio and Broadcast Technology Page, www.jphawkins.com/radio.html.

The Web site is a labor of love and includes only a fraction of the photos he has taken on tours of broadcast facilities. He offers the photos for sale and can create custom 3D stills and animations.

"I am grateful to the people at these facilities who were kind enough to show me around and share their knowledge," he said. Here are some of his favorites. 



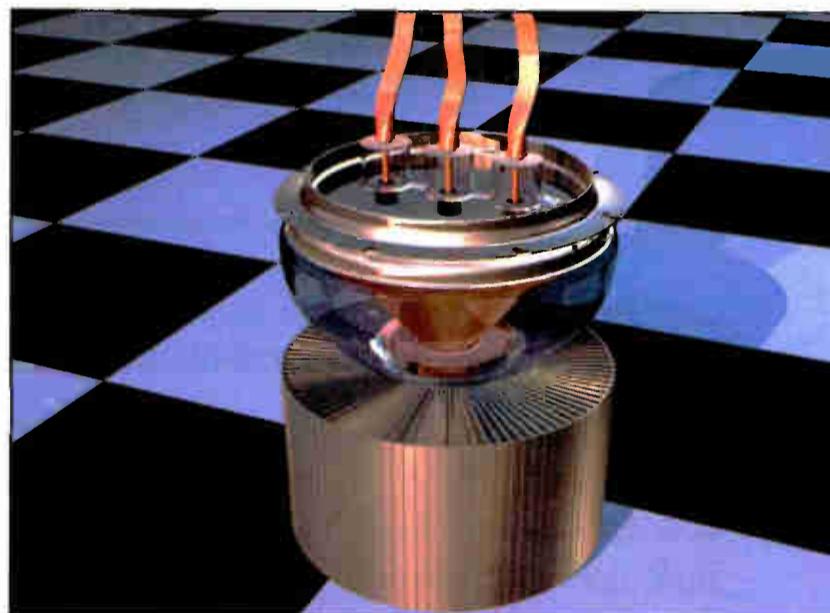
This is the 410-foot Armstrong Tower in Alpine, N.J., taken in 1988. It was built by Edwin Armstrong 50 years prior to that. From this tower, FM was first used for broadcasting. The structure also was used temporarily by New York FM and TV stations just after the World Trade Center attack.



The antenna of WLW Cincinnati is a 747-foot Blaw-Knox diamond shaped vertical radiator, shown here in 1997. The middle of the tower was made wider (35 feet square) for additional structural strength. It has been in use since 1933. The bottom insulator supports a total stress load of 450 tons, including 135 tons of structure steel — 900,000 pounds.



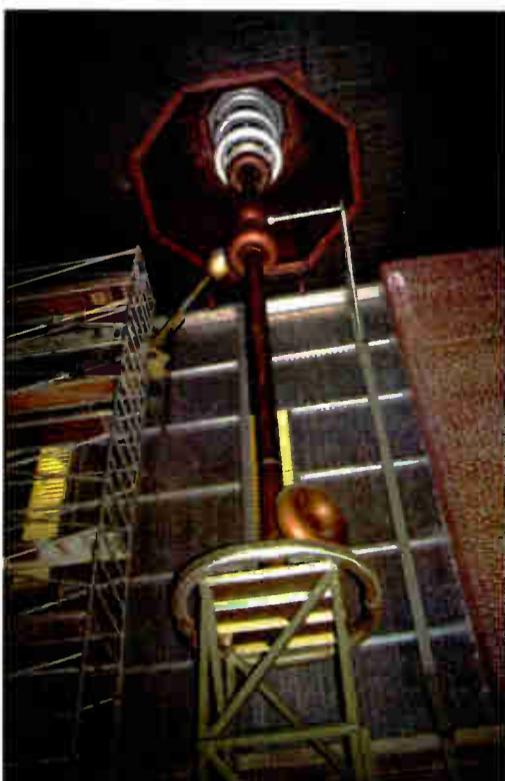
The Star Tower in Cincinnati, photographed in 2001. It was designed and constructed in 1991 by Landmark Tower Company of Ft. Worth, Texas. The upper sections were assembled using a helicopter.



A 3D computer model of an RCA 5762 transmitting tube, above. The author created the model using 3DS MAX in a form that can be rendered from any angle or can be used in an animation. The 5762 tube has been used for both radio and television transmission.



This is a view up through a huge Austin isolation transformer from the foot of the central support tower of the NSS VLF radio station. The transformer is used to couple low-voltage power to the lights on the tower while isolating the RF signal from ground.



Here's the RF feed in the 'Helix House' at NSS Naval Radio Station in Maryland, shot in 1998. The VLF signal is brought to the top and out of the building to feed a vertical tower at three points. NSS was dismantled in 1999.



A row of 5671 transmitting tubes in the modulator cabinet of the 50 kW RCA 50F transmitter at WKNR, now WHK, in Cleveland, taken in 2001. The 5671 tube originally was manufactured in large numbers for induction-heating during WWII. After the war they became popular for use in 50 kW AM broadcast transmitters. The earliest version weighed 350 pounds. In later versions, the cooling fins were reduced in number and perforated for more-efficient heat radiation, reducing the weight to 225 pounds.

Digital Audio Codecs Explained

Coding Is a Fundamental Component of Digital Production and Broadcast Systems

by Skip Pizzi

Digital audio codecs are the fundamental enabling technology behind all of today's emerging sound broadcast and distribution formats. As such, understanding their operation, value and respective attributes can be useful information for broadcast professionals, who are currently faced with important and far-reaching choices in the design of their future production and delivery systems.

The pristine quality of digital audio is well-known, but it comes at a price. The amount of data required to produce such fidelity is high. Consider that the same CD that holds about 1-1/4 hours of digital audio could contain an encyclopedia equivalent to several thousand pages of text and rich images.

This is because in order to produce a clear, clean and quiet signal, the CD format generates a 16-bit message representing the momentary state of each audio channel *44,100 times every second*, with a resulting data rate of 1.4 million bits ("megabits") per second, written as Mbps.

This means that every minute of CD-quality stereo audio occupies about 10 million bytes (megabytes or MB) of data. (You do the math: 16 bits x 2 stereo channels x 44,100 samples/sec ÷ 8 bits/byte x 60 sec/min = 10,584,000 bytes).

This 44.1 kHz *sampling* and 16-bit *quantization* process used by the CD format, sometimes called "Red Book" after the appearance of the standard document, has in recent times been referred to as "linear" or "uncompressed" digital audio.

The latter term might give you a hint that all this data isn't really required by the listener for a satisfying, high-quality sonic experience. Research has shown that if you take a Red Book datastream and rearrange it in just the right way, you could eliminate 80 percent or more of it and most listeners would never notice the missing data. You can throw away most of the bits in the signal, as long as you preserve the ones that count.

Knowing which bits to keep is the role of the *coding algorithm* — the brains of a digital audio compression system or the "codec" (short for coder-decoder) you've heard so much about lately. Their obvious advantage is great savings in data storage or transmission bandwidth requirements, without significant aural penalty.

Working their magic

These codecs apply what is called *lossy* compression, meaning that the data eliminated during encoding is never recovered. Contrast this to *lossless* compression, the type used by file-packing systems like PKZIP, WinZip or StuffIt, in which all the bits removed in the encoding process are fully reconstructed during the decoding step.

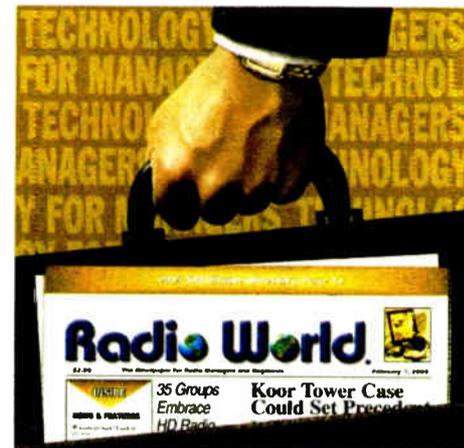
Rather than simply seeking ways to code redundant bit patterns more efficiently (as lossless compression does), lossy compression instead takes advantage of *perceptual* shortcomings of the end user, and exploits them to adaptively process data in such a way that substantial data reduction can be applied without noticeable effect.

This implies that lossy systems are

designed for a particular type of data being processed (e.g., audio), while lossless compression can be applied to any kind of data file. Note that lossless compression systems typically can only reduce file size by a factor of around 2:1 or 3:1 at best, while lossy systems can reduce high-quality audio data bit rates by 10:1 or more. (Audio turns out to be fairly unforgiving in this respect, due to the high acuity of human hearing. For example, video compression ratios can approach 100:1 while maintaining reasonable quality.)

Lossy audio codecs employ the phenomenon of human hearing called *masking*, by which louder sounds reduce listener's ability to hear quieter ones at nearby frequencies and times. The codec is programmed to take advantage of this temporary reduction in audibility by reducing the resolution of the digital audio signal, i.e., assigning fewer bits to each audio sample than the 16 that are always used by Red Book audio, as noted in our equation above.

Doing this will necessarily increase the noise and distortion in the signal, but if the codec places these offending signals into the roving zones of desensitization created by masking, the degrada-



TECHNOLOGY FOR MANAGERS

tions will generally remain unnoticed. This so-called *noise-shaping* technique See CODING, page 20 ▶

Up to...

HD Radio

Stepping

Many have realized the benefits of going HD Radio with BE, as orders for new equipment and system designs have poured in since last year. Entercom, Clear Channel, Greater Media, Crawford Broadcasting, Beasley Broadcast Group, WJLD-AM (first non-experimental AM station to broadcast HD Radio), and many more have chosen BE to help them prepare for the future—the HD Radio future.

"This is the future of AM radio, so this is definitely money well spent."

— Gary Richardson, Owner and Chief Engineer
WJLD-AM - First non-experimental AM station to broadcast HD Radio

"We're excited about the impact of HD on the future of Radio. BE's solutions have the flexibility to make our implementations easy and cost-effective."

— Bob Demuth, Vice President and Chief Technology Officer
Beasley Broadcast Group, Inc.

Broadcast Electronics was there at the beginning, the birth of HD Radio. And now we're leading the pack in implementation and design of real HD Radio systems for the real world of broadcasting.

Take your first step towards tomorrow's new radio format by calling BE at **888-232-3268** or visit us on line at www.bdcast.com.

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HD Radio is the Format of the Future. And the Future has Arrived.

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Coding

► Continued from page 19

is the key to the codec's ability to produce audio quality rivaling the CD at a data rate that would produce very ugly sound using linear coding. So instead of requiring 10 MB/min, hi-fi audio can be produced at less than 1 MB/min — an order of magnitude improvement in coding efficiency.

But like any powerful technology, data compression has its limits in application. A particular concern involves multigenerational effects that may occur when an audio signal is subjected to repeated encode/decode cycles of the same or different codecs along its path from source to end user. For this reason it is important to apply these techniques in moderation and with a holistic system view.

Recent changes

Like all things digital, advances continue to occur in the world of codec development.

These highly enabling technologies have attracted some of the best minds in the business, with many corporations and standards organizations working hard to constantly improve performance. Hence the audio quality possible at a given bit rate keeps increasing.

The target has been to match the per-

ceived audio quality of the CD, and today's latest codecs aim to do this in the range of 64 kbps (i.e., a reduction ratio of over 20:1). While some audio professionals can hear coding artifacts under certain conditions, the real target is the mainstream listener in typical circumstances. The audibility of coding artifacts also varies with the type of audio content. Perhaps counter-intuitively, it is often *voice* content — not

music — that exposes coding artifacts most blatantly.

Today these low-bit rate or LBR codecs are used for both Internet streaming media on computers and for broadcast or downloaded audio on dedicated consumer electronic hardware (such as MP3 players and satellite radios). The main difference between these approaches is that the former involves a *bidirectional* connection to a computer device, which allows frequent

decoder updates to be downloaded; while the latter addresses dedicated hardware via unidirectional or offline connections, implying that the codec's decoder is typically "locked down" at the factory.

So the codec choice in the case of consumer electronics hardware is more critical and long-lasting, because any subsequent changes could render legacy devices incompatible.

You can throw away most of the bits in a linear digital audio signal, as long as you preserve the ones that count.

Note that this does not completely rule out future performance improvements in the dedicated hardware case. While the *decoder* must remain fixed in such consumer products, the broadcaster's *encoder* can be continually tweaked to improve its creation of the compressed signal, and as long as its output remains faithful to the standard format, the end user's experience can be enhanced using the original decoder. Typically this can allow a 20- to 30-percent improvement in quality over the life of the format.

It is also possible for newer consumer devices to improve upon their predecessors' ability to decode the standard signal, using unilateral, decode-only extensions — just as today's state-of-the-art, DSP-based FM receivers sound better than earlier models, or Dolby Pro-Logic improves performance over the original Dolby Surround, with no change to the content's encoding format required.

Among current codecs, such is the technique — called Spectral Band Replication or SBR, developed by Coding Technologies — that differentiates mp3PRO from MP3, or aacPlus from AAC.

Another recent buzz in the industry involves the use of proprietary "pre-processing." Just like regular broadcast audio processing, this is accomplished via a black box in the broadcaster's transmission chain, but these processors are intended to prepare the signal in special ways to allow it to survive

the codec's encode and decode processes with higher fidelity. A current example is Neural Audio's Neustar system, currently in use as a preprocessor to the aacPlus codec used in the XM Satellite Radio system.

Horses for courses

Not all codecs are created equal, so choices are important. There are both technical and business differences among them.

On the technical side, each codec is optimized for a certain target function. Although most operate over a range of bit rates and environments, there is always a "sweet spot" of operation.

This presents a peculiar problem for the current HD Radio system, because its developers intend to use a single codec for both the AM and FM systems, but the bit rates of the two systems are widely divergent. The AM system uses 36 kbps (this rate has also been proposed for secondary FM audio services), which puts it squarely in the "dial-up" range of the online world, while the 96 kbps used in the FM system is considered at the low end of the broadband environment.

Not all codecs can operate optimally over this wide a range, and such is the current problem facing Iquity's PAC codec. The solution may require the addition of a second codec to the system, or the choice (or development) of a codec that can adapt well to the range of data rates required.

Business-wise, the licensing fees that implementers pay to include these codecs in their products also can vary widely.

Some codecs are licensed to implementers by their owners unilaterally — i.e., proprietary systems — while others are handled by licensing authorities employed or established by standards bodies. Standards-based systems are licensed to all implementers on reasonable and non-discriminatory ("RAND") terms, and the format is generally frozen for a substantial amount of time, while proprietary systems have no such intrinsic guarantees. (Proprietary codec owners may voluntarily elect to operate under these terms, however, and often do.)

On the other hand, it is now common for proprietary systems to offer less-costly licensing terms to implementers. So depending on the application, either approach may have merit.

Skip Pizzi is contributing editor of Radio World.

BROADCAST TOOLS® *new*

"Rack-Ables"

SS 2.1 III

SS 4.1 III

SILENCE MONITOR III

SS 8.1 II

RA-1 with FP-II Filler Panel

The upgraded SS 2.1/TERM III & BNC III switcher/routers are improved with new front panel switches. They may be used as a desktop device, and are equipped with mounting holes for wall mount installation or may be installed on the new RA-1 "Rack-Able" 1RU mounting shelf.

The new "Rack-Able" SS 4.1 III switcher replaces the popular SS 3.1 while adding a fourth stereo input channel and front panel control. We've kept the best of the SS 3.1 features and added a few more.

The new Silence Monitor III improves on the features of the original SSM, with front-panel control, removable screw terminals, "Plug & Play" installation, built-in program switcher, restore timing delay, aural alarm and relays for most remote functions. Now rackable!

The new SS 8.1 II switcher replaces the popular 6x1 with the addition of two more stereo input channels and GPI, while keeping the price the same! The SS 8.1 II may be desktop, wall mounted or installed on the new "Rack-Able" mounting shelf.

The new RA-1 (1-RU rack shelf) provides mounting for three tri-rack or two half-rack "Rack-Able" configured products. The RA-1 is pre-drilled for flush and recessed product mounting. The RA-1 is furnished with filler panels and mounting hardware.

Look for additional
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MARKET PLACE

V-Soft Has Updated 03 Arc-Second Terrain Database

V-Soft Communications said it has released a new, more-accurate 03 arc-second terrain database in an effort to improve the existing U.S. Geological Survey 03 arc-second terrain elevation database.

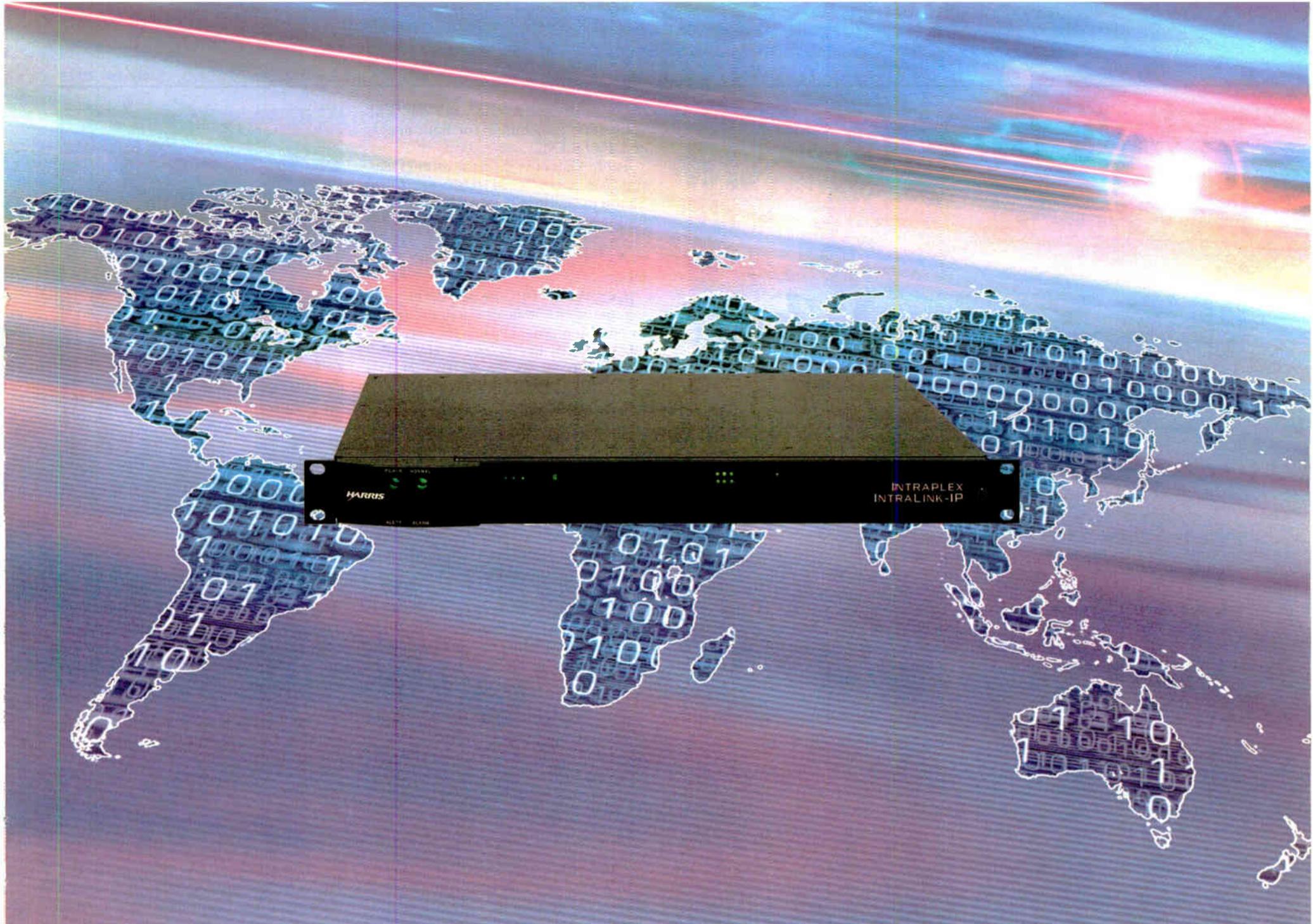
The company said this change will improve the accuracy of FCC, Longley-Rice and path profile analysis.

"The new 03 arc-second database was derived from the latest release of the USGS National Elevation Dataset 30 meter data, the most accurate terrain dataset currently available," it stated.

It said the old USGS dataset has numerous inaccuracies because it was digitized using individual topographical maps at a 1:250,000 scale. "The new USGS NED 30-meter dataset was produced in a seamless raster format with the most accurate terrain elevation information available."

V-Soft Communications' implementation uses every tenth point to create what it calls the most accurate 03 second terrain elevation database to date.

For information call the company in Iowa at (319) 266-8402 or e-mail to info@v-soft.com.



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Create a program audio circuit wherever an Ethernet jack exists with the **IntraLink-IP** streaming multiplexer. The QoS of packet switched networks has improved dramatically signaling the beginning of a new low-cost means of professional audio transport.

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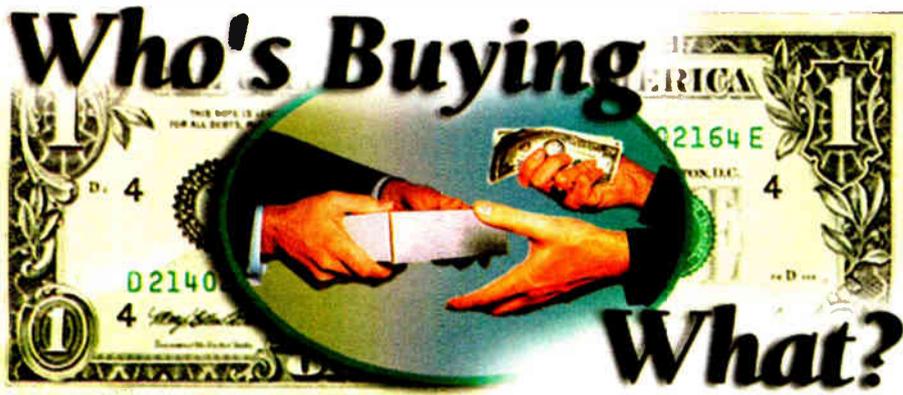


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HD Radio Tops Contract News

"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.

Clear Channel Communications placed an order in June for 69 **Broadcast Electronics** transmitters and exciters for delivery this year, the supplier said. Steve Davis, the senior VP of engineering and capital management for the group, called it a "huge buy."

The purchase order includes "almost a dozen" each of the AM-1A and AM-6A transmitters; 10 solid-state 1kW, 2 kW and 5 kW FM transmitters; 10 FXi-60 exciters; five HD Radio FMi transmitters; and 16 "T" series single-tube FM transmitters ranging in power from 10 kW to 60 kW.

Five FMs in three major markets will add HD Radio service by the end of the year under the deal. Equipment for K11S(FM) and KOST(FM) in Los Angeles, KYLD(FM) and KKSJ(FM) in San Francisco and WDTW(FM) in Detroit was part of the larger purchase order. The stations will use BE's low-powered FMi transmitters and FXi 60/250 exciters.

"The stations will either use a separate antenna for HD Radio or high-level combine the analog and digital signals in a common antenna, both configurations of which take advantage of lower-powered, and lower-cost, transmitters for the conversion," BE stated.

Clear Channel also ordered digital exciters and signal generators to generate the HD Radio signal and provide GPS synchronization and delay matching of the analog and digital paths. ...

WVAQ(FM) is on the air with HD Radio in Morgantown, W.Va. It began digital broadcasting in April, according to engineer Ralph Messer. In March,

another station owned by West Virginia Radio Corp., **WKWS(FM)** in Charleston, threw the HD Radio switch.

"West Virginia Radio Corp. is proud to be the first to be broadcasting digital radio in the state of West Virginia," Messer told Radio World. "I am proud to be a part of this process."

"One thing that really brought back some memories was the cutting of the hard line for the combiner to the IBOC transmitter and the reject load," he said. "I haven't done this since I was doing marine radio-telephone work."

WVAQ also installed a **Harris** CD-Link and **Aphex** Compellor. **ERI** combiners are in use at both sites. ...

Separately, smooth jazz **WNWV(FM)** is on the air with HD Radio in Cleveland. It said it is the first station in that market to go IBOC. Gary Kneisley is president of **Elyria-Lorain Broadcasting**. The chief engineer is Glenn Smith; Tim Kelly is group facilities director. The station uses high-level combining, with a Harris transmitter and Dexstar Digital Exciter, **Omnia** processing, **ERI** combiner and **Bird** reject load. ...

And Clear Channel's smooth jazz **WNUA(FM)** and urban adult contemporary **WVAZ(FM)** in Chicago are broadcasting hybrid analog/digital signals from a new transmitter facility atop the John Hancock Center. ...

The four stations of the **University of Southern California** signed **Ibiquity** licenses to go HD Radio. **KPSC(FM)** in Palm Springs plans to turn on HD Radio on Aug. 1, followed a month later by **KCPB(FM)** in Thousand Oaks. **KFAC(FM)** in Santa Barbara goes HD-R on Oct. 1 and flagship **KUSC(FM)** in Los Angeles will go HD Radio later in the year, according to RF supplier **Broadcast Electronics**.

BE said L.A.'s first noncommercial HD Radio licensee will implement a low-level combining scheme that uses

one FXi digital exciter and one FMi solid-state transmitter for both analog and digital FM.

Pablo Garcia is director of engineering for **KUSC(FM)**/University of Southern California, which operates the four-station network.

And more news from the HD Radio front...

Cox Radio Inc. chose **Harris** analog and digital transmission equipment to take five Atlanta-area stations digital. Cox will use Harris Z HD and Z CD transmitters as well as Harris Dexstar digital exciters to bring digital radio capabilities to its **WSB** Radio Group and to upgrade its current analog signals, the supplier said.

The equipment is being installed at FM stations **WSB**, **WALR**, **WBTS** and **WFOX**, as well as **WSB(AM)**.

Radio World invites stations that are on the air in HD Radio to notify us via e-mail to radioworld@imaspub.com. ...

Modulation Sciences and dealer **BSW** recently closed a sale of 30 **FMM-2** FM Modulation Monitors to a client in California, adding to 10 units the customer had purchased a year earlier.

The client, a large Christian broadcaster, asked not to be identified, according to Judy Mueller, president of **Modulation Sciences**. The value of the contract was not released. Mueller said the retail price of the package would be roughly \$95,000. ...

Jones Radio Networks purchased two **VoxPro** PC software solutions, two **RC500** Control Panels and **VoxPro** PC Network for **Delilah's** Seattle **Jones Radio Networks** studio. **Audio Labs** is the manufacturer. ...

WRHI(AM) in Rock Hill, S.C., is coming up on its 60th anniversary. It recently completed a turnkey rebuild performed by **Radio Systems**.

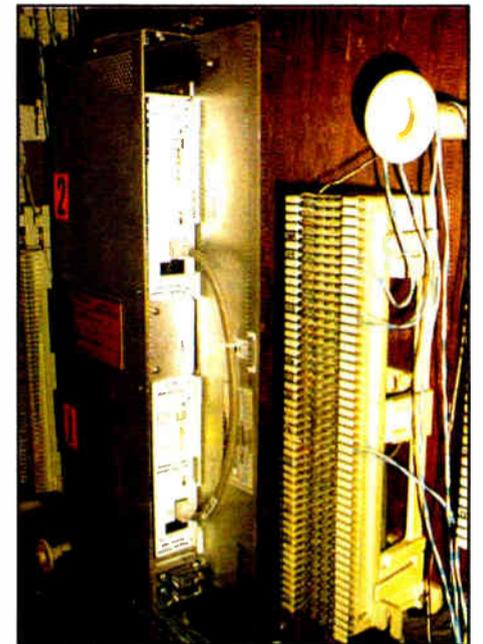
Among the products used **StudioHub+** wiring and **Millenium** consoles. Custom studio furniture was provided by **Studio Technology**; acoustical treatments by **Accoustical Tackable Surfaces**. ...

NBC News Radio, distributed by **Westwood One**, passed the 300-station mark this spring, with affiliates in the top 10 markets. It was launched on March 31 with **NBC** and **MSNBC** news personalities. ...

BBC Radio Resources placed an order with **Studer Professional Audio** for a Vista 6 digital broadcast console for the **BBC's** main drama studio in Manchester. Separately, **Europe 1** in Paris equipped two on-air studios with **Studer On-Air 2000** Modulo consoles. ...

Audio Processing Technology made its first sale of an **APT Tokyo** codec in America to **Wolff Bros. Post**, a post-production facility in Atlanta. It is using the Tokyo to link the studio to home voice-over sessions. ...

RCS signed four **NextMedia** stations for its **iSelector** Personal Online Player service: **WLLI(FM)** in Chicago; **WXQR(FM)** in Greenville-New Bern-Jacksonville N.C.; and **WYAV(FM)** and



The APT/Pulsecom Program Channel Access Unit was developed for telco but has STL applications.

WKZQ(FM) in Myrtle Beach, S.C. The service lets online listeners can customize the player to their tastes and offers additional "flavors" of each stations' format. ...

The American Christian Network purchased transmitters from **Harris Corp.** for five affiliates in Washington state: **KTBI(AM)**, **KTAC(FM)**, **KTRW(AM)**, **KYAK(AM)** and **KSPO(FM)**. ...

rfSoftware said it gave away a set of its **rInvestigator-FM** product to **Ted Hicks** of **Comarco's** **EDX** Division in a drawing at the spring **NAB** convention. A spokeswoman put the value of the prize at \$4,250. ...

APT added **WDIZ(AM)**, a Florida **Clear Channel** radio facility, to the list of users of its **PCAU** products.

To ensure phasing of left and right channels in an STL application. Chief Engineer **Charlie Wooten** specified circuits based around the **APT/Pulsecom** Program Channel Access Unit. The audio card uses the **apt-X** audio data compression algorithm.

Separately, **APT's** plug-in for **Cool Edit Pro** is being used by **WDBA(FM)** in Philadelphia. **Jerry Meloon** is chief engineer there. ...

Broadcast Electronics will supply transmitters and studio equipment to the first FM stations licensed in the **East Africa Republic of Kenya** since the new president expanded broadcasting to new regions.

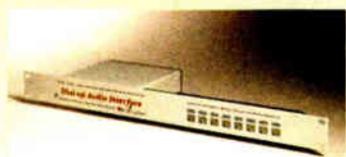
BE signed contracts with private operators to equip at least 20 new FM stations starting this summer. ...

Audioarts Engineering's **ADR-32** digital audio router is in use at two Alaska public stations. It was installed in March for a two-station partnership including **KBBI**, an AM station in Homer, and its FM counterpart **KDLL** in Kenai. **Susan Kernes** is general manager of the stations. ...

Clear Channel Outdoor named **Arbitron** to supply it with local market consumer information and software services in U. S. markets served by **Clear Channel Outdoor**.

See WBW, page 31 ▶

Product Showcase



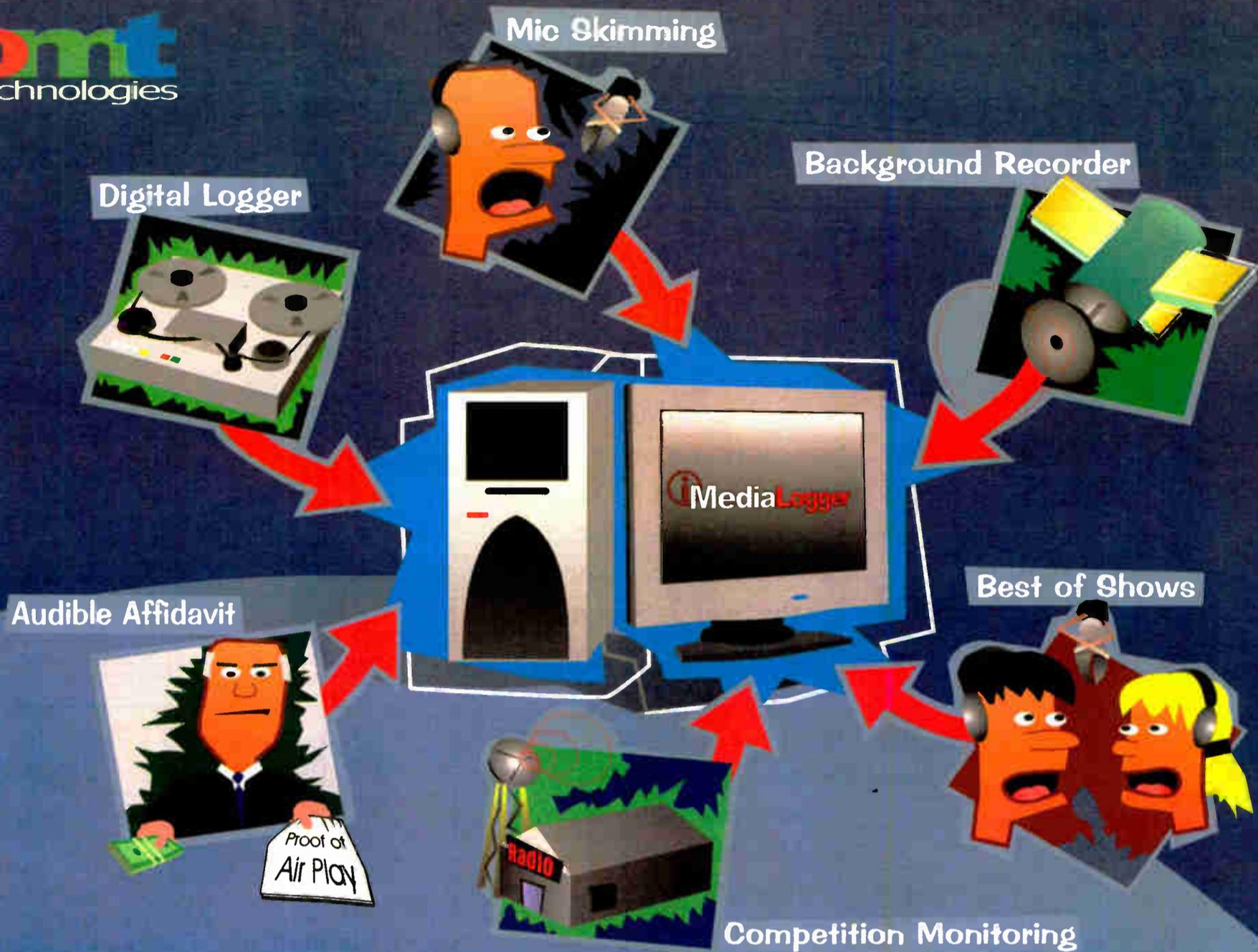
Model DAI-2 Dialup Audio Interface

- perform unattended remote broadcasts
- DTMF operated controller with relay outputs
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- momentary and/or maintained relay outputs
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iMediaLogger From \$695

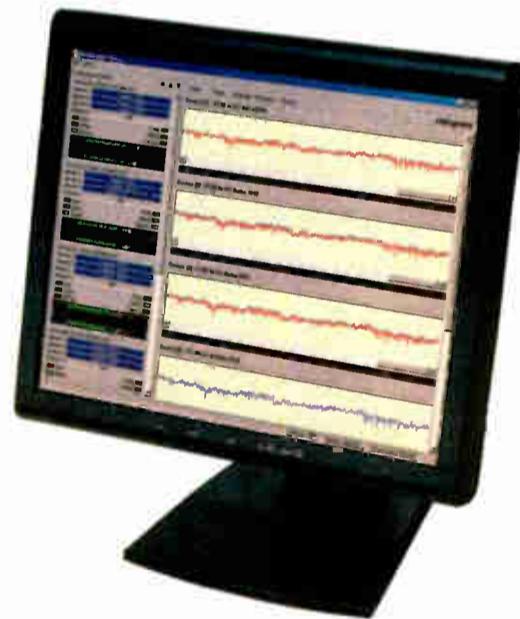
(ī-mē'dē-d-ə lô'gər) *definition:* The most complete, affordable, and easy-to-use automated audio recording solution available.

With today's ever increasing workload you have to do more with less and that's why having a multipurpose tool like iMediaLogger is key. Using a single computer workstation, iMediaLogger frees you from the costly maintenance of conventional and outdated equipment used for logging, recording, and skimming including reel to reel, DAT, and VCR recorders.

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- Simultaneously record up to 12 stereo or mono audio sources or streams
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- Access your recordings anytime, from anywhere using its built in web browser interface
- Schedule time or closure based recordings
- Remotely configure and manage your iMediaLogger system

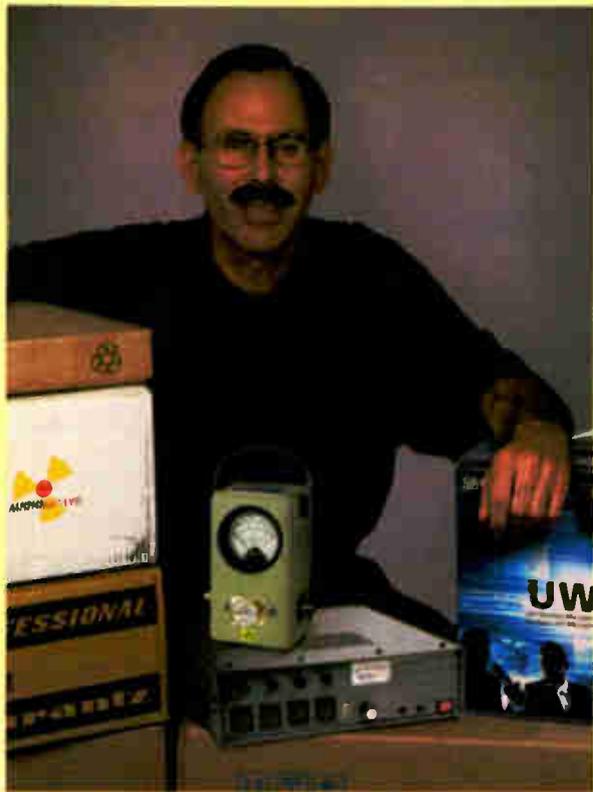
The next time you need to log, skim, or record, save yourself - and your station - plenty of time, money and headaches. With iMediaLogger, you will never have to change a tape again.



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NEW

Modular 12-Channel Console Packed with

A truly no-nonsense unit with plenty of usability, the Audioarts R55 modular console has 12 channels and 4 busses and offers a monitor module with control room, studio, headphone and talkback functions and an output module with program, audition, pre- and post-mono fader outputs, plus independent meter selection. Flip up the hinged meter bridge and everything you need to access is right there: DB-25 I/O connections, calibration trimpots and console logic dipswitches. Its counter top design fits almost anywhere, with dimensions of 26" W x 25-1/2" D x 8" H (2-1/2" in front), and

AUDIOA.

it has 1 in cue outboe mic log mic in mono c With throwi R55



NEW

Routes Six Phone Lines to Telephone Hybrids

The new Broadcast Tools TeleSwitch 6 routes up to six phone lines to most telephone hybrids. It can handle one hybrid and a standard single line call screening telephone set. If full call screening is not required, a second hybrid may be connected. The TeleSwitch 6 is supplied with one desktop switch console and a 1-RU controller. Includes free switching software!

TS-6 List 829⁰⁰ **769⁰⁰**

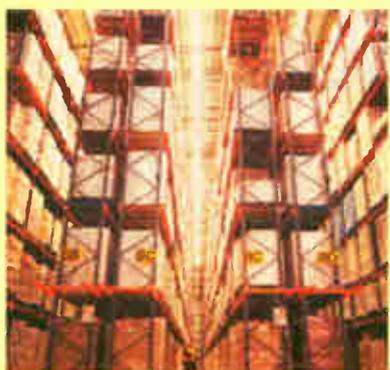
BROADCAST TOOLS INC.



Single-Space Professional DVD

The new PMD910 from professional, reliable DV a convenient single-space With the rise in DVD pop PMD910's ability to play will become your most ve This professional DVD/r top-of-the-line features li scan; 3:2 pull-down; NTS compatibility with DVD- and more; 48 kHz and 96 optical/coax digital output analog outs; component rapid track and time search remote. Includes custom

PMD910 List 429⁹⁹



Our gigantic, state-of-the-art computerized warehouse facility...

...will look much more like this photo we found somewhere if a lot more of you call in and order stuff.

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SONY

NEW

Complete Sony Lavalier and Handheld Wireless Systems

The Sony UWPS1 and UWPS2 are complete UHF diversity-reception wireless microphone systems, perfect for PAs and many other applications. The UWPS1 comes with a unidirectional electret-condenser lavalier and bodypack transmitter; and the UWPS2 comes with a unidirectional, dynamic handheld microphone with an internal antenna — both offering level controls and switchable 30 mW or 5 mW RF output. The half-rack-size tuner is equipped with both balanced XLR and unbalanced 1/4" output, the XLR switchable between mic and line levels. Two frequency ranges available (specify when ordering).

UWPS1 Lavalier System List 640⁰⁰ **569⁰⁰**
UWPS2 Handheld System List 640⁰⁰ **569⁰⁰**



Incredible Value Headphone 5-Pack

Five Sennheiser HD202 headphones for \$89.00! We're not kidding. These durable, sealed-ear headphones provide solid bass response, good insulation from outside noise and have a convenient cord take-up. A BSW exclusive!

HD202PKG **89⁰⁰**

SENNHEISER



BSW Exclusive Microphone

The Audio-Technica quality sounding dynamic perfect for PA and studio **Features:** On/Off switch low impedance; cardioid stand adaptor.

Complete the package 5-pack of colored wind

ST95MKIIIPKG WS91 **99⁰⁰ 24**

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FREE Phone Module
 with Purchase
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R55 Console
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TS ENGINEERING

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rigged steel frame construction. **Features:** built-speaker/amp and headphone jack/amp to save on gear; built-in event timer; external meter input; included on line modules for use with line-level outputs; stereo program and audition busses plus two output busses.

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List 5,695⁰⁰ CALL FOR PRICE



XPORT



XSTREAM

Telos

Buy Both and get a FREE Upgrade to ISDN
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POTS/ISDN Field and Studio Codecs

The amazing Telos Zephyr Xport POTS codec allows you to send high-quality audio to a Zephyr Xstream ISDN codec back in the studio. With the Xport in your remote tool kit, you can do full-fidelity remotes to ISDN over standard phone lines, fast and easy. It utilizes a custom DSP-based modem architecture that extracts maximum bit rate from standard phone lines and prevents audio loss from retraining; groundbreaking CT-accPlus coding which improves efficiency 30% over standard MPEG AA; a built-in web server for convenient remote and local control; an Ethernet port; DB-9 computer interface connections; upgradable to ISDN operation.

The Zephyr Xstream is a rackmount ISDN codec that offers two-channel flexibility over a single ISDN circuit or two synchronous links to transmit and receive 20 kHz stereo audio to and from a single location or two mono channels to and from separate locations.

With BSW's exclusive offer, purchase both and your POTS XPORT field unit is automatically upgraded to the XPORT-PI with ISDN capability, a \$500.00 value. Call today to learn more about this limited time offer!

XPORT	List 2,495 ⁰⁰	CALL FOR PRICE
XSTREAM	List 4,355 ⁰⁰	CALL FOR PRICE



Rackmount DVD Deck

Marantz delivers top performance in a rackmount unit. Clarity, and the CD and MP3s, this versatile audio player. Media player boasts progressive C/PAL conversion; MP3, CD-R/W, 48 kHz PCM audio; RC6 I/O; RCA and S-video output; timing and IR rackmount kit.

369⁰⁰

Marantz



Popular Voice Processor

Broadcasters around the world rely every day on the Symetrix 528E for crisp, clear on-air vocals. This industry standard analog voice processor offers five major functions jammed into a convenient, single-rack-space unit. It enhances vocal intelligibility, increases perceived loudness and "presence" and reduces off-mic noise.

Features: microphone preamp with a switchable 15 dB pad; front panel mic/line level switch; 48V phantom power; voice symmetry switch that corrects for excessive positive or negative signal peaks; de-essing with frequency and range controls; compression/limiting with downward expansion; 3-band parametric EQ; balanced XLR and unbalanced 1/4" I/Os; 1/4" in and out patch points on each section.

528E List 749⁰⁰

499⁰⁰

Symetrix

Multiple-Pattern Studio Condenser Microphone

The Shure KSM44SL delivers warm, natural sound with incredible detail, making it a natural for the production room. It's a versatile three-pattern (cardioid, omni and bi-directional) dual diaphragm condenser mic with extremely low self-noise



KSM44SL

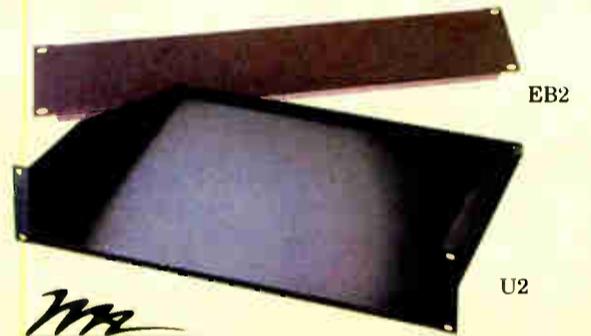
(7 dB) - comparable to high-end German designs at a fraction of the price. **Features:** dual 1-inch, externally biased, diaphragms; Class A transformerless preamplifier; 20 Hz-20 kHz frequency response; 15 dB pad; 3-position switchable LF filter to virtually eliminate background noise and control proximity effect; 3-stage pop protection grille; includes elastic-suspension shock mount, swivel mount, protective velveteen pouch, and carrying case.

The Shure KSM27SL (not shown) is an affordable side-address, large-diaphragm cardioid condenser microphone that gives you considerable bang-for-the-buck, with warm, transparent sound and high-end features like subsonic filter and switchable 15 dB pad.

KSM44SL List 1,393⁰⁰ 699⁰⁰

KSM27SL List 575⁰⁰ 299⁰⁰

SHURE



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The Middle Atlantic U2 heavy-duty metal 2-space rack shelf will hold your critical recording and audio processing equipment. It fits equipment up to 17-3/8" wide. Save a bundle by purchasing the special BSW U2 4-pack!

The EB2 is a 2-space metal blank rack panel, available in a money-saving 10-pack. Other sizes available.

The HW500 is a cup of 500 3/4"-long screws with 10-32 threads. A pre-installed nylon cup washer speeds installation and provides a clean, professional appearance for your rack equipment.

U2PACK	4-pack, 2-space rack shelves	89 ⁰⁰
EB2PACK	10-pack, 2-space blank panels	69 ⁰⁰
EB1PACK	10-pack, 1-space blank panels	49 ⁰⁰
HW500	500 screws/washers	89 ⁰⁰



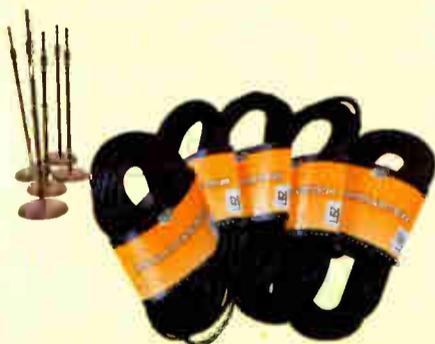
audio-technica

5-Pack

AT95MKII is a mic mic that is stereo recording. XLR output; and pick-up pattern;

ge with a screens.

2PACK 00



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These durable mic stands for less than \$18 each in the 5-pack are an incredible bargain exclusively from BSW.

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MS200PKG 89⁰⁰

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Workbench

Radio World, July 16, 2003

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Summer Is Time to Keep Your Cool

by John Bisset

The dog days of summer upon us and so are all the cooling deficiencies and thermal instabilities of broadcast equipment.

Michael Brown of Brown Broadcast Services in Portland, Ore., is shocked by the number of transmitter rooms — some in large markets — that still don't have remotely readable and alarmed room temperature sensors, let alone fire alarms. Mike says this is like driving a car without a temperature gauge. At least with the vehicle, you might see steam rising from the engine.

Anyone who thinks that the use of solid-state equipment in the broadcast equipment would lessen heat concerns is wrong. In fact, most every engineer has resorted to at least one clip-on or box fan babying some thermally persnickety computer server, audio processor, satellite receiver or exciter.

So besides stashing a couple of spare fans, what's an engineer to do? Michael has fought the heat battles at his contract stations by doubling all rack space plans. This is particularly necessary because most single-space items need breathing room above the device. Keep in mind that those microprocessors may have millions of semiconductor junctions inside, each creating its own picowatt of heat. The numbers still boggle the mind.

What can the engineer do to fight heat? First, follow the manufacturer's suggestions. This is true particularly for transmitter equipment.

Fig. 1 shows an exhaust port on a Continental transmitter. Note that the exhaust duct is not fixed to the top of the transmitter. This space helps counteract problems caused by outside back pressure. In the photo, a heat sensor has been placed over the stack. This thermostat controls an exhaust fan, routing the air outside the transmitter building, once a pre-set limit is reached.

Fig. 2 shows another version of ductwork that runs to a ceiling exhaust fan. In this case, the fan runs all the time. Filtered outside air is brought in through the rear of the transmitter, heated air exhausts from the top.

If you're planning a new transmitter building, and especially if you're intending to use one of the pre-fabricated concrete shelters, consider low- and high-temperature limit switches. In addition to controlling the building cooling system, building manufacturers offer remote control options.

Pictured in Fig. 3 on page 28, the low and high limit switches can be brought out to a block to permit interfacing to the remote control system.

If you're on a budget, not to worry. A well-stocked hardware store has a "hi-lo" thermometer, like the one manufactured by Taylor Thermometer and shown in Fig. 4.

This thermometer has two small iron vanes within the thermometer tube. The vanes are pushed by the mercury as the temperature changes. One vane indicates the high-



Fig. 2: Ductwork runs to a ceiling exhaust fan. Filtered outside air comes through the rear of the transmitter, heated air exits from the top.



Fig. 1: This is an exhaust port on a Continental transmitter. A heat sensor has been placed over the stack.

est temperature, the second vane indicates the lowest temperature. Either vane can be manually "reset" by placing the red magnet, held in the top of the thermometer, over the iron vane and moving it.

It's not necessarily high-tech, but it will give you an accurate display of temperature excursions, helpful in determining whether additional airflow is needed.

★★★

Most of our "can you top that" stories in recent issues have focused on the operator. I'm finding there are just as many stories where the engineer is the focus.

Consider the CE who enters the studio to perform some minor maintenance during the final minutes of the morning show. The jock comes unglued, shouting, "You can't be working in the studio while I'm on the air!"

"Fine, then," the CE responds. He turns to the remote control and shuts down the transmitter. "O. K., you're not on the air any more." The chief did what he had to do, then turned the transmitter back on and left the studio.

What's the best part of the story? The GM and owner backed the engineer's actions! Oh, for the good old days.

See WORKBENCH, page 28 ▶

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Workbench

Continued from page 27

For most of the country, this has been a year of rain. One of the places rain can really hurt is in the STL system.

Bob Hawkins, chief of WNAP(FM) in Indianapolis, writes that not everyone has access to a time domain reflectometer or even a Bird Wattmeter that works accurately at 950 MHz. More often than not, when STL receive-signal levels deteriorate gradually, the problem is water in the dish dipole element or the jumper cable from the element to the main feed line.



Fig. 3: Low- and high-temperature limit switches can be remote-controlled.

To find out if water ingress has taken place, all you need is a Simpson 260 or similar ohmmeter. Measure the resistance between the center and outer conductors of the Helix at the bottom end, where the cable plugs into the receiver. In a typical system, using Anixter-Mark antennas, there will be no measurable resistance on the Rx10,000 scale of the Simpson 260. If the meter shows any indication whatsoever, further investigation is warranted.

Keep in mind that STL pigtails can fail. They are exposed to some horrific conditions and will not last forever, even if they are properly weatherproofed. A few spares

on hand can be a lifesaver.

This method may work with other brands of STL dishes, as long as the normal resistance reading of the dipole element is infinity. A call to the manufacturer will yield this information. Bob also cautions that the measurement is made before any cavities, filters or isocouplers that may affect the reading.

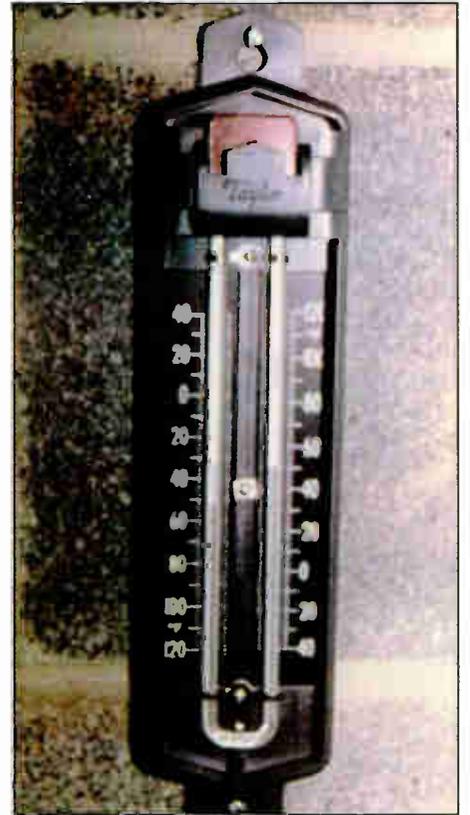


Fig. 4: 'Hi-Lo' thermometers like this one from Taylor Thermometer are available at hardware stores.

At WNAP(FM) a few years ago, Bob observed a gradual decline in received signal strength, down to 300uV. An ohmmeter check showed 15k ohms of resistance between the center and outer conductors.

A climb up the STL tower revealed that the dipole had two drops of water in the connector end, accounting for the 15k of resistance. Thirty seconds with a hair dryer changed the 15k to infinity. The pigtail jumper measured 500k ohms and was replaced. The result of these two corrective actions was 2000uV of received signal.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 627-0233.

Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com.

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Name: Skip Pizzi

Column: The Big Picture

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Certifications and industry honors: Member SMPTE, SBE, AES; former chair of AES D.C. chapter; winner of AES Board of Governors Award; winner Public Radio Regional Organizations' PRRO Award

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Quote to live by: "Our generation will always speak digital with an accent."



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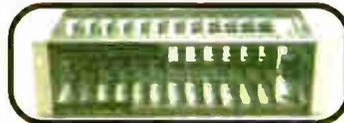
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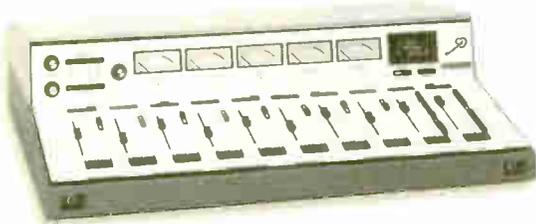
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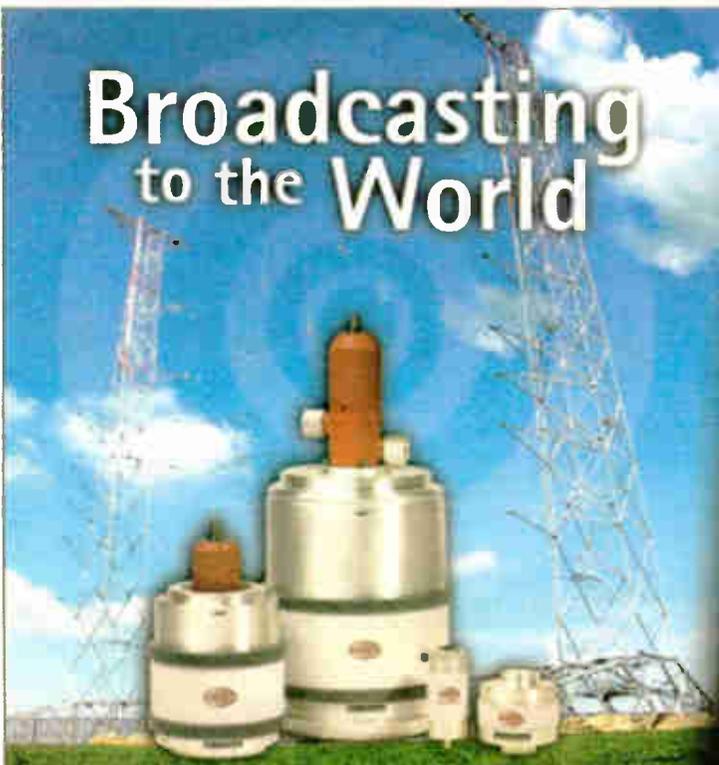
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FIRST PERSON

KICY Melts Tundra in Nome

by Cecil Lynch and Gerald Moore

Our office not long ago served as consulting engineers on a project to increase the power of KICY(AM) in Nome, Alaska, to 50 kW and add a directional antenna for service throughout the Bering Sea Coast and the Russian Far East.

The station, at 850 kHz, is operated by Arctic Broadcasting Association Inc., an affiliated corporation of the Evangelical Covenant Church. Its motto: "Spreading the Gospel to Western Alaska and the Russian Far East."

At the dedication ceremony, the state of Alaska honored Bill Hartman with a resolution and plaque in recog-

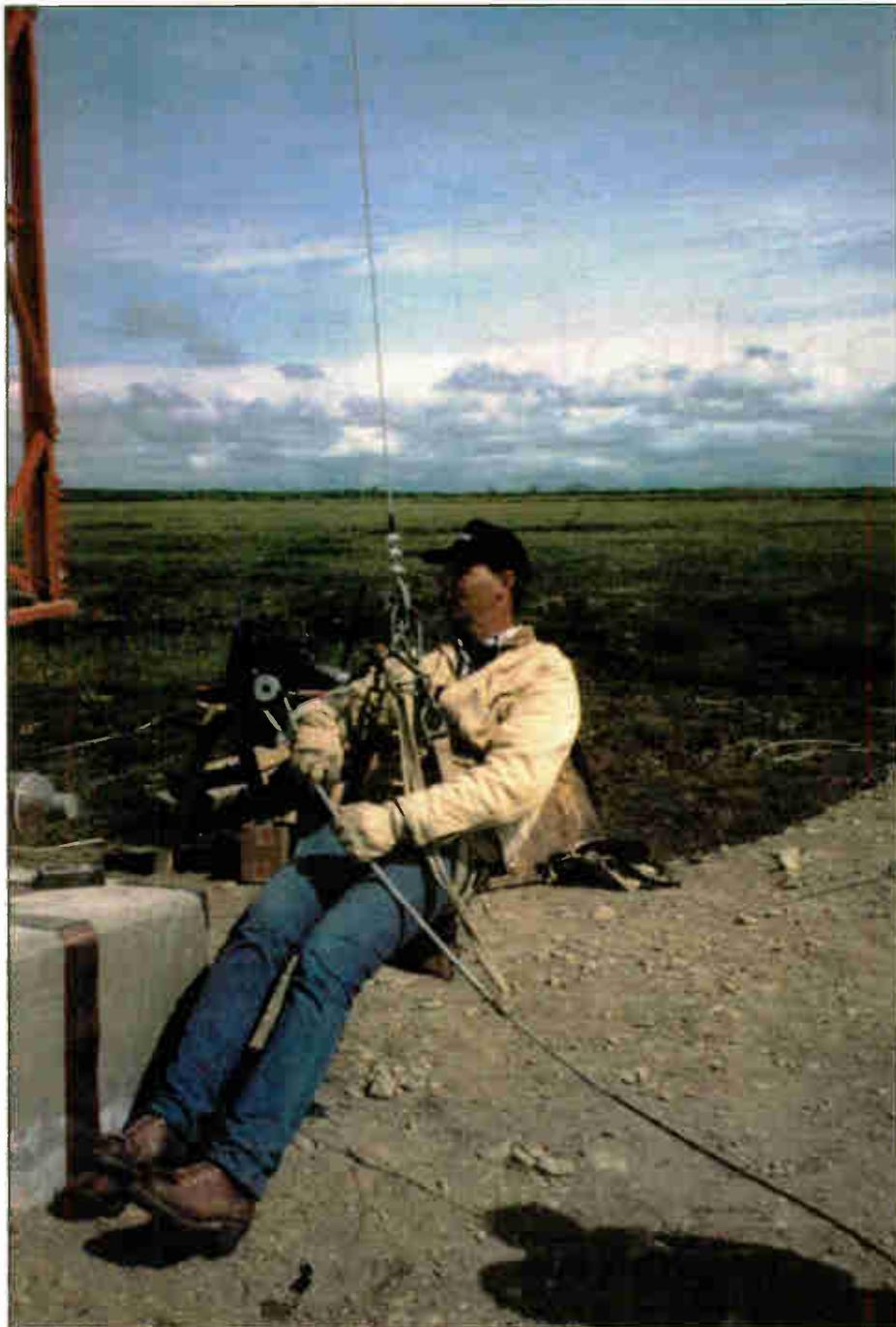
nition of his pioneering work establishing radio communications in the state. He and Roald Amundsen, a relative of the explorer, developed early aviation radio systems especially useful for interior bush pilots. That was 50 or more years ago.

ened, so too did the adjoining slabs slowly sink beneath the surface.

The transmitter building began to tilt.

Soft ground

In Nome, structures such as the KICY transmitter building are supported on beams that raise the floor a few feet above the gravel pad on the tundra surface, thus permitting a free flow of air beneath. That provision allows a clean sweep of wind and



The tower erector prepares for ascent.

This incident confirms, in dramatic fashion, that towers are only part of an AM antenna system. Those 50 kW don't just disappear into the wild blue yonder.

Hartman, a consultant and board member of KICY, is a pilot in addition to his radio work, who lives in California.

Here's an anecdote I just had to share about the project in Nome.

Some time after the upgrade work, Hartman reported that a cozy steam vapor was rising in the morning air from alongside a concrete slab, part of the foundation for the KICY transmitter house.

In fact, steam vents were erupting wherever a ground rod had been driven. And as the tundra slowly soft-

ens snow underneath, as well as over the building, thus dispelling eddy currents and accumulation of snow on the leeward side.

Unfortunately, the newly powerful radio facility was undermining itself by melting the permafrost around the ground rods.

To right the situation and get back on level, gravel fills reinforced the foundation, beams were realigned and ground rods removed to a more congenial environment.

See NOME, page 32 ▶

WBW

▶ Continued from page 22

The agreement gives Clear Channel Outdoor access to survey information detailing consumer profiles of people exposed to outdoor ads, software to process the outdoor data and training by Arbitron. ...

A rental Marti Plug N Play 1 kW transmitter feeding a single-bay ERI antenna helped get KSEK(FM) back on the air after a tornado hit Girard, Kansas, and destroyed its tower.

The transmitter building was destroyed and the transmitter carried across a field for about 70 yards, according to a summary from the supplier. Jerry Tibbetts is contract engineer for KSEK. BE representative Chris Kreger of RF Specialties drove from

Kearney, Mo., to help the station. ...

Capital Radio, the United Kingdom's largest commercial radio group, completed a multi-year agreement with First MediaWorks to produce Web site upgrades for its network of stations. ...

Radio One purchased a Telos Systems Zephyr Xstream MXP to produce programming for XM Satellite Radio. Separately, Radio Kansas ordered an Omnia-6fm processor. It airs three signals from Hutchinson College in Wichita.

Overseas, 10 Omnia-SG digital stereo generators were ordered by the Korean Broadcasting System to control audio processing from the network head end. Separately, the Netherlands' Radio E-FM, Eindhoven received a new Omnia-6fm. And Skyrock, a French broadcaster, purchased four Telos TWOx12 Talkshow Systems. ●

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Nome

► Continued from page 31

This incident confirms, in dramatic fashion, the fact that towers are only part of an AM antenna system. Those 50 kilowatts leaving the transmitter don't just disappear into the wild blue yonder.

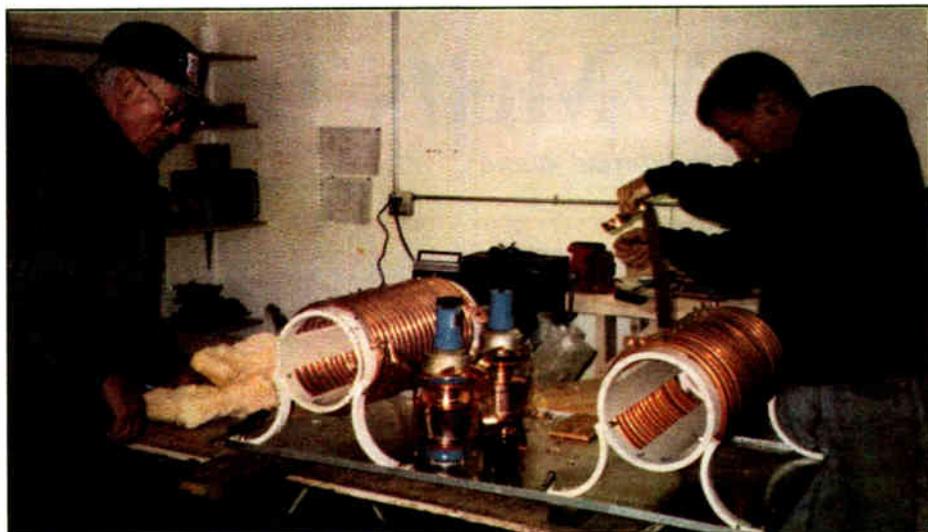
In this case, the ground wires are not buried but spread out on the surface and bonded into a common system that includes the driven ground rods. The subsurface soil is frozen permanently, and only the top foot of tundra thaws during the summer.

Bill is working to devise a system where he can tie in a coffee pot to

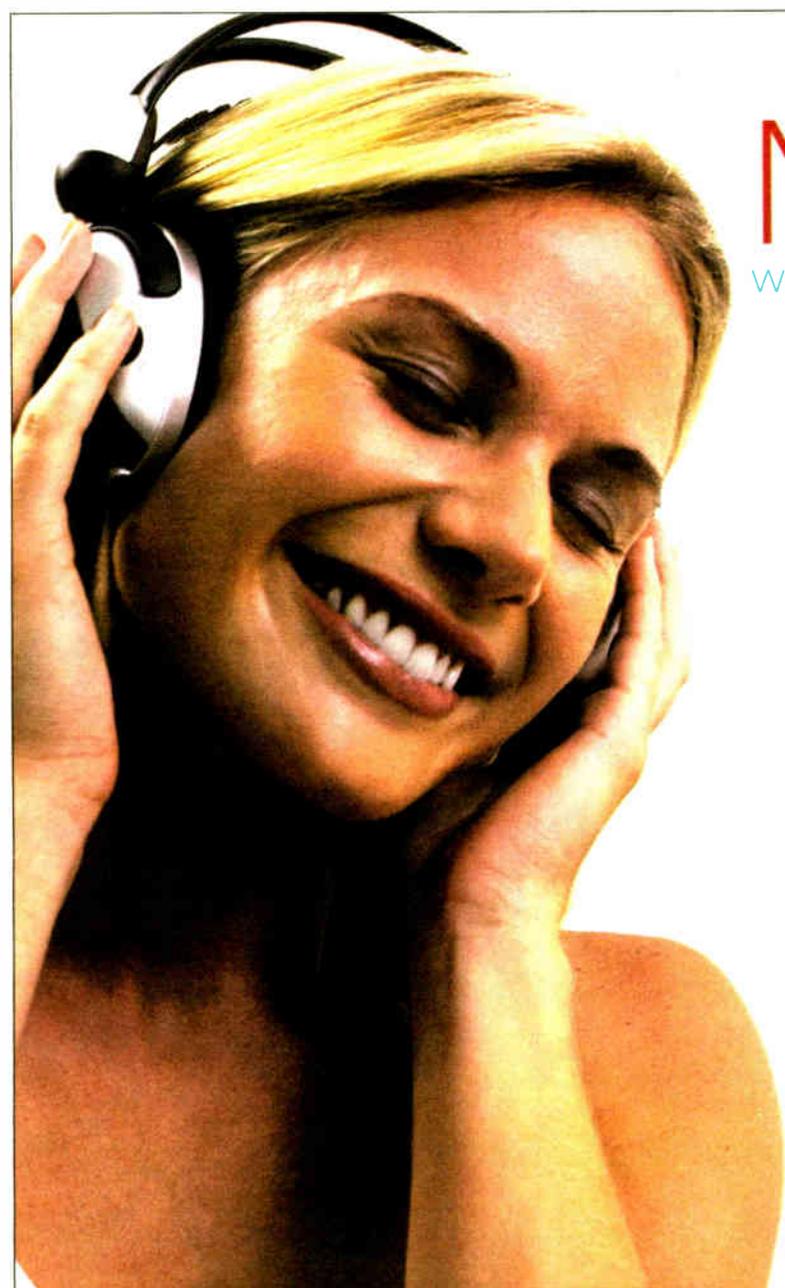
keep the brew hot and strong — a definite benefit when you are at the east tower trying to fix the lights in the dark and it is 70 degrees below.

PS: For protection during the project, the field engineers carried bear guns. Many grizzlies live within a few miles of Nome; encounters are routine. Engineers also used a helicopter to access antenna proof points. The chopper was diverted from its normal use in herding reindeer.

Lynch & Moore Consulting Engineers in Modesto, Calif., recently observed its 50th anniversary. Lynch was a member of the organizing committee and supervising broadcast engineer for the 1960 Winter Olympics at Squaw Valley. 🌐



Bill Hartman, left, at KICY adjusts phasor module designed and constructed in his California shop.



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Twenty Years Ago

"Should I go get her?" someone asked, halfway through one of the NPR board's first public meetings under new Chairman Donald Mullally. One of the board members had left to make a phone call, temporarily depriving the group of a quorum.

"Sure," Mullally said. "Cut the phone cord." And then, with a look around and a dry smile, he added: "Unless the phone company cuts it first."

The laughter that followed was uncharacteristic of the NPR board during a special round of meetings it called to face NPR's spiraling financial and management problems. Within the space of a few days, NPR's 1983 working capital deficit had been revealed to be about \$9.1 million, the accounting firm of Coopers & Lybrand had announced that NPR's financial problems were compounded by sloppy management and accounting practices, and the NPR board had forced Chairman Myron Jones and Chief Financial Officer Arthur Roberts to add their resignations to that of former NPR President Frank Mankiewicz.

"NPR Downspin Accelerates"
by Ellen Douglass
July 15, 1983

How to Submit Letters

Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry. We reserve the right to edit material for space. Longer commentaries are welcome but may not reach print as quickly. Include your name, address and contact information, as well as your job title and company if appropriate.

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Studio Sessions

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See Page 36

Radio World

Resource for Radio On-Air, Production and Recording

July 16, 2003

PRODUCER PROFILE

Concert Spots Big Biz in Texas

by Ken R.

It started in the early 1970s when Bill Young was program director of top-40 rocker KILT(AM-FM) in Houston. In his production room, Young began creating spots for the famously bearded rock act ZZ Top. He soon realized that most advertising for concerts was a hit-and-miss affair.

vides a fatter, warmer and punchier sound. "We put the premixed music bed on tracks 1 and 2 and the voices on 3 and 4," said Kelly. "When we complete the spots, we drag them over to the network, where dubbing guys pick them up and send them out over the Internet or burn them to CD for shipment."

The staff uses FastChannel, a digital delivery service. Often production is sent as

all the spots are approved before they leave here."

The company has three account reps who speak to the local promoters, sometimes hourly or even minute-by-minute. There are two marketing directors who seek out new tour business. With hundreds of touring acts, BYP has a terrific data management challenge.

"Two assistant producers keep the databases up to date, put all the materials together, pull all the CDs we need for the spots and obtain information from music charts," said Kelly.

Set up for speed

"Each time one of our guys makes a change in a spot, the assistant producers are notified. Each night everything gets backed up on 8-mm tape, and then there's a backup for that backup that happens at 2 or 3 in the morning."

In a typical day, a voice talent/engineer may produce as many as 100 spots, including generic spots, as well as customized tags.

"We're set up for speed like a radio station, but with the flexibility of a recording studio," said Kelly. "We also have a rush system where we drop everything to get a spot done, but we charge that client a premium for the service."

Kelly said one of his challenges is trying to meet everyone's needs at one time.

"Clients want everything *now*," he said. "And for some strange reason, we're the last people the acts think of. Management will book the mechanics, the trucks, the staging, the lighting, the house sound guys, and then someone remembers they need to get some spots done."

The other biggest issue Kelly faces is finding new in-house voice talent. One would think that in these days of consolidation, it would be easy to find some unemployed but talented people.

"Twenty years ago the jocks did everything including board engineering," he said. "Today you don't have that. You have guys with good voices who don't know how to turn on a computer, so we're always looking for good combo guys."

Kelly looks for people with a great work ethic, citing that quality as his top priority. While Vanilla Gorilla, the station imaging division of the company, uses voice talents in other markets, Kelly likes to keep his concert producers in the building to keep control of the production process and be prepared for instant changes.

For those wondering what a typical spot from BYP sounds like, you may never find out. The company uses a variety of voices including two Hispanic announcers, Ernesto Baez and Gil Romero.

Kelly refers to his voice talents as "guys," but he also employs female freelancers like Donna McKenzie for clients

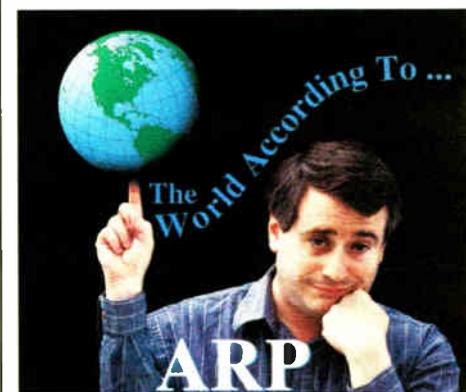
See BILL YOUNG, page 35 ►

We Won't Get Fooled Again, Oh No

by Alan R. Peterson

Sitting on my home console is one of those small, transparent acrylic novelty paperweights, a semi-dome-shaped affair with a 1983 British one-pound coin embedded within.

Frankly it is too small to hold down anything of note, and in all honesty, is not terribly attractive. The coin was not laying flat inside when it was cast, and the acrylic is somewhat yellow from impurities in the resin when used.



The coin was given to me in 1985. The industrial arts department at the Gateway Regional Middle School in Huntington, Mass., cast it by hand in acrylic plastic for me as a special favor.

I keep it on my desk in full view as a daily reminder of a very stupid couple of days spent on the air in my CHR days. Every time I see it, I remind myself, "Don't fall for any line of crap like this one ever again."

Three-way battle

In 1985, I was doing mornings and PD'ing a CHR FM in a region that boasted five colleges within our contour.

The two main FMs that dominated the market were in combat with each other, trying to see who could out-format the other while still relating to the 30-year-old professional single female. We were not even on their radar scope.

While they read liner cards and did all the things their consultants swore would draw listeners, we played the hits and had fun. Jocks could talk between songs, put kooky callers on the air and shoot from the hip instead of from rotating 3 x 5 cards.

While the two 800-pound gorillas played Linda Ronstadt, Styx and Air Supply, we were cueing up Janet Jackson, Prince and the Revolution, Van Halen and Naked Eyes. They had the numbers where they counted, but we were the *fun* station, and every dorm room blasted awake to our signal each morning.

While those two behemoths slugged it

See ARP, page 34 ►



At Bill Young Productions, From Left: Steve Kelly, Sean Neal, Bob Oakman, Matt Kelly, Kendall Roffey, Frank Scales

Young convinced his management to build a separate production room that he could use for his own concert promotion work and to generate additional revenue for the stations. In 1981 he left KILT and in 1982 built his first facility under the name Bill Young Productions, or BYP.

Masters of all media

From that simple start grew a huge company in Sugar Land, Texas, bearing his name. It now is involved in radio and TV production, billboard design and creation, print advertising and Internet strategies for touring acts.

BYP clients include some of the largest concert promotion companies in the country such as Concerts West, The Messina Group, House of Blues, Fantasma and Clear Channel, which owns about 85 percent of Bill Young Productions' clients.

On Labor Day 1990, the company moved to its current digs, which includes eight audio production studios. Radio World talked to Bill Young Productions President Steve Kelly to find out what kind of people power and equipment it takes to keep the biggest traveling acts in the country happy.

"Six of the studios are dedicated to creating concert spots and the other two are for station imaging, which we do under the 'Vanilla Gorilla' brand," Kelly said. "All of my guys here are combination voice talent/engineers. I myself do imaging for about 20 client stations."

But the facility is not entirely high-tech. While music mixing is done using Pro Tools, four-track analog tape is used for voiceovers because Kelly believes it pro-

vides a fatter, warmer and punchier sound.

an MP3 file to clients for approval. The company recently upgraded six of its eight Russ Berger-designed 14-foot by 25-foot recording suites to include Pro Tools recording media and Yamaha DM2000 digital production consoles for mixing and mastering.

The Yamaha consoles have 96 input channels, surround sound capabilities and 96 kHz-compatible stereo effects.

"We're using the internal DSP on the DM2000," stated systems engineer Tim Triche. "We have retained some of the out-board gear in a few of the rooms including Eventide 3500s, Manly Voxboxes, Aphex Dominators and T.C. Electronic Finalizers."

Clear Channel owns its own concert spot production firm Tour Design, a competitor to Bill Young Productions. Yet Clear Channel still has BYP handle many of its tours.

"Clear Channel is a promoter-based company," said Kelly. "In other words, they own the local promoter so once the tour is scheduled and we have been given the franchise, then we begin customizing spots for any local promoter involved in a tour. We are a sort of mail-order house because people from all over the U.S., Canada and Mexico and have our voice talents customize the spots for them."

Customized touches to basic spots for the act include specific dates, venue and ticket information for each market. But why don't the local stations do this for themselves?

"Tours ran into so many problems with (local) guys getting the wrong tags," he said. "The way we do it, everything is under management control. In most cases

ARP

► Continued from page 33

out, we were also first on the air in our market with the compact disc. Those bozos never saw it coming.

The city I worked in back then attracted avant-garde residents. Artists, musicians and poets gathered in this burg. The Ninja Turtles were born here. Calvin Coolidge had an office here. On the TV show "Boston Public," Vice Principal Guber got scammed into driving out to this city to audition for a nonexistent symphony orchestra.

Suffice it to say, this kaleidoscopic town was a place where anything could happen. And one day it did.

Mornin', Guv'ner ...

My GM stopped in to the studio one day close to the tail end of my show to tell me someone in city government had called him with an extraordinary story.

It seemed there were two fellows from the U.K. on a mission: They were determined to trek all the way across the United States with nothing but a one-pound coin in their pocket. They would make their mission known in advance to the towns they would visit, pinning their hopes on the publicity generated and the generosity of the public to move along and keep from starving.

This is not so far-fetched. Remember, this was 1985. We had already had "We Are the World" and Live Aid.

It was trendy and very forward-thinking to be among those who made the effort to feed or clothe some poor soul halfway around the world, as long as there was an event tied to it that would make our neighbors envious of our involvement.

Now we had a chance to roll out the red carpet to a couple of intrepid travelers passing through our wonderful city. A duo who had the dream of crossing the grand and glorious USA with little



Photo by Bob Kincaid

more than the jeans on their cans and not even enough money to pay for the phone call back to Jolly Olde England for a plane ticket home.

The story was irresistible.

It began with a phone call from the pair at City Hall to the studio. They explained their mission and wanted to let everyone know what they intended to do. As City Hall was only blocks from the station, we had them stroll over to talk on the air with us.

Their names are lost to the ages now, but I remember one looked fairly conventional while the other had one of those hairstyles that only '80s bands wore. Kajagoogoo had nothing on this duo.

Once they described their mission on the FM side, they hiked across the hall to the AM side for a little two-on-one with

the host over there. The newspaper got involved, and so did some of our advertisers.

Before long, our newfound friends all but had the key to the city. Overnight accommodations were drummed up at the hotel right in the heart of town.

there from 1983 to 1987 and we went whole-hog for all that '80s stuff.

Midday jock Marla Davis played "We Are the World" at exactly 10:50 a.m. ET on April 5, 1985, joining thousands of other stations around the world in a simultaneous broadcast of the song. My station participated by proxy in "Hands Across America" in May of 1986.

We enthusiastically helped in food drives, awareness campaigns and more. It was the mid-'80s and we were all heady with the idea of being charitable and nice. That may be why we tripped all over ourselves to say, "Hey, you know those two British guys that went through town? I was there!"

And after we let them drive our cars and date our daughters, they were gone.

Maybe these two parasites sensed the public was ripe to be plucked and cooked up a dandy story to run with. Maybe they abandoned their mission or maybe they were figured out as scam artists and busted in the next town.

I said 'good day!'

Like Harold Hill in "The Music Man," they talked a good game and then skipped town when the time was right.

I wanted to hold out hope that those two travelers had a legitimate journey, and perhaps their successes in Northampton buoyed them to continue on. They had no need for that pound coin anymore, as they were flushed with instant rewards from a loving and caring community and entrusted it to the one

The king would have won the Revolutionary War with nothing more than a pocketful of one-pound coins.

People opened their hearts, their kitchens and their wallets. A few bucks here and there started to add up. They were fed well and given clothing. The charismatic travelers spoke glowingly of our generosity, thanking everyone in every medium that devoted attention to them.

Thanks for the memories

They stayed overnight in town, then called my show and talked about their next few stops along the way, again thanking everyone for their generosity and openness.

Then, oddly enough, they stopped by the station sometime after 2 p.m. that second day. I was still there doing PD duties and they asked for me. They thanked me again, handed me an envelope and headed out.

Inside the envelope was a one-pound coin. To say I was bewildered for a few minutes would be bluntly obvious.

What was more obvious was my first and only conclusion: We got royally rooked by those jolly lads from the other side of the pond.

Lest you think this is fiction, it is not. The station was WHMP(FM), the city was Northampton, Mass., which is just a little ways north of Springfield. I was

real friend they had in town — the local radio station and its staff.

But as time wore on, and the sense of dread from having been had settled over me, the Queen's face on that coin seemed to mock me. "You bloody fool," I would sense. "If we knew you Yanks were so gullible, the king would have won the Revolutionary War with nothing more than a pocketful of one-pound coins!"

A day after they were gone, nobody spoke a word on the air or off. Maybe the novelty passed quickly, or maybe everyone was too embarrassed to admit they got scammed. We never heard a peep from the travelers again, in spite of their assurance they would provide us with progress reports as they headed west.

Can the same scam happen today? Hard to say. The World Wide Web goes a long way in helping us investigate such claims, but a fake blog or a well-crafted home page made by bunko artists can make anything look legitimate.

Stay on your toes should someone buzz through your town with a similar tale. Thankfully it didn't cost me a dime. In fact, I made a pound in the process.

And I'm keeping it locked in the acrylic blob you see here to remind myself never to fall for something so goofy again. 🌐

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PRODUCT GUIDE

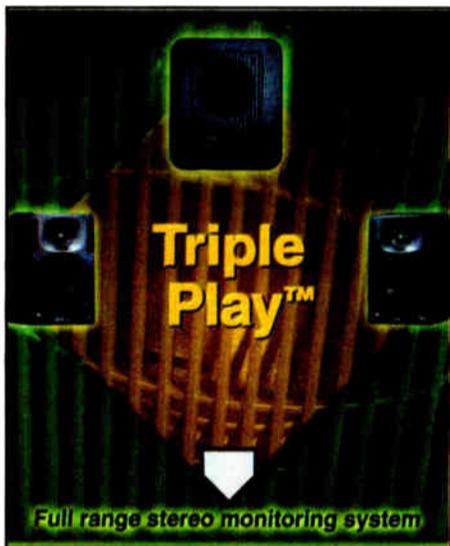
Genelec Compact Monitor System Allows Placement Flexibility

The Triple Play system from Genelec stereo monitoring system consists of two 1029A two-way, bi-amplified active monitors and a 7050A LSE active subwoofer. Applications include broadcast, recording and postproduction studio work.

The 7050A subwoofer was designed to complement the 1029A active monitor. The 1029A monitors are small enough to place on a desktop as part of a multimedia and/or audio workstation.

The system has an in-room flat frequency response of 38 Hz to 20 kHz (+/-3 dB) and each component features an integrated balanced crossover, driver protection circuit and dedicated power amplifier. Price: \$1,799 for system.

For more information contact Genelec in Massachusetts at (508) 652-0900 or visit www.genelec.com.



eSkimmer Offers Digital Audio Loggers

The eSkimmer digital audio logger from eSkimmer Digital Logging allows access to audio recordings via the Internet, LAN or WAN.

Users can e-mail audio recordings from client software, export and store in multiple formats on multiple servers; servers can be grouped together. eSkimmer can link to create a large logging network and can skim from any audio source, run on Windows or MAC and allow viewing of more than 1,000 channels at once.

The DVR-Platinum Appliance is a 4 RU system that includes hardware and software for up to eight stereo channels with 140 GB of audio storage for \$9,999. The DVR-Gold Appliance is a 3 RU system for up to four stereo channels with 70 GB of audio storage for \$6,999. The DVR-Mobile Appliance is a mobile system for recording up to two mono audio channels with 20 GB of audio storage for \$2,499.

For more information contact the company in Oregon at (866) 500-5253 or visit www.eskimmer.com.

Bill Young

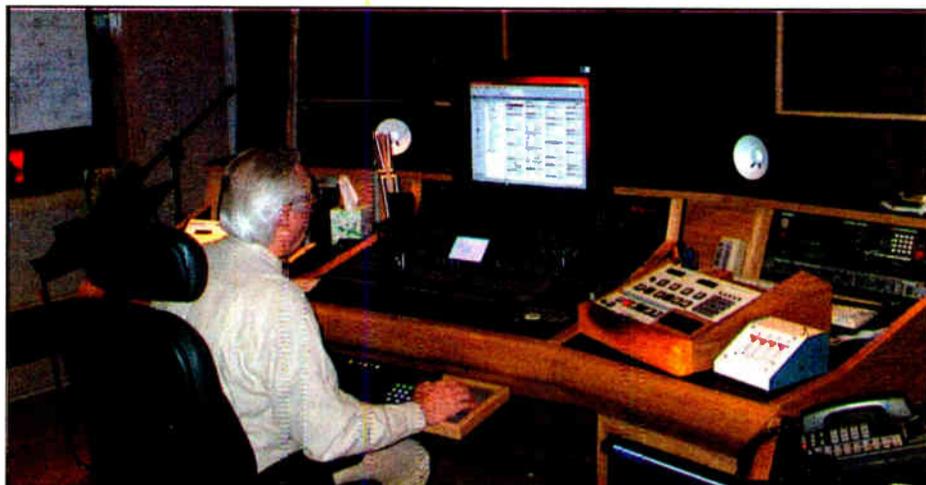
Continued from page 33
wanting a softer, smoother delivery.

And what about Bill Young himself, the man who started the company? He is involved primarily through the board of directors.

"However," said Kelly, "I still need his help occasionally and he's always there on the phone for me."

You can learn more about Bill Young Productions by visiting www.concerts.com.

Ken R. is a former broadcaster whose light voice perfectly qualified him for those "available at K-Mart and Montgomery Ward" tags and not



The facility recently upgraded six of its eight Russ Berger-designed recording suites with Pro Tools recording media and Yamaha DM2000 digital production consoles.

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The hands-down new product winner at this year's NAB is the exciting SAS **Rubicon™** console control surface. Rubicon sets new standards for innovation and versatility. It features a clean layout, easy-to-understand controls and an

extensively customizable modular design. Rubicon can be configured for the most complex on-air studio, the simplest news booth, or any point in between. And, it looks really great too.

To kick off the new sales program, our **4th of July Summer Special** makes now the perfect time to get the coolest deals on the hottest SAS products.

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PRODUCT EVALUATION

Spirit ES Goes the Stereo Route

by Alan R. Peterson

You have decided to get into the freelance voiceover/tracking business and are shopping for an appropriate mixer.

Or maybe you convinced management that the station's now-unused prize closet might make an effective backup or second production room.

Either way, it is time to land a mixer that can be installed quickly, sounds good and offers a decent feature set. Enter the Spirit ES mixer (\$599.95), part of the Spirit E Series from England-based Soundcraft, distributed domestically by The Soundcraft Group.

While not a broadcast-specific board, the ES reverses the concept of the typical small mixer — normally lots of mono mic inputs and a token amount of stereo line ins — and instead offers up four mics and 10 stereo inputs.

This assures plenty of stereo mixing capacity to start with and to grow with, in an attractive case with a powdered metal-type finish.

Mute It

One complaint when using small, nonbroadcast mixers in a broadcast environment is that there is no mic mute logic. Turn up a mic input and get feedback.

Many users simply make it a habit to turn down the monitor speaker when opening the mic, but this is an unnecessary compromise. What is needed is a Channel On switch to activate the mic and cut the monitors, just like in the main studio.



Broadcast Tools makes the CCIIA console controller, which offers full mute logic for three microphones and trips an on-air light when in use. We use two of these in studios at the Connecticut Schools of Broadcasting campus in Washington.

For occasions where only one microphone will be in use, use a 4PDT toggle switch mounted in a small Bud case or plastic box.

One pole interrupts the mic signal fed to and from the mixer's Insert jack, two poles carry monitor audio from the mixer to the amplifier and the fourth is tied to a low-voltage relay, which remotely activates a tally light.

In use, throwing the switch disconnects the feed from the mixer to the amp, while simultaneously switching on the mic and the tally light relay. For safety, do not run 120 VAC directly through this switch.

— Alan Peterson

In small room layouts, a mixer like the venerable Mackie 1604 generally is the first choice, for many good reasons.

It connects to almost anything, is forgiving of incoming levels, has lots of extras and has four busses going out. Many a home studio and small production space have been outfitted with this mixer. And with 16 inputs, it would be in use for awhile before being maxed out with additional sources.



Or would it? Because each stereo source would occupy two faders, the capacity of the mixer is halved — down to eight stereo inputs. Add the need for, say, two microphones, and the ability for that 16-channel monster to handle multiple stereo sources plummets to seven.

When you have a PC soundcard, two CD decks, a cassette and/or a MiniDisc machine, a DGS receiver box and a feed from another studio to worry about, you start feeling the squeeze.

Then there is the redundancy of having two sets of pan controls, two sets of EQ strips and more Aux sends than you may ever need, per stereo source. An awful lot of that mixer is going to go unused.

This is not a slam against Mackie. The 1604 is one of the most popular and visible mixers in the audio industry. It is just that, for broadcast production purposes, we are likelier to require dedicated stereo inputs and a single set of EQ and Aux controls per input. Plus, with four-track tape recorders practically a thing of the past, four-bus operation is no longer a major consideration.

The Spirit ES offers a feature set that is considerable, although limited in some ways, which I will explain; and there is enough broadcast-familiar operation to it (such as a way to do cueing) to make it simple for any broadcaster to operate.

Close look

As noted, the Spirit ES worksurface is steel, with an attractive powdered metal finish. The surface appears durable; this is negated, however, by the plastic shafts of the rotary pots. The panel may take a beating, but the shafts could snap and strip in an impact. While designed to be portable, this is not a "toss in the truck" kind of mixer.

Speaking of portability, the ES has it over the more boxy and angular Mackie 1604 with a front wrist rest that doubles as a carry handle. The curved front curls underneath into a comfortable lip that makes it easy to grab and go.

Linear faders are 100 mm types and are undamped, lacking the viscous feel of those on the Mackie unit.

Connections are made to jacks along the rear of the top panel. While handy, I still prefer jacks on the rear panel; for one thing, the wiring and patching is concealed; and a

spilled coffee won't pour down into the mixer's guts through open jacks.

The surprise is where Soundcraft engineers hid the power plug: under the mixer, next to an enormous grounding stud on the chassis. Creating star grounds to the ES will not be an effort, believe me.

The four mono inputs share similar features. Each have XLR and quarter-inch jacks for mic and line-level signals, an Insert jack for outboard processing or muting interrupt

(see sidebar), gain trimmer, three-stage EQ, two Aux Sends and a panpot.

Solo and Mute buttons and a Peak LED round out the mono input strips. A phantom power button activates +48V on all mono channels.

The shelving Low Frequency EQ offers ± 15 dB and turns the corner at 80 Hz, which is appropriate for cutting room rumble. You can put more bass power behind a male voice on mic, but you are boosting everything in that range.

For adding more punch to the human voice however, you might be better off with the Mid EQ stage, offering ± 15 dB, sweepable between 140 Hz to 3 kHz with a fixed Q of 1.5. The High Frequency EQ does its magic around 12 kHz.

The Spirit ES offers a considerable feature set with enough broadcast-familiar operation to it to make it simple for any broadcaster to operate.

The mono inputs are the only place you will find sweepable mids. The EQ on the stereo channels has a centered frequency of 600 Hz.

A lot of thought went into what kind of gear would be connected to the Spirit ES. For example, Stereo Inputs 1 and 2 have RIAA-equalized turntable inputs included — no need for an external pre-amp. Channels 3 through 6 have RCA phono jack inputs as well as quarter-inch balanced inputs (the jacks override the RCA inputs when used).

Gain trimmers are on each stereo input. You never know what those factory-set levels on that MD deck are going to be sometimes, right?

And last, each stereo input can also be a mono input if needed. Plug into the Left channel only, press a Mono button (on inputs 3 through 6 only) and you can now have 10 mono line-level channels if desired.

In broadcast use, there is hardly ever

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Thumbs Down

- ✓ Plastic shafts on pots
- ✓ Why no Auxiliary Returns?

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For information contact The Soundcraft Group in California at (888) 251-8352 or visit www.soundcraft.com.

the need for Solo and Mute buttons on a console — Soloing and Muting production tracks generally is done inside the DAW — but both offer broadcast-like functionality that many may not have thought of.

Ramping

When depressed, Mute buttons behave as Channel Off keys. Ramping a fader up or down would have no effect with the Mute button in.

This is generally not used in this manner, as these buttons are so small they can be ignored or entirely missed. Plus, buttons of this type are of light construction, and we all know how broadcasters like to wallop switches.

The Solo buttons can be used to cue up new audio. Pressing a Solo button puts a source up in the speakers and headphones without sending it to the mix outputs. It doesn't feel the same as a dedicated Cue button and speaker, but it is a reasonable

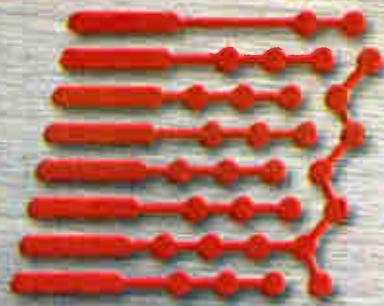
use of this feature.

As mentioned, there are two Auxiliary Sends that can send pre- or post-fader signals to an outboard processor. Trouble is, there are no Aux Returns on the Spirit ES. Again referring to the Mackie 1604, there are corresponding Sends and Returns that provide a completed path for any audio directed out of the mixer for secondary processing and a return to the mix.

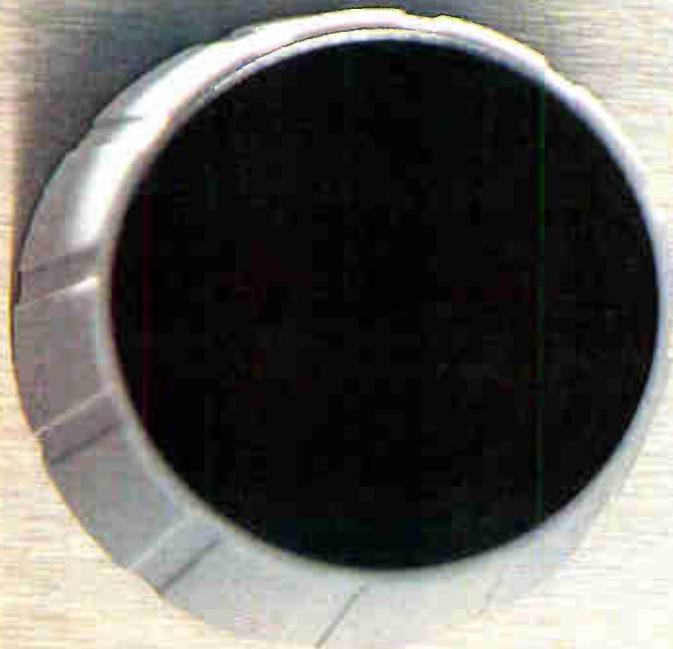
Maybe it is a common aspect to the general design of British consoles; I own an Allen & Heath WZ20S mixer that has six Aux Sends, but likewise lacks a single Return. It is assumed the Return audio will be sent to an unused input channel.

As it is, we do not find ourselves using Aux Sends much in the studio anyway. Basic mic processing can be done through the Insert jack on the respective channel, and most fancy trickery is now done inside the DAW.

See SPIRIT ES, page 39 ►



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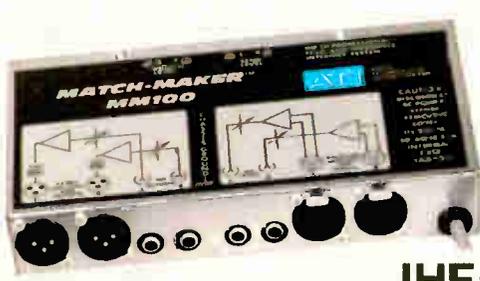
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PRODUCT GUIDE

Kramer Launches XLR-Input Mixer

The Kramer Electronics VA-15xl is a six-input balanced audio mixer that uses XLR connectors.

Each input can be set to operate at mic level or +4 dB line level. Each has a switch to supply 48 V phantom power for applications requiring typical condenser microphones to be connected to the VA-15xl.

A front-panel level control for each channel is used to set desired output level; a master level control adjusts the mixed output level.

A headphone output with a dedicated level control is provided for local monitoring. The VA-15xl is housed in a desktop-style enclosure, but can be racked using the optional RK-MED kit, which holds a single unit in one vertical rack space.

The list price of the VA-15xl is \$595.

For more information contact the company in New Jersey at (908) 735-0515 or visit www.kramerelectronics.com.



Spirit ES

► Continued from page 36

If there would be a primary use for the Aux Sends on the Spirit ES, it would be as an improvised mix-minus to feed a phone hybrid or a PA feed at a live remote. No return would be needed then.

Wrap-up

To their credit, Soundcraft engineers included lots of diagrams of cables and their connections. Not everyone knows exactly how to fabricate a balanced XLR-to-unbalanced phono plug connector. The ES manual includes two dozen diagrams of adapter cables that you should know how to wire up and use.

The manual also shows its U.K. roots by its use of terms such as "3-pole A gauge jacks," better known as quarter-inch TRS plugs here in the colonies, and "75R" to indicate output impedance. The manual also includes a warning about high SPLs in headphones. Bravo.

Looking for a more permanent mount for the ES? The side wings come off, making

way for rackmount brackets. Put it in an equipment rack or get someone to make a set of decorative wood wings so it looks more like a broadcast board.

As a mixer for home studio/tracking use or even as a board for an auxiliary production room, the Spirit ES is a good performer with the right features, a reasonable alternative to the popular Mackie 1604 for broadcast-type production. It lets you have real stereo inputs without eating up two faders in the process.

The absence of Auxiliary Returns and the relative fragility of the plastic pot shafts are my only real concerns. Again, how often do we need an Aux Send and Return anyway, and as long as the mixer is not trucked around or situated under a PC monitor or speaker that may topple, we should be okay.

Small rooms call for small mixers. But that does not mean they should be devoid of features. The Soundcraft Spirit ES mixer fills a need you may be experiencing even now.

Alan Peterson does production and imaging for WMET(AM), Gaithersburg, Md./Washington, and teaches broadcasting at the Connecticut Schools of Broadcasting and Montgomery College. Reach him via e-mail to alanpeterson@earthlink.net.

Upgrades and Updates for iMediaTouch Broadcast System

OMT Technologies said iMediaAccess for its iMediaTouch Broadcast System is aimed at station clusters.

The product is a wide-area network module that allows control and saving of audio assets across multiple stations.

"Using a drag and drop interface, operators can copy audio (voice tracks, songs, commercials, IDs) to and from on-air or production studio locations," the company stated.

"iMediaAccess gives the operator the ability to create and view on-air schedules, monitor the on-air status of a remote location and view TTA information via HTML."

OMT Technologies also recently released Version 2 of the iMediaTouch Broadcast System, the company's flagship product. iMediaTouch provides On-Air voicetracking with versatile fade controls, segue timing and ducking. Six SFX or beds can be dropped over the top of voicetracks.

On-Air front and back sell information filters all audio except the music; a new on-screen recorder has been added for phone bits. Also new are Hot Key fade out and repeat codes.

New production features include an easier-to-use graphical interface, improved search engine capabilities, enhanced WAV, MP2 and MP3 editing functions and a faster CD ripper for audio production in a fast-paced radio environment.

New playback features let the user test logs prior to air. Scheduled showlog loads are available for DJ shift changes and satellite drop liners; a template generator simplifies satellite content creation by breaking the day into one-hour blocks. A summary onscreen report identifies exceptions during the merge process.

For more information contact the company in Canada at (204) 786-3994 or visit www.omt.net.



Calrec Zeta Console Provides Digital Alternatives

Calrec says the Zeta 100 production console was designed to provide broadcasters with a range of purpose-designed digital alternatives to analog products.

The Zeta 100 provides a digital alternative for the same market served by the company's C2 analog console, but with more features.

Standard Zeta 100 features include dynamic on every channel, eight auxiliaries, 16 multitrack/IFB sends, 99 Flash ROM setup memories, internal routing and 5.1 surround mixing and monitoring.

The Zeta 100 is available in three standard frame sizes, 23, 32 and 48 faders, with DSP allocation for up to 56 channels. Cards and panels are hot-pluggable with automatic redundancy on power supplies, DSP and control processors. Operation is not dependent on a PC and the console boots up in less than 20 seconds.

For more information contact Calrec Audio Ltd. in West Yorkshire at +(44) 1-422-842-159 or visit www.calrec.com.

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PRODUCT EVALUATION

Take Production to the Next Level

by Ed LaComb

No true sound designer worth his or her salt would even consider passing up a chance to put an ear to the latest cool sounds to come out of The Hollywood Edge. So, when the opportunity to do so was presented to me by Radio World, I could not resist.



Cover illustration by Ed Roth, 'Sick But Happy', 'Rat Fink', Phonorecord, Ed Roth 1999, artist Ed 'Big Daddy' Roth.

Tech and Top Secret" (\$395).

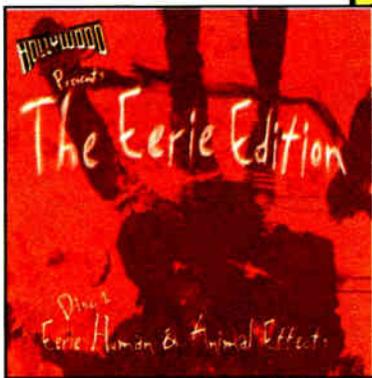
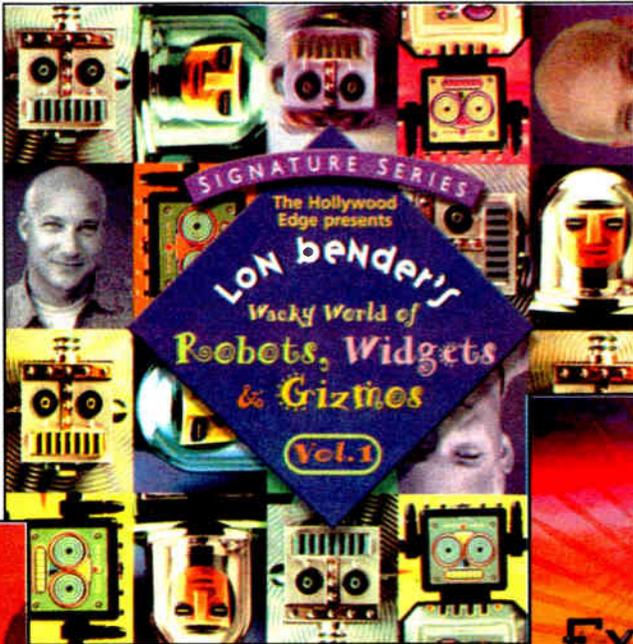
I tried to choose libraries I thought would be the most radio-friendly and useful to the average radio producer.

Overall, I was impressed with what I heard, but there were a few effects that seemed better suited for TV or film sound

Lon Bender's "Wacky World of Robots, Widgets & Gizmos," a two-CD set of all kinds of mechanized sounds, is a must in any studio. The first of the two CDs features impacts, weapons and machines, including much-used metal blade chings, and a few good pneumatic sounds.

Also included are cartoony gadgets, a la Jetsons-like splats, robot movements and things working. Unique sounds include musical machines doing everything from jingle bells to metal drums. You can set a nice ambience with lab backgrounds and other atmospheres.

The second CD features beeps galore. There are high-



design than that of radio. That figures; The Hollywood Edge is a division of SoundDeluxe, the folks who create many of the sounds you hear on TV and the movies.

In fact, most of the effects that make up The Hollywood Edge libraries come directly from movies or shows that you may have seen.

When it comes to radio production however, sometimes the effect you need is not the effect that sounds true-to-life, but rather one that your mind perceives as real. That is where a few elements in these libraries fall short. Still, you cannot beat the quality and depth of a Hollywood Edge library.

I was able to choose as many libraries from The Hollywood Edge as I liked; truly this would be the ultimate test drive.

I chose Lon Bender's "Wacky World of Robots, Widgets & Gizmos" (\$199), "Extreme Drones" (\$349), "Eerie Edition" (\$299), "Busted and Most Wanted" (\$249) "Sports with Balls" (\$495) and "High

tech buzzes, warnings and electrical effects. There are moving robotic sounds — even robot voices laughing — which would work well in a radio spot.

If radio imaging is your thing, you should check out "Extreme Drones." This three-CD set is the perfect set of discs to establish a mood. The effects are not the typical zings, zaps and music beds that one finds in a radio-imaging library, but they complement any of those types of libraries well.

"Extreme Drones" would work well with video. It features odd-length cuts ranging from 56 seconds to 3 minutes, 39 seconds. Name a mood ... scary, airy, tense, light, caves, soft textures, bell tones, winds, angelic sounds or alien and it is likely to be in this set. Again, while not a stand-alone solution for imaging, it does complement what you may already have.

Halloween

Be honest. What radio producer does not totally love producing scary, Halloween spots? If that describes you, then you are probably tired of cheesy horror effects and beds. Your producer need is fed with "Eerie Edition."

This is a three-CD set with the first disc featuring Human/Animal effects. Specifically, the sounds include breathing, groaning, pain, pleasure, monster, demonic, scary seagulls and growls. On the second disc you will hear Ambiences/Elements. These sounds are great stage setters, and include heartbeats, winds, dry ice, thunder, metallic sounds, running in leaves ... great stuff for autumn-type spots.

The third CD contains a unique set of self-described Musical Hits & Hells. This is where music meets horror. Need a

Product Capsule: The Hollywood Edge Libraries

Thumbs Up

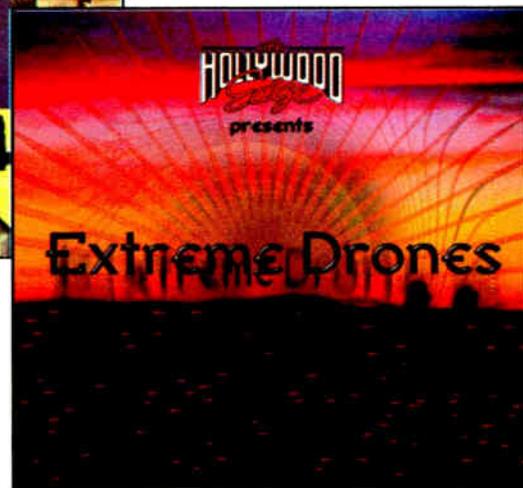
- ✓Sheer size and scope of the areas covered by each library
- ✓Quality of sound ... no fake, tinny, eq'd effects
- ✓Easy to find; well indexed
- ✓Affordable

Thumbs Down

- ✓Some effects created with the visual medium in mind do not translate well for radio use
- ✓Many mix outs have similar sounds

Price: \$199 to \$495; see article

For information contact The Hollywood Edge in California at (800) 292-3755 or visit www.hollywoodedge.com



Halloween spot done in a hurry? This is the disc you want in your studio.

Another useful three-CD set from The Hollywood Edge is "Busted and Most Wanted." If it is broken, this fixes it. If you have holes in your existing effects libraries, this fills them. Track through aircraft flybys, alarms, backgrounds (such as air conditioners running, room ambience, cheerleaders, clocks (a la the opening scene of "Back to The Future"), computers, doors and electrical sounds like a guitar plugging into an amp. There are machines, pinball machines, a bath fan and a Coke machine. Plus, as the name implies, broken machines.

Spinning your wheels

Check out cool sounds like a drill straining, a hair dryer dying, wind downs, servos, a vacuum cleaner dying and doors rattling. There are trains, vehicles that are busted featuring starts/no starts, dies, flat tires and even tires spinning in the snow. How many times have you wanted that one?

If you are looking for libraries that go deep into their themed sound-design, then The Hollywood Edge box sets are worth a close look. I love "Sports With Balls." This six-CD box set has it all: football, baseball, hockey, basketball, football crowds and baseball crowds — realistic and usable. Are you imaging a sports station? If so, you need this library.

The final library I checked out was "High Tech and Top Secret," a five-CD box. The set is a cool combination of useful sounds, such as robots, data streams, communications, hospital sounds, tools, buzzes, alarms, static, walkie talkies and more. Spend a few hours with this library to really make your head spin.

I have always been a fan of The Hollywood Edge. Its sound on the radio jumps off the dial and helps to make "theater of the mind" a reality. Hopefully your production budget will allow for a couple of these libraries this year.

Your clients will certainly appreciate the quality that you can offer them for a little bit of money.

You can hear library demos at <http://thehollywoodedge.com>.

Ed LaComb is president of Ed LaComb Audio Imaging Inc. 🌐

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ABC Radio Chicago

PRODUCT GUIDE

Audion VoxPro Now More Affordable

Audion has announced a \$999 price point for its VoxPro PC software, as well as a \$999 price point for the optional Control Panel.

Audion also announced that VoxPro PC software now comes with VoxPro PC Network; buyers of two or more units will be able to network VoxPro PC workstations for easy file transfer between work group members.



VoxPro PC Network does not require a dedicated server and permits users to access their accounts from any VoxPro PC on a station's network.

VoxPro PC software provides fast digital editing of voice and phone recordings on Windows 2000- or XP-based PCs; the software uses a keyboard or optional VoxPro PC Control Panel.

VoxPro PC software features and capabilities include support for most file formats, including MP3. The unit records host and caller on two separate channels; automatically separates host/caller talkover using VoiceSlip; and scrubs audio using jog wheel or buttons. One-button Insert Record automatically sandwiches new audio into existing recordings. The system copies or moves multiple files from folder to folder and user to user, and deletes multiple recordings at a time. Unlimited undo's and redo's remain active for life of the file.

For more information contact the company in Washington state at (206) 842-5202 or visit www.audionlabs.com.

InnovaSon Sy80 Uses SHARC DSP

The InnovaSon Sy80 has 80 inputs and outputs, 80 faders and 48 mix busses. It allows users to define the function of any fader.

With this version of the company's real-time console software manager, Sensoft 8, and a DSP module using SHARC digital signal processors, the Sy80 offers considerable mixing capabilities, according to the company.

Sensoft 8 software introduces two features, XFAD technology and a Fader Configuration System, to allow users to define the function of faders on the console surface.



Faders configured to control mix busses may be designated as mono, stereo or LCR, auxiliary or matrix masters, audio subgroups or VCA group masters. InnovaSON says an almost unlimited number of VCA groups may be created.

The Sy80 system incorporates Mix Box, a local audio rack that is remote-controlled from the control surface. Mounted in a separate flight case or located in the control room or remote vehicle, Mix Box allows outboard equipment to be connected to the console I/O, minimizing cable lengths and ensuring signal quality and reliability.

For more information, including pricing, contact the InnovaSon in Connecticut at (860) 434-9190 or visit www.innovason.com.

Digital Air Console From Otari

Here is a specialized board from a familiar name: Otari Corp.

The company describes its DB-10 as a digital on-air console in a compact format.

Offering sample rates from 32 to 96 kHz, the DB-10 has 10 configurable channel-input faders. The microphone inputs on channels 1-4 are always available, while the remaining six faders can be set to control six stereo or two mono analog input channels, four AES/EBU channel pairs or two S/PDIF input channel pairs.

Analog and digital outputs can be routed to the A or B inputs of channels 5 to 10 for a total configuration of four mono and six stereo channels, making 16 active signal paths in all. Each channel includes three-band selectable EQ, compressor/limiter, two aux, two telephone and two program buses, plus two digital N-1 (mix-minus) buses.

The compact console is targeted at small studios and outside broadcast vehicles, however, four DB-10 consoles can be cascaded to provide up to 64 channels, making it suitable for larger facilities as well.

Talkback and program busses are shared across cascaded consoles. Each channel includes sample rate conversion for digital input signals and the console can lock to external word clock or its own internal master clock.



Setup uses a recall system allowing 99 password-protected snapshots to be stored, plus nine project (console) settings and 20 compressor/limiter settings. A computer connected via RS-232 permits external storage and retrieval of settings, and allows consoles in different studios access to common settings.

An Emergency button provides for safety operation. If the digital system malfunctions, this button connects one microphone and one stereo line to the program bus to feed signal to the main output. If DB-10s are cascaded, this function operates across the combined consoles.

The DB-10 is powered by a separate PSU that supports universal voltages (100-240VAC), and optionally 24VDC for OB operation. Power supply redundancy for fail-safe operation is supported.

For more information, including pricing, contact Otari in Tennessee at (615) 255-6080 or visit www.otari.com.

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Bogan amp/mixer, 70 volts & meter, like new, \$300/BO. Joseph Lalino, WLAL, 319 N.Y. State Rt 29, Middletown NY 13406. 315-891-3110.

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Orban 8000A audio processor, \$700. Adam Lemieux, WUSO, POB 6100 Box 720, Springfield OH 45501. 937-327-7026.

Aphex Compellor 320A, stereo, w/manual, \$800. Ron Witt, WSTG/WAEY, POB 5588, Princeton WV 24740. 304-425-2151.

Modulation Sciences CP803 FM composite clipper w/manual, \$800. Ron Witt, WSTG/WAEY, POB 5588, Princeton WV 24740. 304-425-2151.

Optimod 8100 with add-on XT2, \$1200. Ron Witt, WSTG/WAEY, POB 5588, Princeton WV 24740. 304-425-2151.

Optimod 8100A FM processor, just through the shop, like new, \$2800. Ron Witt, WSTG/WAEY, POB 5588, Princeton WV 24740. 304-425-2151.

Texar Audio Prisms (2), with #5 Texar card, \$800/both. Ron Witt, WSTG/WAEY, POB 5588, Princeton WV 24740. 304-425-2151.

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Inovonics David, must be reasonably priced. JC Goggan, Good News Voice, POB 187, Washington MO 63090. 636-239-0400.

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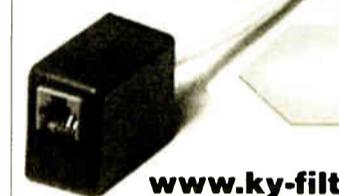
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Otari MX5050, 3 units, (2) roll arounds, (2) rack mount, good to excellent condition. Gerry Turro, WJUX, 75 Second St, Dumont NJ 07627. 800-585-1031.

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ERI Circular, 12 or 6 bays, high power, adjustable from 99.5, good cond., JC Goggan, Good News Voice, POB 187, Washington MO 63090. 636-239-0400.

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◆ READER'S FORUM ◆

Radio World, July 16, 2003

Media ownership

Radio World, thank you for your excellent editorial, "The FCC Didn't Hear the Screams" (June 18). Succinctly put, well presented. Keep up the good work.

I hope Michael Powell's office is deluged with copies of this item.

*Jeff Winkless
Evanston, Ill.*

A well-done editorial. Thank you for speaking for so many of us.

*Steve Blodgett
Los Angeles*

I want to thank Radio World for taking a stand against the recent FCC ruling.

You are in a unique position to help keep the public airways public. Please continue, because if we lose our voice, the alternative is worse than any Orwellian nightmare we could ever imagine.

*Richard Bohn
Spokane, Wash.*

In the wake of the FCC vote to raise media ownership limits, the putative head of Clear Channel Communications, Mark Mays, recently said, "Just 10 years ago, nearly 60 percent of the nation's radio stations were operating in the red, cutting news budgets and laying off employees. Deregulation changed all that. But instead of letting radio stations find better and more-innovative ways to serve their listeners, the FCC is intent on turning the clock back to a time when the industry was incapable of providing consumers the variety of programming it does today."

The news budget cuts and radio staff layoffs visited upon the radio industry by Clear Channel are the largest in history. And the extent of innovation and variety of programming available

to radio listeners has never been more paltry than since publicly traded consolidators like Clear Channel proceeded under deregulation to agglomerate most of the nation's most prominent radio facilities.

It is true that many of the new wave of FM stations created under Docket 80-90 had a difficult time getting on their feet while paying full-time air staffs during the early 1990s recession.

However, it is the advent of computer-based automation, not deregulation, which has since facilitated the operation of smaller radio stations at a profit. Unfortunately, deregulation was put in place just as many of the new stations could have become successful, locally owned, unique, quirky and semi-automated, sans consolidation. The result would have been a very interesting and stimulating choice of viable radio stations up and down the crowded dial.

Under deregulation, we've experienced the dumbing down of radio for the sake of corporate profit. Business enjoys increased clout over the creative arts, and apparently even over the com-

mission itself.

Yet one can't fault the consolidators for taking advantage of the new rules to increase shareholder value. The root of problem is not the radio companies, but rather the Telecommunications Act of 1996. That's why it would have been in the public interest to

somewhat retighten, rather than to further loosen, the rules on radio ownership.

We would argue that the public interest is served well by the cultural variety of multiple choices of interesting radio stations, the products of the creative approaches of many different licensees.

And that the public interest is less well-served by a few large corporations owning a Kiss, Frog, Fox, Cat, Q, B and K-something, all with essentially the same restricted playlists repeated endlessly in most every market across the nation, as is the case today.

**The public
interest is less well-
served by a few
large corporations
owning a Kiss, Frog,
Fox, Cat, Q, B and K
something, all with
essentially the same
restricted playlists
repeated endlessly.**

— Dennis Jackson

For Clear Channel to take credit for saving radio and claim that its agglomeration and homogenization of many of the nation's finest radio properties is somehow the savior of the integrity and viability of the radio business is misappropriation of credit and transparently self-serving.

Even so, the real question is, will that position successfully run interference in defense of corporate interests over the public interest? Or is programming variety perhaps not important enough an issue in the context of today's political climate to even count as a significant factor in the "public interest"? It comes down to a value judgment, simply a matter of one's opinion.

*Dennis Jackson
Owner*

*WMEX(FM), Rochester, N.H.,
WQQQ(FM), Lakeville, Conn.,
WRIP(FM), Windham, N.Y., and
WCLX(FM), Burlington, V.T.,
Wilton, Conn.*

◆ READER'S FORUM ◆

Hello, Tattori

A phenomenon known as sporadic "E-layer" skip conditions and sun-spot cycles explain unusual radio propagation we've experienced recently. Cab drivers and police often find themselves talking from New York to L.A. when this happens. It reminds me of a story.

I always loved ham radio, for the hobby value, the public service and the affiliation with military communications and running free phone calls for the guys overseas. But due to heavy workload and commitments, I became inactive until last month, when I decided to install a monster antenna and re-establish myself with the hobby. And as a kid, I was unsuccessful in making contact with many other countries.



Don Elliot

Imagine my surprise when I fired up the transmitter and receiver early last Friday and heard a Japanese station coming in like a local. This would normally cause a tremendous "pile-up" of other stateside hams attempting to call simultaneously to see if they could be heard. With these "skip" conditions the way they were, I called Masa (JE4JSV) in Tattori, Japan, and we spoke for nearly 45 minutes until he said his supply of sake on ice had run out.

Coincidentally, on this same day, Channel 2 was almost unreceivable here in

L.A. just across town due to the same conditions. Their frequency falls into the "band" that is most affected by these conditions as well.

Just a little piece of what still makes radio, in the broadest terms, still a lot of fun.

And of course, there is still the daily normal "DXing" of AM stations that is normal. Last time I was in Hawaii, I could hear KFI loud and clear on the Big Island in the morning around sunrise.

*Don Elliot, W6IFR
Free-lance v/o and Jingle Producer
www.SpotsNow.com
Hollywood, Calif.*

Christian listening

I appreciate Clarence Jones voicing his comments about the translator filings now before the FCC (June 18). I would like to add that I am very pleased to be a part of the 5 percent who listen to Christian radio. Some of my best customers are fellow believers.

*William K. Hoisington
President
RF Specialties of Florida Inc.
Valparaiso, Fla*

Oldest transmitter

I recall an impromptu contest for the "oldest working transmitter." in which some 1940s model won. The thing was, it was not working. The article even said it had been disconnected since the '70s, yet it still won.

I know of a transmitter at KWG(AM) in Stockton, Calif., that was hand-built by the McClatchy engineers in 1930 and was still at the site the last time I looked. It was on the air until the 1980s.

I had the (dis)pleasure of working on this transmitter when I was employed there in the '80s. In fact, up until KWG received authorization to operate with 1,000 watts full-time in the 1970s, this transmitter was used every night as the nighttime transmitter. Some beat-up RCA was the day-time rig.

There are four 810s (two parallel, working push-pull with two more parallel) modulating two 810 final amp tubes. This transmitter could make 200-percent positive peak modulation all day long. There are no fans or anything — convection cooled — and the transmitter made no noise at all when on the air.

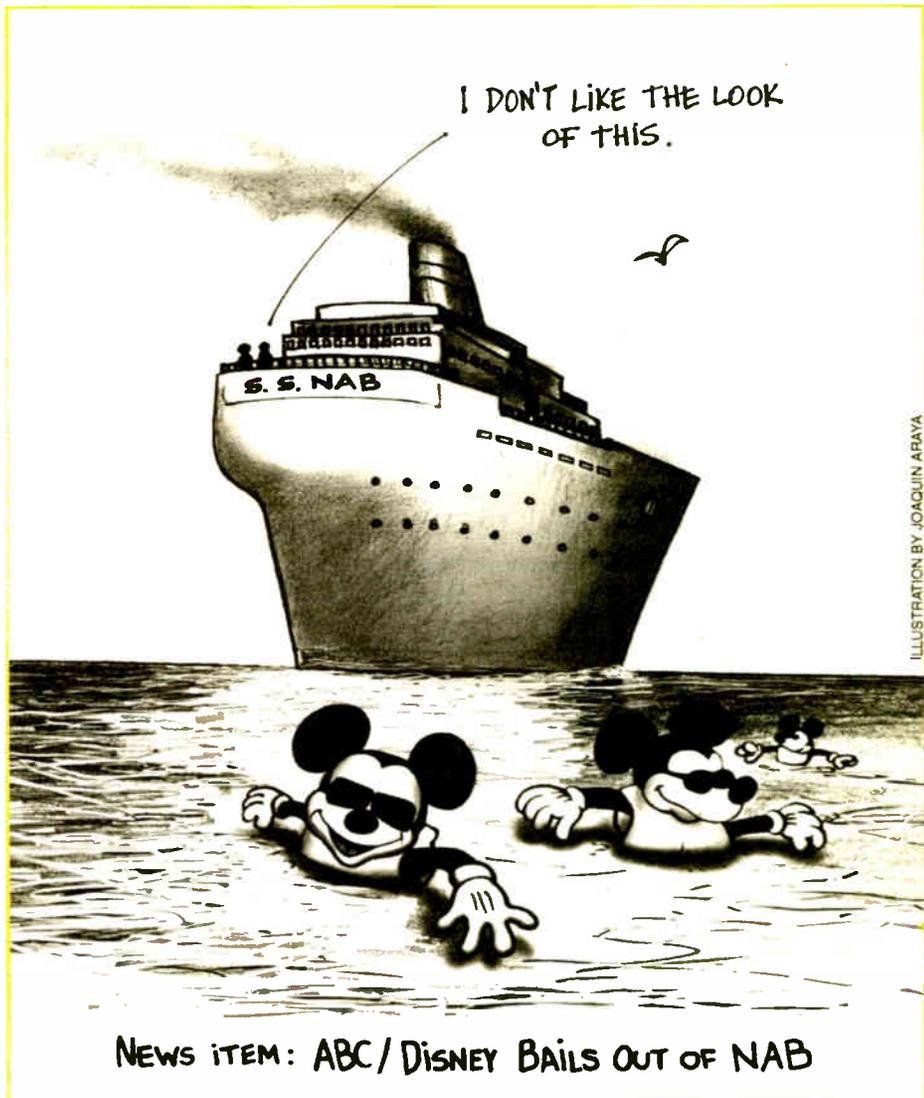


ILLUSTRATION BY JOAQUIN ARAVA

The plate and modulation transformers were in another room, with a dirt floor, no less. The studio used to be right in front of the transmitter, so it couldn't make any noise or the mics would pick it up.

This transmitter was working last time it was on the air, and it was only disconnected a few years ago when we installed a new BE main and the Harris MWI became the backup. Readers can e-mail me if they'd like to see pix at paul@computermail.net.

If actually being "on the air" is not a requirement, I think the contest has a new winner.

*Paul Shinn
Valley Springs, Calif.*

AM for sale

So here I am devouring every word in your latest edition when lo and behold, I see it in on your editorial page: "We here at Radio World would love to own a radio station in New York." And guess what? It just so happens that I have a Station for Sale in New York.

Obviously, you're the buyer, because of

your desire. Happiness awaits, in New York Upstate. Do it quick, don't delay. Send Bob Heckler on his way.

It's a great facility, if you have the ability. It's clean and neat and sweet as honey, with a little more effort it will make you some money.

So grab your lawyer by the throat, grab his little hat and coat. Grab your check-book because this is real, I am ready to make a deal!

*Bob Heckler, GM
WXBH(AM)
Cobleskill, N.Y.*

Ed. Note: A local newspaper reports that the 1 kW station at 1190 kHz is available for \$185,000. Interested parties may contact Heckler at (518) 234-3400 or visit www.wxbh.com.

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