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Readers Forum

Don't forget: Your letters and opinions are now on the inside last page of RW.

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StudioHub and AMFM

A new wiring system goes to work at a nine-station buildout in Roanoke.

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Radio World

The Newspaper for Radio Managers and Engineers

October 13, 1999

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▼ The Infinity portion of CBS is sitting pretty, even after the Viacom merger.

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▼ The late Bill Meeks, the founder of PAMS, was a jingle pioneer.

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www.rwonline.com

NWS to 'Humanize' Perfect Paul

by Lynn Meadows

SILVER SPRING, Md. After 18 months of listening to broadcaster complaints about the synthesized voice used for weather warnings, the National Weather Service has begun work on two prototypes of a concatenated voice that are scheduled to be ready to test in June 2000.

The synthesized voice, known as "Perfect Paul," is part of the personal computer-based broadcasting console known as the Console Replacement System that NOAA Weather Radio started installing at its offices in January 1998.

The voice of Perfect Paul is computer-generated. By contrast, concatenated voices — such as those used for telephone information — are made by piecing together words pre-recorded by a human.

In April 1998, after numerous broadcaster complaints, an NWS task force recommended that the NWS first add a concatenated voice to the system with a limited vocabulary. But

See EAS, page 10 ►

Radio Station Towers Are for the Birds

by Randy J. Stine

WASHINGTON While still a rare event, large-scale birdkills at communication tower sites appear to be increasing along with the number of new communication towers being built. That, in turn, could affect how radio stations light their towers and where they locate them.

The birds, mostly migrating songbirds, apparently become confused in bad weather while flying at night and seem to be attracted to the lights on towers. The birds fly into the tower, the tower's guy wires and each other and are killed, according to avian researchers.

The largest birdkill ever recorded at a communication tower was nearly 30,000 birds in a single night in Eau Claire, Wis., in 1974. More recently, an estimated 10,000 birds were killed in 1998 at a 420-foot television tower in Kansas. Researchers from the U.S. Fish and Wildlife Service report as many as 3 million to 5 million birds a year are killed in collisions with towers.

Several environmental groups are doing research on the phenomenon and now the FCC appears interested.

At a recent workshop at Cornell University, avian mortality researchers

See BIRDS, page 8 ►



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LP Deadline Extended; IBOC NPRM Set

WASHINGTON The Federal Communications Commission has extended the comment deadline in the low-power proceeding and set an Oct. 21 target date to release a Notice of Proposed Rule Making for in-band, on-channel digital audio broadcasting.

The commission granted a third extension of the comment period for the low-power proceeding after several broadcast groups, including the

NAB, Greater Media, Big City Radio and Clear Channel Communications asked for more time to develop a complete record. Those who opposed another extension, including the Amherst Alliance and Media Access Project, said that despite their limited resources, they were prepared to submit technical analyses of these studies on time.

To permit commenters to relate the low-power and IBOC comments, the low-power comments will be due 14 days after the release of the IBOC DAB rule making. If the IBOC DAB NPRM is released on Oct. 21, the low-power replies would be due Nov. 5.

Lockhart Seeks To Buy Back PSI

Prophet Systems Innovations President and General Manager Kevin Lockhart said he has "started conversations" with AMFM Inc. to buy back PSI.

Capstar Broadcasting Group purchased PSI, which makes computer-based audio management systems, in 1998. Capstar completed a merger with Chancellor Media (now AMFM Inc.) in July.

Lockhart said the Capstar purchase of PSI was one of "the single best things that had happened to Prophet Systems"

because it had allowed the company to grow quickly. He said AMFM has been a good owner, but that the company wants to focus on radio. Lockhart said he wants to pursue markets beyond broadcasting, including entertainment and industrial venues, for PSI products.

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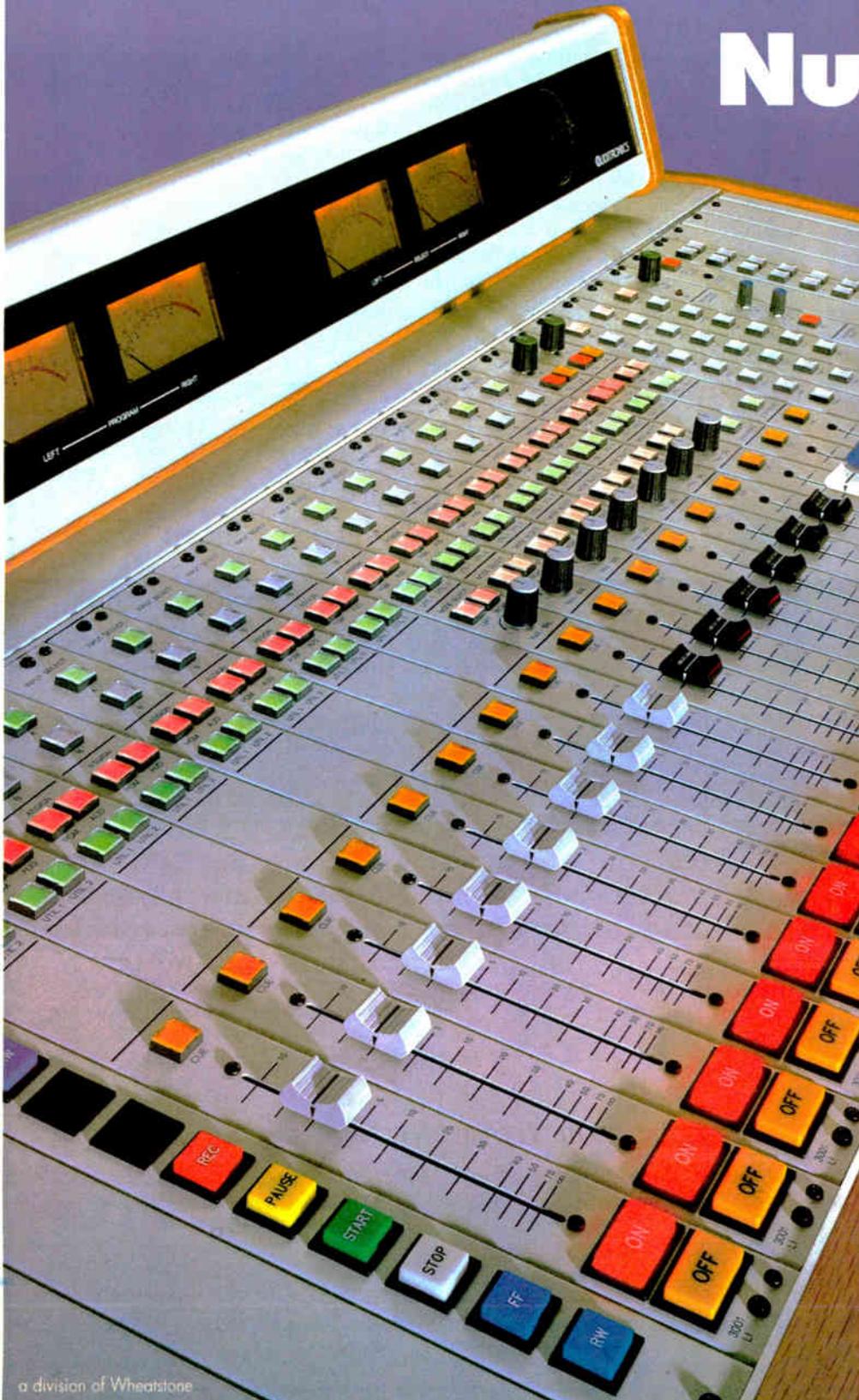
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NEWS ANALYSIS

Public Radio Eyes New Media

by Leslie Peters

To hear public radio managers talk, their stations operate just inside the comfort zone of financial solvency. At least that is what they tell listeners during on-air fundraising drives.

So how can public radio be taken seriously — or take itself seriously — in this uncertain, expensive new media game when it claims that it can hardly support its current radio operations?

That is a question that public radio programmers discussed at the annual Public Radio Program Directors Conference which ran Sept. 22-25. According to PRPD President Marcia Alvar, this year's meeting devoted more sessions than ever to new media and technology. More than 400 programmers and other public radio professionals were expected to attend.

Over three days in Memphis, conferees were looking for the big picture on new media from MSNBC's Internet correspondent Lisa Napoli — the keynote speaker — and heard from panelists who have launched public radio's three major new media initiatives. Programmers debated new media's risks and opportunities.

"The biggest risk is doing nothing," said Jon Schwartz, general manager of Wyoming Public Radio, and a National Public Radio board member. Many of his colleagues concur.

"Very large corporations are spending very large amounts of money on emerging technology" to attract public radio's upscale, educated listeners — most of whom already use the Internet or other online services.

"So public radio has to play," said Schwartz, who also chairs the NPR board's strategic planning committee. "But who are the new media targets? What is the economic model? What does CPB have to say? Those are the key questions."

Creating content

The Corporation for Public Broadcasting had a lot to say on the subject this spring, when it announced that at least half of its FY 2000 competitive radio grant funds would be used to seed new media projects. According to Richard Madden, CPB's vice president for radio, the estimated \$3.5 million will be invested "primarily in creating content" for new media distribution.

While the funding — like all CPB money — is subject to annual congressional approval, it is CPB's intention "to make it an ongoing element in the budget."

Whether this pocket is deep enough to get public radio solidly into the new media game depends on the definition of the game, said Madden.

"While we don't want revenue-pro-

ducing opportunities to be ignored, e-commerce is not our focus." He also emphasized that CPB is less interested in setting up a capital fund than "setting an agenda for public radio."

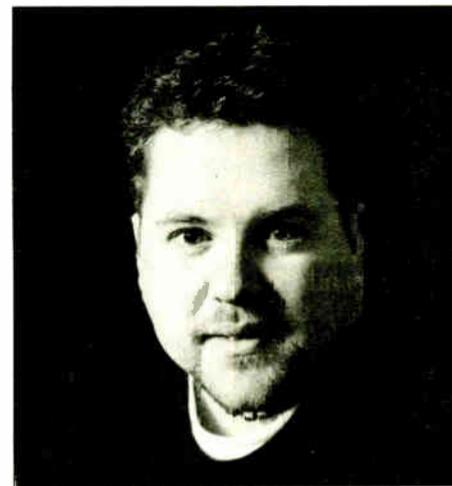
As in the past, Madden expects that the CPB money "will have a leveraging effect. It will help us try new things, some successful, we hope. We will not be full funders of anything."

Capitalization is also not a big concern in other public radio quarters.

"I disagree with the notion that no one in public radio has money to invest," said conference panelist Bruce Therriault, senior vice president for operations at Public Radio International, one of the industry's major program suppliers. "Some stations — maybe those in the top-50 markets — now have working capital, which is somewhat new for public radio."

PRI, a private, non-profit company, is a partner in Public Interactive, a for-profit Internet venture with a Boston-based Web developer and 15 station investors. It also is developing programming for the pending satellite-delivered digital audio radio service with CD Radio Inc.

"Public Interactive gives stations a way to get started on the Internet," Therriault said. "The risk is low. A share is \$25,000 for tools, content and technology. Pooling their money gives stations something of substance while they're



Eric Nuzum

developing their own Web content."

Therriault said the non-commercial programming on CD Radio's for-pay-service satellite radio service, slated to debut in fall 2000, would not compete for listeners with public radio stations because it would not carry public radio's most popular programming.

"Besides," said Therriault, "when people turn to the Internet, it's television — not radio — that's the big loser."

eXploreRadio, a joint Internet venture of National Public Radio and Minnesota Public Radio, the industry's two most prolific program producers, was another major initiative discussed at the PRPD conference.

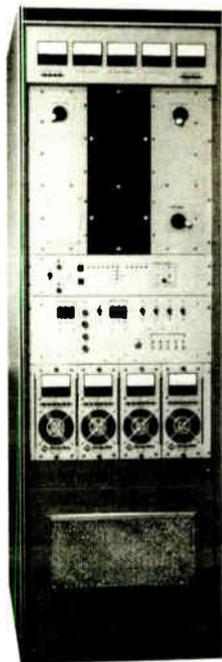
Together, NPR and MPR plan to bankroll Web services based on public radio's signature shows, including the

See PRPD, page 6 ▶

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Dan's Mom Hits the Show Floor

Yes, there is a Mrs. Braverman.

You may be familiar with the woman in the Radio Systems ads. Many readers believe she is a model playing the part of Dan Braverman's "typical Jewish mom."

Nope. Ann Braverman is the real deal. And to prove it, Dan, the president of the company (and my former employer) brought her to The NAB Radio Show, where I asked her about her modeling, her son's company and his start with a carrier-current station at summer camp.

McLane: How did you end up the star of a long-running series of radio hardware ads?

Braverman: That was Daniel's original idea, five years ago. He felt that sometimes the advertisements in the trade



Ann Braverman poses with son Dan in the Radio Systems booth.

magazines are a little dry and uninteresting, and he wanted to put a little more of the human element into it.

Since I always brag about Daniel and tell everybody what a wonderful job he has done building up his business, he felt he could count on that and use it as an advertisement. He interviewed me, used many of the expressions that I used, and brought into the advertisement my personality. Which I thought was very nice of him to do.

McLane: What does it feel like to be a celebrity in the radio supply business?

Braverman: When I was much younger, I wanted to go into the theatrical world. However, time and raising four children precluded it, and as time went on I just

felt that my chances of doing anything like this were possibly fading away.

So when Daniel suggested that I pose for him: for an advertisement, I thought,



"Gee, what a wonderful opportunity to do something that I've always wanted to do, even if it is on a lesser scale and also for my son." Frankly, I didn't really think it was going to take off. I mean, what kind of model am I?

McLane: You're a super model.

Braverman: Well, it's nice to be called that. ... It's been fun, and apparently Daniel has felt it worthwhile to keep repeating it in years following. If there's been even one ounce of good that I've been able to do for him, well, what more can a mother ask for?

McLane: What was Dan's first experience in radio?

Braverman: We sent our children to a Hebrew-speaking camp called Camp Ramiah in the Poconos. I worked there during the summer.

Daniel had always been involved in mechanical and electrical things in my home. He would put equipment together and he would experiment. At a young age, whatever toys we got him had to do with radio, electricity, mechanical things.

In camp, he convinced the director to spend \$50 and buy second-hand radio

equipment and put a station together. A limited radio station, just for the camp itself. And the directors thought, oh take your \$50 or so and get out. (But) Daniel

told my husband exactly what he wanted.

He put it together, set up a radio station, programmed it, with the campers setting up what the menu of the day was and what the program of the day was. It had to be

The King of Sales

Tim Schwieger is a ballerina of his word.

When the BSW sales staff responded to a challenge and posted record numbers in August, the president of the broadcast equipment dealer in Tacoma, Wash., did as he had

From the Editor



Paul J. McLane

all in Hebrew, which wasn't easy.

He set up a radio club, he got young people involved, which was a wonderful learning experience for the camp as well. As the years went on and Daniel went from camper to counselor, he became the counselor of the radio station and it became a club. It became so good that other camps borrowed from our idea.

Daniel used to go out and help them set up their own stations as well, and now it's been about 25 or 30 years. Daniel eventually donated state-of-the-art

See MCLANE, page 12 ▶

promised. He took hose and bucket in hand and spent a day washing 36 employees' cars.

In a nut.

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Cumulus Acquires Software Firm

by Alan R. Peterson

The acquisition of Broadcast Software International by Cumulus Media last month will not result in major management changes, nor cause Cumulus programming to become centralized, according to the head of the broadcast group.

Cumulus Executive Chairman Richard Weening indicated that the company would not turn to chain-wide digital automation.

"We're radio people and our whole project strategy is live and local," he said.

Milwaukee-based Cumulus Media is the parent company of Cumulus Broadcasting, and the nation's third-largest owner and operator of radio stations, with 246 radio stations in 45 markets, mostly mid-sized and smaller cities.

BSI specializes in cost-effective digital audio applications for broadcast, based on readily available PC hardware of the user's choice. The product line includes the WaveCart cart machine emulator and WaveStation, the company's core automation product, in use by more than 1,500 radio stations and Internet broadcasters.

The deal was finalized Sept. 15. The purchase price was not disclosed.

BSI will operate as a subsidiary of

Cumulus, and its operations will remain in Oregon.

Cumulus Media, Weening said, eschews satellite-delivered or automated programming, opting for live, local personalities in each of its markets. He said the digital model Cumulus intends to use will be unlike the one pursued by Capstar, now AMFM Inc., in its acquisition of Prophet Systems last year.

Cumulus Media stations will use BSI products strictly for storage of music and commercials.

"That would be leveraging a single jock into several markets," said Weening. "That's not an approach we would like to take."

Weening told RW that digital audio systems today should not be compared to automation systems of the past.

"This is not like the old days," he said. "The old automation systems used to replace jocks. Today's digital systems replace cart machines, turntables and tape

decks. We had to make a distinction."

According to Weening, Cumulus Media stations will use BSI products strictly for storage of music and commercials, "and perhaps some automation during parts of late night."

Weening called BSI a dynamic young company with a track record of positive revenues, cash flow and consistent growth.

Oregon-based BSI was founded in 1989 by Ron Burley. Customers downloaded 2,000 copies of an early shareware product, "Cart Machine," in its first month on CompuServe.

Later, during his tenure as general manager of a news radio station in Hawaii, Burley became disappointed with the performance of existing digital radio automation systems and set out to build a better one. The end result was WaveStation.

"As we learned more about them, it became clear that their non-proprietary approach to audio management could revolutionize broadcast station operations

and automation," he said.

Cumulus Media examined numerous storage and automation systems, and in July, announced it would standardize its radio operations with BSI software.

"We have all of the major radio systems in operation in one or more markets," said Weening.

"We concluded BSI WaveStation is the easiest to use, the most versatile and reliable, and, because of their open standards architecture, is the most compatible with our other plans." Weening intends to phase BSI storage systems into all stations in the chain over the next few quarters.

Burley said Cumulus Media is "a great organization and that everyone at BSI is excited about joining the Cumulus team." Burley said the new relationship infuses his company with the resources needed to move forward with projects that previously were beyond reach.

One such project, WebStation, was rolled out following The NAB Radio Show. WebStation is a close cousin to WaveStation, but is designed for streaming audio, video and graphics over the Web. A free time-limited download is available at www.bsiusa.com

Correction

An article in *GM Journal* in the Sept. 15 issue incorrectly reported that winning bidders in the FCC auctions must pay 80 percent of the amount bid 10 days after the agency issues a Public Notice announcing the close of the auction. The correct total is 20 percent.

NAB European Radio Event Is in Brussels

by Marguerite Clark

BRUSSELS, Belgium The radio industry will come together in Brussels for the NAB European Radio Conference, Oct. 24-26.

The annual event, which features a host of interesting sessions, gives radio professionals from a wide variety of stations and nations the opportunity to discuss key industry issues, exchange concerns and share experiences.

Programming and more

Held at the Sheraton Brussels Hotel & Towers, the three-day conference will host sessions in six main subject matters — management, day-to-day operations, Internet, programming, radio sales and marketing and promotions. A number of keynotes and feature presentations are also on the agenda.

The overall theme for the conference this year is "Where the Future and Radio Come Together."

Areas to be highlighted during the sessions include consolidation, European investment opportunities, digital radio applications and how technology affects radio station expenses, staff issues, surviving tough economic situations, Internet copyright issues, audience measurement, trends in music research, production and editing gear, selecting suitable traffic systems and successfully using live music events.

Of special interest will be the "European Radio in the New Millennium" session, which will take a look at what is in store for the future and the factors affecting the radio



industry in the new millennium.

Another featured session will highlight current ownership regulations and how these are likely to change in the coming years.

Among the scheduled speakers are Ralph Bernard, chairman of the GWR Group; Paul Brown, chairman of the Commercial Radio Companies Association and president of the Association Européenne des Radio; Jean-Michel Kerdraon, executive vice president radio for CLT-UFA; and Alain Weill, vice president and chief operating officer for NRJ.

For more information, contact NAB's Mark Rebholz at (202) 429-3191 or e-mail mrebholz@nab.org

Information is also available via the World Wide Web at <http://www.nab.org/iag/international/>

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 WFMT Radio Networks
 WGBH(FM), Boston
 WGUC(FM), Cincinnati

Pubcasters Flirt With New Media

► PRPD, continued from page 3
 NPR newsmagazines and Garrison Keillor's "A Prairie Home Companion." They also plan to split any revenue from those Web services — a fact that has caused considerable controversy in public radio. (See sidebar, below.)

Conference speaker Jon McTaggart, MPR's vice president for new media, scoffs at any suggestion that public radio is not a serious new media contender.

"Public radio can compete with any company. We have built up 30 years of trust with 22 million listeners who so value what we do that they write us checks."

But what might happen to that trust, and those checks, when eXploreRadio and Public Interactive step up online sales of products and services? What does public radio's current audience have to say about public radio's new media ventures?

Programmer and panelist Eric Nuzum of WKSU-FM, Kent, Ohio, which serves the Cleveland and Akron markets, discussed findings from listener focus

suspicious of flashy stuff, of non-related 'lifestyle' type items for sale, of anything that's too commercial or doesn't reflect their image of public radio's values."

Public radio's values and image may turn out to be bigger issues for the industry than a lack of capitalization.

There are overarching concerns at



CPB where grants guidelines and "discussion papers" suggest that public radio's longevity depends on its ability to "deepen and extend its public ser-

When people turn to the Internet, it's television — not radio — that's the big loser.

— Bruce Therriault

groups conducted in July.

"It's apparent that listeners have very strong feelings about what's appropriate or inappropriate for public radio on the Web," said Nuzum.

"They think of our resources as finite, and they don't want the uniqueness of the broadcast service to diminish because we're investing in new media. They're

vice" with a distinctive new media version of its non-profit broadcast service.

With its concern about image, public radio may have a hard time attracting private capital to new media ventures. Bruce Therriault said his Public Interactive partners are not worried because "we won't take money from just anybody. We know that the wrong

association risks killing the golden goose," he said, alluding to public radio's reputation with the listeners who support it.

He said that he expects most outside money will come from "affinity investors" that "have the same values as public radio."

"It's all a big experiment," said Arthur Cohen, vice president for radio at WETA(FM), Washington, D.C.

"The jury is out on capitalization. No one knows what 'public service' will mean. I came back from The NAB Radio Show convinced that, as far as new media are concerned, commercial radio doesn't have more of a clue than we do."

■ ■ ■

Leslie Peters is a writer and researcher specializing in issues concerning the public radio audience. Reach her through RW.

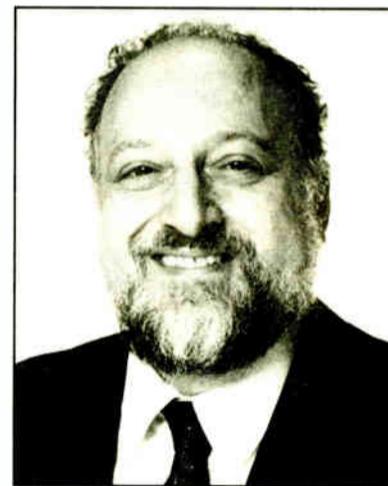
Public Stations Miffed at NPR/MPR Deal

by Leslie Peters

When NPR and MPR announced their private Internet deal, reaction in the industry was swift and strong.

"Why should they profit exclusively from programming that we already pay for?" said Arthur Cohen, vice president for radio at WETA(FM), Washington, D.C.

Cohen's was not the only com-



Arthur Cohen

plaint heard when NPR and MPR informed public radio stations of their joint venture to create Web services based on public radio's most popular programming and split the revenue between them.

Shortly after the deal was disclosed, Cohen and other major-market station managers formed the Major Market Partnership to oppose the deal. The group released a statement to the press in July that accused NPR of "acting independently of its members (and) sometimes working against them."

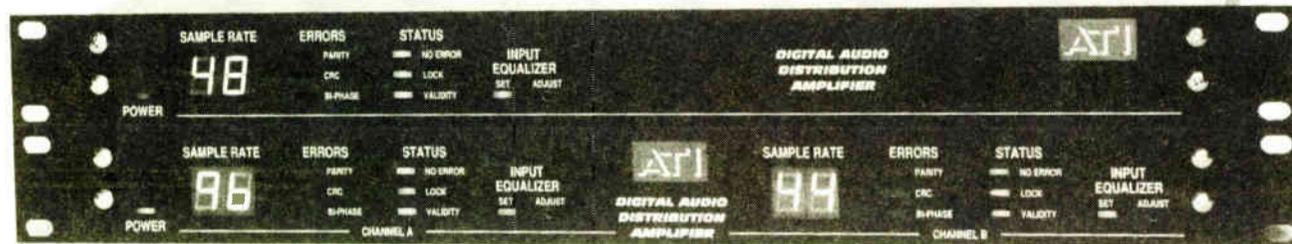
At issue is a plan to use the Internet to capitalize on what MPR

See PRPDSIDE, page 7 ►

AES/EBU DIGITAL AUDIO DISTRIBUTION AMPLIFIERS

DDA106-XLR (1X6)
 DDA112-XLR (1X12)
 DDA206-XLR (Dual 1X6)

DDA112-BNC (1X12)
 DDA124-BNC (1X24)
 DDA212-BNC (Dual 1X12)



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◆ NEWS WATCH ◆

Harris Corp. Closes PR&E Purchase

MELBOURNE, Fla. Harris Corp. has closed on its purchase of Pacific Research & Engineering. Harris has completed its cash tender offer at \$2.35 per share. The total value of the

► **PRPDSIDE**, continued from page 6
Vice President Jon McTaggart calls "public radio's most powerful brands," in a revenue-sharing arrangement that excludes all but one of NPR's affiliates — Minnesota Public Radio.

The Major Market Partnership has called on NPR to restructure the Internet deal so that "all members have the opportunity to participate as partners." According to M.J. Bear, NPR's director of new media, "NPR is discussing the issues with the partnership."

"We're trying to work something out. It's a work in progress."

Such restructuring would not be easy because all stations do not bring equivalent resources to the bargaining table.

Between them, NPR and MPR produce the shows that draw more than half the audience to public radio nationwide, according to Fall 1998 Arbitron numbers supplied by NPR and MPR. The NPR daily newsmagazines alone attract about 12.5 million of public radio's 22 million weekly listeners. Garrison Keillor's "A Prairie Home Companion" accounts for another 2.5 million.

Managers counter that 600 stations — not NPR or MPR — deliver the shows' vast majority of listeners, which is what makes them such value properties. These same stations are expected to steer their listeners to the eXploreRadio Web site in return for compensation that Jon McTaggart said "is still being worked out."

What makes the situation more than simply sour grapes is the unusual relationship between NPR and its stations. Affiliates not only buy programming from NPR, they also pay annual dues. Though NPR's dual role of program supplier and membership organization is governed by policies and by-laws, business opportunities have sometimes put NPR at odds with its members.

Friction has increased lately as it has become apparent to stations that new media offer NPR ways to reach listeners other than through its members' radio signals.

Caught between the various interests of NPR and its member stations is a board of directors largely composed of station managers elected by the membership.

They are called upon not only to represent members' issues to NPR management, but also management's issues to the stations.

deal was estimated at \$9.5 million, including Harris' assumption of PR&E debt.

"PR&E is a recognized industry leader in the design, development and integration of analog and digital radio studio solutions," said Jim Woods, vice president, radio systems business unit, Harris Broadcast Communications Division.

"Coupled with Harris' extensive sales and distribution channels as well as our systems design and integration capabilities, this acquisition brings together two companies with proven custom engineering, integration and customer service that will ultimately provide radio broadcasters

a comprehensive range of analog and digital broadcast equipment and systems," said Woods.

Station Fined For Fake Programming

OXFORD, U.K. Oxygen (FM), a commercial student-run station in Oxford, England, has been fined \$32,000 and had its eight-year license cut two years because it fabricated programming in an attempt to deceive its regulator.

"We've never shortened a license before, but this is seen as a serious offense," said Julie McCatty, press officer for U.K. regulatory and licensing body the Radio Authority. The Authority requires commercial stations record all programming aired.

A complaint was filed with the Authority that the station was ignoring its commitment to science and arts programming. The Authority demanded the station hand over the March 1 tapes for review.

The station said it could not find the original tapes, so, while tapes rolled, on-air staff fabricated programming on March 8 by claiming it was March 1.

The broadcast included a tribute to Stanley Kubrick, who died March 7, and a report on Joe DiMaggio's death March 8.

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Birds Die in Tower Collisions

► **BIRDS**, continued from page 1
met with members of the U.S. Fish and Wildlife Service to discuss the birdkill problem, which dates back to the 1940s and the construction of tall television towers. The workshop was sponsored by the American Bird Conservancy, a non-profit organization dedicated to the preservation of wild birds.

Explaining the phenomenon

"A typical situation develops as the birds migrate at night and are caught in bad weather with a low ceiling and poor visibility," said Bill Evans, a consulting ornithologist and former researcher at Cornell.

Evans is one of a handful of scientists who study the nighttime migration of birds. Most bird migration in North America occurs at night. Birds often fly around at 2,000 feet.

According to Evans, birds migrating at night use the stars and moon as navigational points. They also use the outline of the horizon to help guide them.

"As the birds hit a frontal boundary or other disturbance, it forces them down below the cloud deck and they typically lose contact with their points of reference," Evans said. "Birds don't migrate in the clouds, so they are bunched up under the clouds."

Evans said these migrations can include hundreds of thousands of birds in a group.

His theory is that slow blinking red

bird's strongest navigational impulse. Then you have birds flying along at 50 miles per hour whipping around this area, striking guy wires and other birds,"



These songbirds were found dead under a communications tower in New York state last year.

incandescent tower lights draw the birds. Evans said as light is refracted off water particles and forms a illuminated area, the birds hone in.

"It appears the lights become the

Evans said.

Because radio towers are often located at remote sites, and the evidence can disappear quickly, engineers often are not aware of the problem, said Evans.

"You could have a relatively large bird-kill one night and by the next night, all of the dead birds would have been scavenged by cats and wild animals. So, many times the evidence is lost quickly."

Government involvement

The FCC is depending on the U.S. Fish and Wildlife Service to collect data on birdkills at tower sites. The commission hopes to have significant statistical

al legislation," she said.

Berland said the FCC will need to see justification from the U.S. Fish and Wildlife Service to act further.

While waterfowl can fall prey to a guy wire, the largest numbers of birds being taken by this phenomenon are from the songbird family. Warblers, thrushes and vireos have been killed in large numbers.

"We feel that tower collisions are a contributing factor in overall declining numbers of songbirds," said Gerald Winegrad, vice president for policy at the American Bird Conservancy. Other factors include pesticides, loss of habitat and cats.

Winegrad said his group does not want to block construction of towers, but rather find solutions to the problem.

Winegrad said the number of communication towers being built is increasing. By 2003, he predicts there will be another 1,000 towers built in the U.S. measuring at least 1,000 feet.

"The growing cellular (telephone) industry along with the digitization of television means the tower building boom will not slow down anytime soon," he said.

Currently, there are an estimated 45,000 communications towers in the United States.

Fixing the problem

Evans said most research has shown that tower lighting appears to be the triggering mechanism of birdkills at tower sites.

"In bad weather, if you turn out the tower lamps, the birds leave. That leads us to believe that the lights hold birds in these areas," he said. "It could be something as simple as changing the blinking rates of the lights. They usually blink very slowly, so maybe white strobe lights would be less of an attractant for the birds."

In his perfect world, Evans sees lights on towers becoming a thing of the past.

You have birds flying along at 50 miles per hour whipping around this area, striking guy wires and other birds.

— Bill Evans

date within five years.

"We were brought into this in 1998 when there was a large kill of 10,000 Lapland Longspurs at a tower site in Kansas," said Al Manville, a bird-strike specialist in the Office of Migratory Bird Management.

Manville said if something is not done soon, eventually some of the songbirds being killed could be listed as endangered species.

Manville is urging the FCC to examine the evidence at least once it is completed.

"Once we complete the research on birdkills, we will need to form a partnership with the communication industry," Manville said.

Holly Berland, staff attorney, FCC office of general counsel, said it was "too premature for her agency to do more than just listen at this point."

"There is really a dearth of information on the impact of towers upon the populations of migratory songbirds. As of right now, we believe the communication industry has been complying with the National Environmental Policy Act, the Endangered Species Act and other feder-

He hopes some day the Global Positioning System could be used to steer pilots away from towers.

"With technology like GPS you wouldn't necessarily have to use visible light on towers. You could use a radio beacon of sorts to accomplish the same thing," Evans said.

Evans acknowledged the implementation of such a drastic change could be cost-prohibitive.

Dave Wilson, manager, technical regulatory affairs, NAB Science and Technology, said he is not sure GPS is the solution.

"The fact that pilots would have to rely on computers as a warning system as opposed to a seeing a flashing light makes me question the move," he said.

Wilson said the birdkill issue could give communities another piece of ammunition when trying to halt tower projects in their area.

"Is it an issue? Yes. It seems that it happens only along certain migratory paths of these songbirds. I don't consider it a major concern for the tower industry right now."

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World Radio History

NWS to Update Perfect Paul

► EAS, continued from page 1

at that time, officials at the NWS said funding would not be available in the budget for a concatenated voice until at least 2001.

The quickened pace for testing prototypes will please many broadcasters. In scattered areas throughout the country, broadcasters are proclaiming a victory of sorts because some offices of

When there are multiple transmitters to feed, he said, it is nearly impossible for a human to broadcast all warnings accurately and quickly.

The Console Replacement System can maintain simultaneous and independent broadcast programs for up to 13 transmitters. According to CRS Program Manager Jerry Stephens, the NWS will eventually have 121 offices. To date, he said, those

warnings. In Jackson, Ky., meteorologist-in-charge Shawn Harley said his office will begin testing the automated voice for hourly roundups this month. The Jackson weather office has three separate radio programs that are broadcast on 19 transmitters.

Harley said the Jackson office will likely not test the automated voice for warnings for several months. When Jackson does test the automated voice in warnings, he said, the office will solicit input from the radio and television broadcasters in the area.

several smaller counties.

Richard Rudman, California EAS state emergency committee southern region vice chair and Los Angeles County local emergency committee chair, said he is not concerned about delays in issuing warnings using the human voice. He said the Oxnard staff is "committed to using a streamlined process to get warnings out."

The National Weather Service continues to promote its automated voice. At the NWS booth at The NAB Radio Show in Orlando, Fla., Stephens and others gave out tapes with two 15-second public service announcements in which the voice of Perfect Paul explained his function.

It may be a hard sell. Rudman said

According to the information sheet on the CRS, the synthesized voice can increase the lead time by five minutes or more per warning

the National Weather Service have stopped using "Perfect Paul" to issue weather warnings that go over the Emergency Alert System.

The original concept for doing the Console Replacement System was to automate more of the weather radio functions and free NWS meteorologists to track the weather. But many broadcasters who use the NWS as one of the inputs on their EAS decoders refused to put the automated voice on their stations. Some broadcasters questioned whether a robot giving warnings about life-threatening situations would be credible for the public. Others complained about poor audio quality.

As a result, many NWS offices throughout the country, such as the one in Oxnard, Calif., have retired the voice of Perfect Paul — at least for EAS warnings. "We have never mandated that the automated voice must be used," said Rod Becker, dissemination services meteorologist for the National Weather Service. Still, he said, the weather service highly encourages the use of the automated voice.

"This is especially so for offices with multiple transmitters," said Becker.

offices program more than 500 transmitters with more soon to be added.

Using or not using the automated voice is a tradeoff. Broadcasters expressed concern that the automated voice, with its slight Germanic accent and stilted sound, is a turnoff for their listeners who will discount the voice and any warning it tries to relay. On the other hand, the use of the voice makes it possible to get warnings out instantaneously, which remains a priority of the NWS.

Typically, one person cannot broadcast multiple warnings in a timely manner, said Joe Sullivan, regional warning coordination meteorologist in the central region.

According to the information sheet on the CRS, the synthesized voice can increase the lead time by five minutes or more per warning because the message is generated directly from the text created by the forecaster.

In the central region, Sullivan said, some NWS stations use the voice for weather warnings but others do not. Sullivan said one office in Milwaukee uses a human voice for everything except the weather warnings.

He said 29 of the 38 offices in the region are using human voices for their

The new concatenated voice prototypes will be used to broadcast watches and warnings.

"You have to look at how the public can best be served," said Harley. Some of the counties covered by transmitters fed by Jackson actually get their warnings from the Louisville, Ky., weather office. In those cases, he said, using automation to broadcast warnings issued by Louisville will be faster.

Initially, the new concatenated voice prototypes will be used to broadcast watches and warnings, said Stephens. The concatenated voice may be the perfect compromise — easing broadcaster concerns about public reaction while making instantaneous fully automated warnings possible again.

Stephens said the NWS intended to sign a contract to develop the concatenated voice with Communications and Power Engineering Inc. based in Camarillo, Calif.

In California, the Oxnard NWS office is the one and only source of all weather-related EAS warnings for Los Angeles, Ventura and Santa Barbara as well as

the reaction from those who had heard about the "retirement" of the automated voice "has ranged from merely positive to ecstatic."

Those interested in getting an electronic or cassette version of the PSA may e-mail Stephens at gerry.stevens@noaa.gov

NWS to Seek EAS Patent Scrutiny

At press time, the National Weather Service was planning to file a request for re-examination of the patent held by Quad Dimension Inc.

Quad believes its patent for "Storm Alert for Emergencies" covers the Emergency Alert System. In January, the company sent letters to 1,500 broadcasters requesting that they sign license agreements and pay royalties to continue using the federally mandated system.

Quad's patent was reexamined in 1997 and upheld in November 1998 by the Patent and Trademark Office of the Department of Commerce. Quad officials had no comment on the new re-examination request, but the company's Web site at www.quaddimension.com contained a two-page statement.

"QDI is appalled that NOAA, in apparent desperation for prior art to again overturn our patent by any means, publicly solicited the National Association of Broadcasters for prior art to help them in their efforts," reads the statement. The statement continues, "It is indeed a sad commentary on the role of government agencies who should be supporting small business and promoting innovation instead of repeatedly attacking a small business' patent."

—Lynn Meadows

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RALEIGH-DURHAM, N.C. Despite ravages of Hurricane Floyd in much of the region last month, the Raleigh-Durham area fared better than others in the Carolinas. It will be the site of a regional trade show on Oct. 28 hosted by Audio Broadcast Group.

The seventh annual event will feature 30 exhibitors and is expected to draw 100 to 150 attendees to the Radisson Governors Inn, said organizer Cindy Edwards.

At least two exhibitors, Moseley Associates and Broadcast Tools Inc., are exhibiting for the first time at ABG.

"Our show is very well attended," said Edwards. "It's bigger than any

state show, and draws engineers from the Carolinas and Virginia. Attendees are also starting to come from Georgia because it's a show they can afford to attend."

ABG charges no fee to attend, and food is provided. Costs are borne by ABG and exhibitors.

"It's an inexpensive show for manufacturers," said Edwards. "They're happy because they get people who are genuinely interested in the product, so the manufacturers walk away feeling like they've got potential customers."

"The reason I like the ABG show is that I get to spend time with people," said Rick Sawyer, director of worldwide sales

for Orban Inc. Other, larger shows, he said, are so crowded it becomes difficult



to have a complete one-on-one discussion with a potential customer.

Orban will show its Optimod Model 6200 Internet processor, which has a multi-purpose platform, enabling stations to custom tailor their sound, Sawyer said. Two stations using it for

Webcasting are KBIG(FM) in L.A. and KKSF(FM) in San Francisco.

Another new product at the show is StudioHub, which Radio Systems promotes as a money- and time-saving wiring system. StudioHub uses pre-made cable assemblies, plus plug-and-play accessories such as headphone amplifiers, mic pre-amps, patch bays and selector switches, which connect to the system using the convenient RJ-45 connector.

"The audio and power for the accessories connect through that wire. That one connection saves a lot of time in studio construction," said StudioHub Sales Manager Jeff Detweiler. (See story, page 46.)

Manufacturers planning to be on hand include Fidelipac Corp. and Mackie Designs Inc., as well as Auditronics and Audioarts, both of which are divisions of North Carolina-based Wheatstone.

To register for the event, call ABG at (800) 369-7623.

— Leslie Stinson

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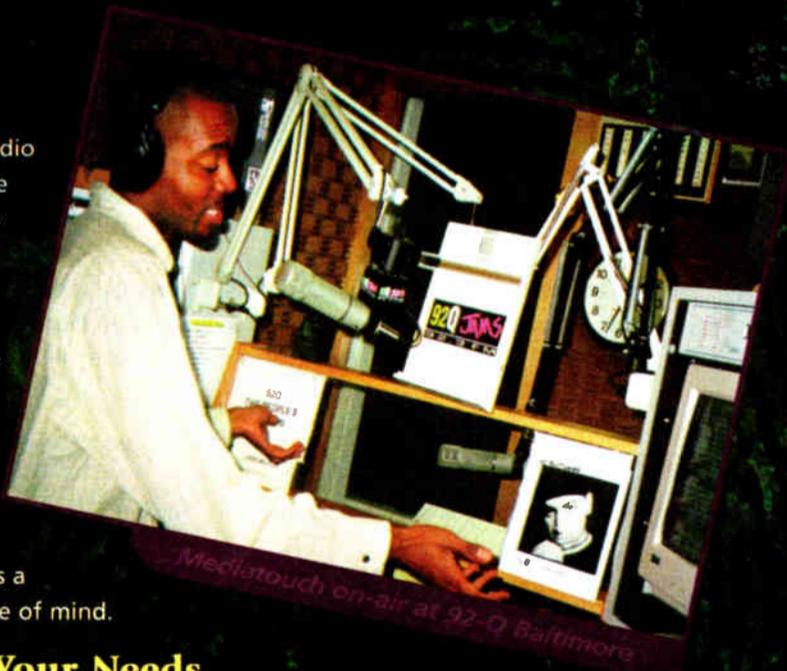
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Braverman

► *McLANE, continued from page 4*
equipment and now the station is like a showplace for other camps to use as an example. That's how he got started, and each year, as busy as he is, he goes down to the camp in the beginning of the season and sets up the radio station and gives instructions to the person in charge.

McLane: Now that you are a supermodel, are you going to have an agent?

Braverman: (laughs) The photographer suggested to me that I try some of the modeling agencies, because now they use a lot of older men and women in model advertisements. And I think I might just do that. I have a whole portfolio now, thanks to Daniel.

McLane: Is there any truth to the rumor there will a line of Ann Braverman clothes?

Braverman: Oh, wow! Listen, if there is, I'll be very happy to be the first person to model it.

Wait. I never thought of that. You just gave me an idea, Paul.

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World Radio History



E-commerce ... online audio ... digital audio gear ... better automation systems. Those were some of the products and problems on the minds of visitors to The NAB Radio Show in Orlando last month. The following pages offer a rundown of the goodies that caught our eye. Suppliers: If your product announcement didn't reach us somehow, it's not too late. Contact us via e-mail to radioworld@imaspub.com and we'll tell our readers about it in a future issue.

Patriot Antennas

Satellite Export & Engineering makes the Patriot line of antennas, which range in sizes of 46 cm up to 4.5 meters in prime focus or offset configurations. Each system is available with a variety of mounting options including stationary Az-El mounts or fully motorized systems.

The 1.8 meter offset antenna reflectors are deep-drawn, single-piece units, produced using precision draw dies.

The 3.8 meter prime focus antenna is a C/Ku high-efficiency satellite antenna ideal for upcoming digital compression. It features a 16 petal draw die-formed design to ensure accuracy with low transportation costs. It is available in three mounting options.

For information, call (517) 629-5990, send e-mail to sepatriot@voyager.net or circle Reader Service 165.



Armstrong Intros Solid-State AM

Armstrong Transmitter introduced its Solid-State AM transmitter line. Offered initially at 500 and 1,000 watts, the line eventually will reach 10 kW. The rugged AM transmitters feature three preset power levels that are remote control-selectable, 150 percent positive modulation and a DAB input port ready to accept IBOC signal.

The AM "S" series features high-efficiency switching power supplies and is rated very conservatively. The AM 1000S uses four hot pluggable, 300-watt

AM RF amplifiers with redundant power supplies; the 500S has a single switching power supply with two modules.

Remote control capable and compact, the "S" series has a front panel with metering and control switches. I/O and DB25 remote control connector are on the rear panel.

List price for the AM 1000S is under \$9,000.

For information, contact Armstrong in New York at (315) 673-1269, send e-mail to sales@armstrongtx.com or circle Reader Service 94.

Gentner Updates Phone Software

Gentner told attendees about its new ScreenWin, a Windows-based call screening software program that provides all of the info you need to screen, air and gather data on your callers.

The software replaces ScreenWair and carries a lower price of \$499. Existing users can upgrade for \$299.

The company promoted its DH30 digital phone hybrid, and announced that its phone interface equipment has been selected by the U.S. Department of Defense for use in an international press room.

Also, Gentner now offers drop-in panels for its DS612 on-air phone system for use in the PR&E line of Airwave, Airwave digital and Integrity consoles.

For information, contact Gentner in Utah at (801) 975-7200, visit the Web site at www.gentner.com or circle Reader Service 146.

ATDI Mapping

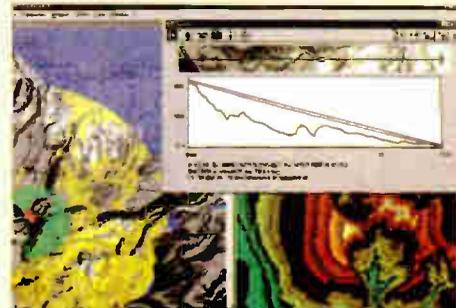
The HerTZ Mapper by ATDI is a radio-planning tool for VHF, UHF and SHF designed to position point-to-point or point-to-multipoint networks.

The unit interface allows potential site assessment, terrain profile extraction, transmission site searching, or transmitter coverage calculation.

For onsite work, HerTZ Mapper includes a GPS interface that provides real-time positioning of the user on digital maps. The system also has the capability to include population and demographic data for a

defined geographic region of choice.

For information, contact ATDI in Massachusetts at (978) 392-0777; fax



(978) 392-2287; visit www.atdi.com or circle Reader Service 111.

Gepeco International

Gepeco International introduced 552604GFC digital audio multipair cable as the latest addition to its family of cable products. This four-pair cable has been specifically designed for transmission of 110-ohm AES/EBU digital audio.

The cable features 26-gauge conductors that are insulated with a low-loss dielectric, and shielded by 100-percent foil Mylar. The cable includes an integration of a non-conductive

polyethylene rod that is twisted together with insulated conductors.

The construction provides structural support and maintains the characteristic 110-ohm impedance of the pairs. The PVC pair jackets are color-coded and master jacketed with Gepeco's GEP-FLEX (TPE) compound.

For information, contact Gepeco International in Illinois at (847) 795-9555; fax (847) 795-8770; visit www.gepeco.com or circle Reader Service 112.



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The Marconi Winners

Congratulations to the winners of the coveted 1999 NAB Marconi Radio Awards, announced during The NAB Radio Show. General managers and program directors of member stations picked the winners.

Legendary Station of the Year

KOA, Denver

Network/Syndicated Personality of the Year

Bob Kevoian and Tom Griswold, "The Bob & Tom Show," AMFM Radio Networks

Stations of the Year by Market Size

Major Market: KGO, San Francisco
Large Market: KUDL, Kansas City, Mo.
Medium Market: WFBQ, Indianapolis
Small Market: KTTS-FM, Springfield, Mo.



Lee Larsen is vice president and general manager of KOA(AM), the 1999 Legendary Station of the Year.

Personalities of the Year by Market Size

Major Market: Kevin & Bean, KROQ, Los Angeles

Large Market: Steve Kelley, KOA, Denver

Medium Market: Scott Innes, WYNK-FM, Baton Rouge, La.

Small Market: Scott Kooistra, KYNT, Yankton, S.D.

Stations of the Year by Format

AC: KUEL, Fort Dodge, Iowa

Oldies: WWSW, Pittsburgh
Urban: WBLX, Mobile, Ala.

Religious/Gospel: WUGN, Midland, Mich.

CHR: WNNK, Harrisburg, Pa.

Rock: WEBN, Cincinnati

Country: WDAF, Kansas City, Mo.

Spanish: KLTN, Houston

News/Talk/Sports: WBZ, Boston

NAC/Jazz: KZJZ, St. Louis

Classical: KFUO-FM, St. Louis

Scott Does Linux

At the Radio Show, Scott Studios introduced a touchscreen digital audio system that uses the Linux operating system.

Scott now supports Linux, Novell, NT, Windows, DOS and combination systems, with various levels of

sophistication based on the user's needs. According to Scott, more than 2,125 U.S. stations use almost 5,000 of the company's digital workstations.

For information, contact the company in Texas at (800) 726-8877, visit www.scottstudios.com or circle Reader Service 210.

Crown Broadcast FM Stereo Receiver

The Crown Audio Professional Single/Dual FM Broadcast Receiver is a professional stereo receiver that performs off-air monitoring, logging, automation control, and calibration, and provides an MPX signal for translators.

The unit has a frequency range of 87.5 to 108 MHz. It offers a signal-to-



noise ratio of 75dB and total harmonic distortion of less than 0.02 percent.

Carrier and audio alarm relay contacts allow the unit to be used as an off-air automated monitoring system for switching ancillary equipment due to loss of audio or carrier signals.

The MPX output design and SCA performance allow transmission of signal when used as a signal source for translators while the SCA presence indicators alert the operator to signals.

For more information, contact Crown Broadcast in Indiana at (800) 294-8050; fax (219) 294-8222; visit www.crownbroadcast.com or circle Reader Service 114.

Nautel Looks to AM, IBOC

Nautel specializes in high-power, solid-state transmitters. In Orlando, the company showed its XL12, a solid-state 12 kW AM broadcast unit, featuring overall efficiency of 84 percent for lower power costs and wasted heat. Plug-in design makes service easy.

The company also shared a white paper describing the results of tests carried out on two families of PDM AM transmitters, simulating their use for in-band, on-channel digital broadcasting as proposed by USA Digital Radio.

For information, contact the company in Maine at (207) 947-8200, visit the Web site at www.nautel.com or circle Reader Service 79.

BIA and Biby Team Up

RFCAD is signal-mapping software for planning, designing and analyzing broadcast and other wireless systems.

It was developed by Biby Engineering Services and is available from BIA Research. The software provides contours, terrain profiles and hi-res propagation results overlaid onto USGS topographic maps.

For information, contact BIA in Virginia at (800) 331-5086, visit www.rfcad.com or circle Reader Service 211.

Groovin' With GrooveMann

Dain Blair, CEO of Groove Addicts, will join Ed Mann, president of Mann Group, to form GrooveMann Radio Syndication Services.

The radio vets have enjoyed success in projects they produced over the past year. Their Extreme Noise, described as an "in-your-face sweeper ID package," is used by major stations in Los Angeles and Chicago. Stations in Washington and Atlanta report success with Kool Moves, a custom jingle package for urban AC formats.



Mann, left, and Blair, Hard at Work

New syndication packages include Virus, IDs for CHR, pop/alternative and hot AC: Country Impact, a country jingle package; Breakdown, a jammin' oldies jingles package; and Who Did That Music and Gravity music libraries.

GrooveMann products will be distributed on a barter basis.

For more information, contact Ed Mann at (323) 512-0144 in Los Angeles, send e-mail to info@grooveaddicts.com or circle Reader Service 153.

JT Portable FM Exciter

JT Communications gave details of its new FMP-20 Portable FM Exciter. Designed for "plug and play" operation, this is a self-contained unit that operates from any 12V DC power source.

It operates 88 to 108 MHz, programmable via DIP switch. All critical voltages and currents can be monitored through a panel-mounted connector, and a digital multimeter is supplied for measurements. Useful for emergency, low-power and portable applications. List price is \$724.95.

For information, contact the company in Florida at (352) 236-0744, send e-mail to jtcomm@atlantic.net or circle Reader Service 96.

Studer Digital Console

For critical on-air applications, Studer offers the On Air 2000 MkII.

This digital board uses a touchscreen interface with programmable controls. The modular architecture does not rely on racks or fans. Features include 20 customizable user presets, selectable channel EQ, clock/timer with sync option and up to six mix-minus feeds.

For information, contact the company in California at 510 297-2711, send e-mail to studer.sales@marman.com or circle Reader Service 158.

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Field Strength by Audemat

Audemat by Auditem presented FM and AM field-strength measurement devices and baseband analyzers.

The FM-MC3.2 features automated measurement of up to 99 FM stations simultaneously, multiple display and mapping capabilities, dynamic baseband signals deviation measurement, MPX signal power measurement, deep analysis of sub-carriers, advanced peak recording for all the baseband signals and complete and comparative statistical pictures and automated report functions.

The unit also comes with a GPS receiver and RDS decoder.

The AM-MC3 features simultaneous measurement of up to 99 AM stations, a cartography setting function, an internal GPS receiver, dynamic audio signal deviation measurement, complete and comparative statistical pictures and automated report function, and multiple configurations to qualify signals all along the broadcasting chain.

For more information, contact Audemat in Massachusetts at (978) 392-2110; fax (978) 392-2287; visit www.audemat.com or circle Reader Service 118.

Radio Personals From MicroVoice

Listeners can search for their perfect mate through the DateCast listings provided by MicroVoice Radio Personals.

The service is designed to provide nontraditional revenue via a computer-guided matchmaker for your listeners. Stations promote a toll-free number for listeners to call, which in turn leads to calls made to a 900 number when listeners contact each other. Stations earn a cut of each 900 call generated when their listeners access the DateCast system.

For more information, contact the company in Minnesota at (800) 553-0003, send e-mail to sales@mva.com or circle Reader Service 145.

Swagger Towers

Tower manufacturing and construction firm Swagger Communications provides towers for a variety of uses, including broadcast, cellular, wired telephones and personal communications systems.

Swagger provides turnkey service, from site surveys, excavation and construction, to installation and landscaping. Typical projects include not only the installation of concrete foundations, guy anchors and piers, but also the manufacture and installation of related items such as generators, electronic equipment, perimeter fencing, access roads, component parts and other associated systems.

For information, call the company in Indiana at (800) 968-5601, e-mail to sales@swagger.com or circle Reader Service 160.

Klotz Spherion

Klotz Digital Audio Communications displayed its new Spherion digital audio console for on-air radio and production applications.

The Spherion is available in two size, with 12 or 20 faders. Source inputs include microphone, stereo analog line and various formats of digital line inputs.

The 20-fader Spherion includes DSP production features such as EQ, limiters, gates and compressors.

The unit has stereo program outputs in digital and analog, stereo audition outputs in digital and analog, a stereo analog record bus, and two analog mix-minus outputs. Monitoring outputs include cue, studio, control room and headphone.

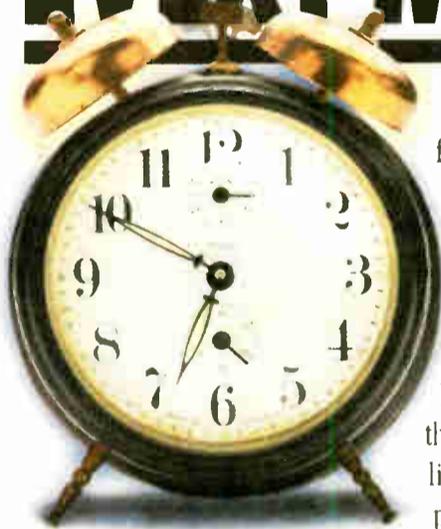
A standard feature is the programmable button banks, which can be configured as additional monitor source selects, intercom talkback, specialized task signal routing

and machine control. The company also demonstrated its Vadis DC and Paradigm consoles at The NAB Radio Show.

For more information, contact Klotz Digital America in Georgia at (678) 966-9900; fax (678) 966-9903; visit www.klotzdigital.com or circle Reader Service 117.



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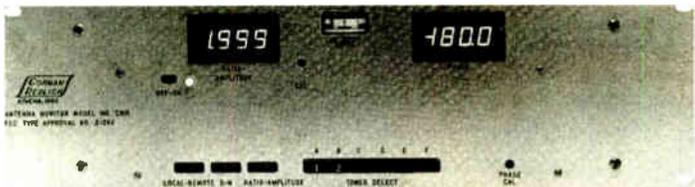
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Gorman-Redlich Monitor

The Gorman-Redlich model CMR is a digital monitor for directional AM broadcast antennas.

The CMR features phase reading with automatic phase sign, dual surge protection, narrow phase-sign ambiguity (typically, plus or minus 1 degree) and selectable measurement of amplitude or true ratio.

The CMR can operate by remote by way of landline or telemetry, using



standard remote-control equipment. An optional repeater-controller is available for hardwire remote control and readout via multiconductor cable at distances

up to 1,500 feet.

For information, contact Gorman-Redlich in Ohio at (740) 593-3150; fax (740) 592-3898; visit the Web site at www.gorman-redlich.com or circle Reader Service 121.

Switchcraft AAA Connectors

Switchcraft was at The NAB Radio Show with its new AAA Series Q-G Twist connectors. The Q-G Twist series will be available in male or female cord plugs, 3 through 7 pins/contacts. The connector has the strain relief built into the handle and was designed to accommodate a wide variety of cable diameters.

Standard finish will be nickel-plated with the contacts silver-plated but an optional black and gold finish will be available.

Also, an optional metal handle will be available for the Q-G Twist connector. For more information, contact Switchcraft in Illinois at (773) 792-2700; fax (773) 792-2129; visit www.switchcraft.com or circle Reader Service 122.

Dynamax by Fidelipac

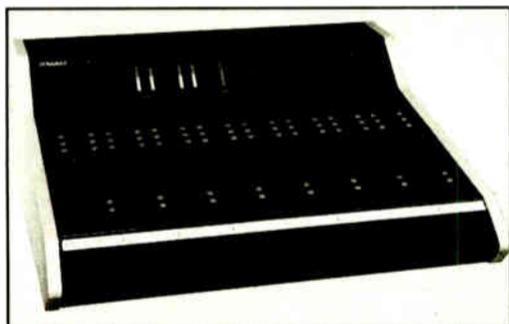
The Dynamax MX/D by Fidelipac is a digital audio console featuring 24-bit internal processing and a 48 kHz sampling rate.

Mixing, switching and audio signal processing within the MX/D are performed by a modified version of the main processor section from the Graham-Patten Systems' D/ESAM 200.

The unit features an eight-channel surface that offers a selection of analog and digital input modules, A/B input select switches, and LED buss assignment switches for program, audition, mono and cue. Cue is

activated by the fader detent and momentary cue switch.

For more information, contact Fidelipac in New Jersey at (609) 235-3900; fax (609) 235-7779; visit www.fidelipac.com or circle Reader Service 123.



BroadcastMusic.com Unveils New Channel, Tops Net Sports

A pair of big announcements were on tap at The NAB Radio Show for BroadcastMusic.com, an Internet broadcasting network.

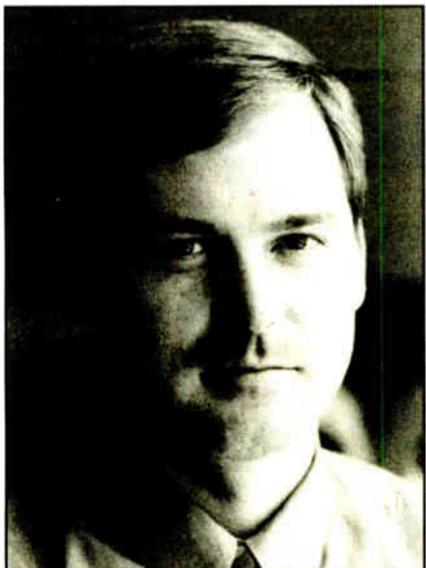
The company unveiled plans for an around-the-clock online music video channel called SuperV in partnership with SuperRadio, and outlined a new contract with One-On-One Sports.

According to BroadcastMusic.com, the One-On-One sports service is the first of its kind, and makes the company's sports channel the largest sports broadcaster on the Web.

"We're designing the future of entertainment based on industry trends and people's wants," said John Brier, president of BroadcastMusic.com.

SuperV is aimed at the 18-24 audience, and covers several music genres. The program will feature guests and entertainment reports. The service should premiere late this year or early 2000.

One-On-One Sports will offer worldwide access to sports talk, as well as game schedules, injury



John Brier, BroadcastMusic.com President

reports and stats.

For more information, contact BroadcastMusic.com in Maine at (207) 775-5100, e-mail info@broadcastmusic.com visit www.broadcastmusic.com or circle Reader Service 119.

Custom Jingles by Creative

Stations that would like custom jingles designed to promote their advertisers will be interested in the services of Creative Radio.

In Orlando, the company explained its service that begins with an invitation to include with your monthly billing. Your sales staff can offer the jingle service as a premium offered to select customers. Creative Radio will bonus account reps for each of respective client that they sell. Clients are guaranteed to like their jingle,



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or Creative Radio will "make it right" or refund the client's deposits.

For more information, call the company in Minnesota (800) 307-2346, send e-mail to cre8radio@aol.com or circle Reader Service 124.

Energy-Onix AM Transmitter

The Energy-Onix Pulsar 1000 is a 1 kW AM transmitter that features high-efficiency PDM modulation and distortion at less than 0.4 percent at 1 kHz. It can operate 24 hours a day with 100-percent modulation with sine wave modulation.

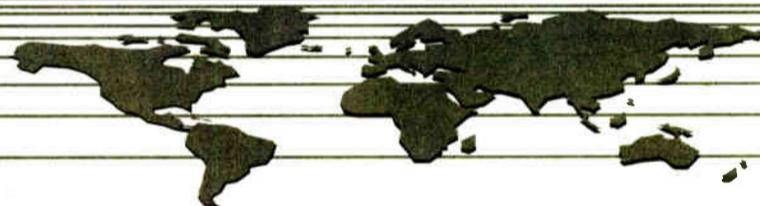
Pulsar transmitters use identical broadband power amplifier modules. Amplifiers are interchangeable without tuning or component changes within any Pulsar series transmitters

regardless of power level. This permits a standardized spare complement located in one flagship station.

The Pulsar series is designed to remain on the air even in the event of a PA failure. Thermostatic protection will shut down a PA in the event of cooling fan failure. Remaining modules will continue to operate without temperature rise or thermal stress.

For information, contact the company in New York at (518) 758-1690, visit www.energy-onix.com or circle Reader Service 154.

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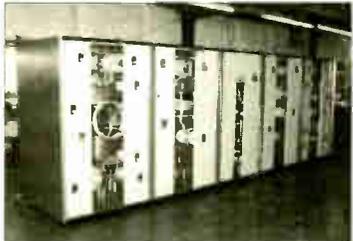
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These monitors are state-of-the-art instruments of unequalled accuracy (.5% or better on ratio and .5° or better on phase) and stability. With typical modulation the true ratio readout of these monitors is a factor of 10 more stable than instruments that measure normalized amplitude, and their phase readouts are rock solid. Phase sign is automatic, no extra operation. In addition to the analog DC outputs for remote control the Model CMR has a multiplexed BCD digital output which can be used to drive the Remote Indicator Model CMR-1. RF inputs have dual protection. Gas discharge tubes across the sample line terminations plus relay protection.

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 10X1 Passive switching/routing with 10 stereo inputs and one stereo output or vice-versa.	 6X1G Passive switching/routing with 6 stereo inputs and one stereo output, or vice-versa.	 SS 2.1/BNC Passive switching/routing with 2 composite audio, video, or AES/EBU inputs to 2 composite audio, video, or AES/EBU outputs, or vice-versa.
 SS 8.2 Active crosspoint switching with 8 stereo inputs, 2 stereo plus 2 mono outputs.	 3X2B Active crosspoint switcher with 3 stereo inputs and 2 stereo outputs.	 SS 2.1/TERM Passive switching/routing with two stereo inputs to one stereo output or vice-versa.
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Two New Programs for The Over-50 Set

To tap into the affluent, educated, active 50-plus market, **Christian/Whitaker Productions** offers stations two new programming services designed to capture that demo.

The "Forever Young" service provides the popular music of the 1960s and early '70s, while "Something Cool Radio" offers cool jazz and jazz-flavored pop. The premise behind the formats is that 50-plus listeners want to hear the music they heard when they were young.

"If stations could attract 50-plus listeners like Harrison Ford, Peggy Fleming, Barbara Streisand, Peter Jennings, Richard Gere, Susan Sarandon, Steve Martin, Debbie Harry or Ralph Lauren, they would rethink their misgivings about this underserved market," said Lynn Christian.

For more information, call the company in Texas at (310) 476-6170, send e-mail to ichristian@worldnet.att.net or circle Reader Service 125.

Cutting Edge Digital Stereo Generator

Omnia.sg is an all-digital stereo generator from **Cutting Edge**.

The company says the product puts the pieces of an FM station's processing where they are best suited—the processing in the studio and the stereo generation at the RF site.

The Omnia.sg includes a composite clipper for adding extra loudness, and low-pass filtering for proper subcarrier operation. The unit accepts analog and digital inputs, using onboard sample rate and A-D/D-A conversion.

Telos/Cutting Edge also announced agreements with digital broadcast proponents USA Digital Radio and Lucent Digital Radio. The company will work to ensure that its Omnia.dab processor is compatible with the IBOC DAB systems being developed by those companies.

For information, contact the company in Cleveland at (216) 241-3343, visit the Web site www.nogrunge.com or circle Reader Service 92.

Liquid Audio on the Internet

Liquid Audio was at the Radio Show, promoting its services and software for the digital delivery of music over the Internet.

Its turnkey music e-commerce services enable musicians, labels and retailers to capture this opportunity by creating, publishing, syndicating and selling secure music to consumers online.

For more information, call the company in California at (888) liquid-0, check out the Web site at www.liquidaudio.com or circle Reader Service 207.

Monitor In-Car Listening With MobilTrak

MobilTrak demonstrated its radio monitoring electronic emissions detection technology at The NAB Radio Show.

The car radio monitor service works by placing electronic measuring units alongside busy roadways where they can monitor which stations are being listened to in passing cars. The company said its technology offers immediate access to accurate, hour-by-hour tuning information for every FM station in a market.

MobilTrak is "programming insurance," according to the company, because it can deliver immediate feedback on audience response to programming.

For more information, call MobilTrak in Alabama at (888) 772-8725, visit the Web site at www.mobiltrak.com or circle Reader Service 126.



We've got you covered

Crown Broadcast transmitters are designed and carefully engineered to the same reliable high performance standards known worldwide as the hallmarks of Crown products.

Enjoy on-air confidence with compact stand-alone transmitter designs that integrate audio processing, stereo generation and RF amplification. Or choose from custom configurations for versatile solutions to meet your unique broadcast needs. And be confident in your choice, with a three-year warranty backed with service from some of the finest talent in the industry. *Ask us, we can help!*

Call us, visit our web site, or send us e-mail for more information about the versatile transmitters from Crown Broadcast. Crown International, 1718 W. Mishawaka Road, PO Box 1000, Elkhart, Indiana, U.S.A. 46515-1000 Phone: 800-294-8050 or 219-294-8050; Fax: 219-294-8222 Email: broadcast@crowntnl.com

www.crownbroadcast.com

Crown Broadcast...
making a world of difference

NBG Offers New Services

NBG Radio Network promoted its expanded services in Orlando.

NBG features more than 30 programs in entertainment, sports, news/talk, music of all formats and nostalgia. A full-service syndicator, NBG provides in-house programming, affiliate clearance/relations and national sales representation.

In addition to syndication, NBG offers Electronic Kiosk Integration for building station Internet presence.

For information, contact Dean Gavoni in Washington state at (503) 802-4624, send e-mail to dean@nbg.com or circle Reader Service 127.



John Holmes, CEO of NBG Radio Network

360 Systems Upgrades Short/cut

360 Systems showed its upgraded personal audio editor to Short/cut '99, which now offers a file interchange option that supports .WAV, .BWF and .AIFF files and



supports Jaz and Zip drives. It also has the

ability to generate crossfades and gain changes within the files, and sync to an external source and D-NET echo.

360 Systems also showed its new multi-track synchronous hard-disk recorders: the TCR4, a four-channel version, and the TCR8, an eight-channel version. Besides having high-capacity internal hard-disk storage and Zip drives, both models offer timecode implementation and VTR emulation for broadcast production and playout.

For more information, call the company in California at (818) 991-0360, visit the Web site at www.360systems.com or circle Reader Service 128.

OpenSpace.com Launches Internet Radio Network

"Transforming Web sites into vital engines of corporate strategy."

That's the claim from Seattle-based OpenSpace.com, which announced the launch of its first network of station-branded Internet sites at The NAB Radio Show.

OpenSpace Radio Network's charter affiliate is Atlanta's KISS 104.7 (WALR-FM), which is now sporting an

advertiser-supported Web site (www.kiss1047.com).

The OpenSpace Radio Network consists of branded destination Web sites, which combine a station or radio group's own original content with an exclusive and comprehensive range of features which are interconnected by a shared database.

For more information, contact the company in New York at (212) 689-6360, e-mail to Les_Luchter@bhimpact.com or circle Reader Service 129.

Dependable AM Measurements

Model 520 - \$1750

THIS AM MOD-MONITOR FEATURES A TUNABLE PRESELECTOR AND AN EASY-TO-READ DISPLAY.

Take accurate modulation readings right off the air with this compact, full-featured Mono-AM monitor. Fixed and adjustable peak flashers complement the peak-holding bargraph readout for clear, interpretation-free results.

Audio-loss, carrier-loss and modulation limit alarms may be remotely located, and an RS-232 port allows full computer/modem control. An efficient outdoor active antenna is optionally available for difficult reception situations.



Inovonics
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TEL: (831) 458-0552 - FAX: (831) 458-0554
www.inovon.com - e-mail: info@inovon.com

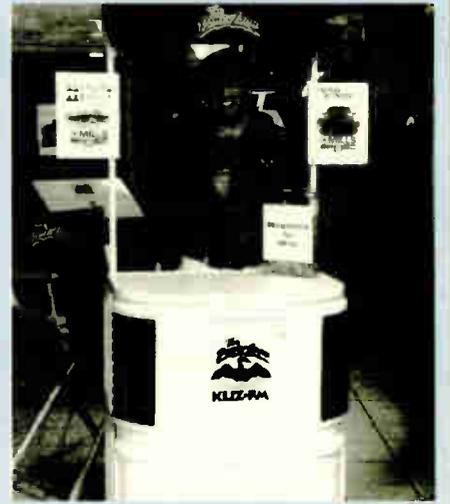
Circle (30) On Reader Service Card

Easy, Attractive Remote Furniture

Stations that would like a solution to the problem of what furniture to use at a remote or civic event should take note of KWIK STAND displays, which are custom-built to solve this problem.

KWIK STAND says that its display stands are compact and do not take up a lot of floor space, which makes for a happier retailer/host. They provide ample storage space for RPU gear, promotional pieces and all the "stuff" you need for a clean, professional broadcast.

For more information, call Lonnie Liebel in Minnesota at (800) 950-4413, send e-mail to sales@kwikstand.com or circle Reader Service 130.



Shown is a portable display unit from KWIK Stand Displays Inc.

WebPresence Launches Web Site Networks

WebPresence Inc., a provider of hosted Internet applications and services, announced at The NAB Radio Show that Pilgrim Communications has deployed the WebPresence suite of WebNTR.com applications. This service is intended to transform its radio stations into vertical portals.

Pilgrim is using a suite of WebNTR.com applications to produce

Web sites for all the stations in its network. The flagship application is the Radio Advertiser Guide, which enables listeners to find an advertiser heard on the air by referring the station's Web site.

WebNTR.com applications provide features that, according to the company, are essential for radio networks that need to maintain multiple Web sites.

For more information, contact the company in Massachusetts at (978) 448-8882 or circle Reader Service 131.

Sonifex Updates Courier, Releases New Redboxes

Sonifex updated its Courier solid-state portable recorder with V2.5 software. This machine now provides live audio on ISDN lines by using MPEG 2 sending 11 kHz mono audio, in addition being able to transfer data using a regular modem or GSM mobile telephone.

It works with Telos, CCS, Dialog 4 and Prodis codec equipment, and is now compatible with Enco DADpro32 and Apple AIFF systems. It uses a PCMCIA hard disk or card to record MPEG, BWF or .WAV files.

Also, Sonifex is releasing a new line of Redbox budget connection equipment, which includes an AES/EBU digital distribution amp, S/PDIF digital distribution amp, headphone distribution amp, sample rate converter, an A/D D/A converter, and automatic digital mix-minus generator.

For more information, call Independent Audio in Maine at (207) 773-2424, check out the Web site at www.sonifex.co.uk or circle Reader Service 120.

Syntrillium Software Update

Syntrillium Software Corp. showed its Cool Edit Pro 1.2 software, which is a digital audio editor, recorder and mixer for \$399. The program offers 64-track mixing, 34 DSP effects including real-time preview, 24-bit audio and

support of DirectX plug-ins.

The company also offers Cool Edit 96, a digital audio editor for \$50 that can be downloaded from the Internet.

For more information, call the company in Arizona at (480) 941-8170, check out the Web site at www.syntrillium.com or circle Reader Service 132.

New Nanoamps From ATI

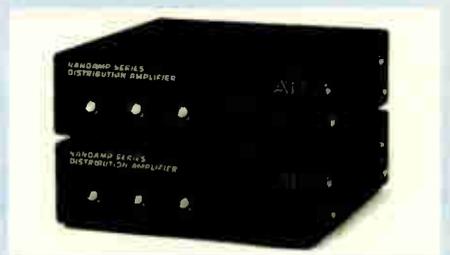
Audio Technologies Inc. (ATI) rolled out new additions to its Nanoamp Series of amplifiers, which the company calls its "problem solvers."

The DA103 distribution amplifier provides one line input to three servo balanced line outputs, and features master gain control and independent output trimmers.

The DMA103 is a microphone DA, with one mic input to three servo balanced line outputs. Features include dip-switch selection of phantom power and preamp gain for high-output mics and line-level inputs. Other recent products in the Nanoamp Series include the L200 dual-line amplifier, the SUM100

stereo-to-mono summing amplifier and the ML200 dual microphone-to-line amplifier. All units can be stacked or rack-mounted.

For information contact ATI in Pennsylvania at (800) 959-0307, fax to (215) 443-0394, visit the Web site at www.atiguys.com or circle Reader Service 133.



Put Uncle Sam to Work for You

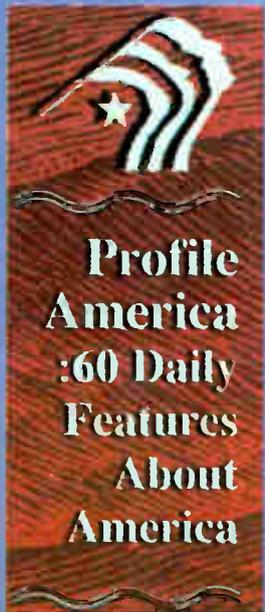
The U.S. Census Bureau is gearing up for the 2000 census by promoting American history in daily, 60-second features produced for radio.

The spots are provided free and in a CD format.

Keyed to the month's calendar, each daily segment is provided in three formats: the first is in a male voice, the second a female, both with a music bed, and the third is a male voice without music.

Verbatim scripts are available via fax-on-demand or the Bureau's Web site.

For more information, contact Maury Cagle in Maryland at (301) 457-3030, send e-mail to mauryc@census.gov visit the Web site at www.census.gov or circle Reader Service 134.



**Profile America
:60 Daily Features
About America**

Central Tower Products Available

Central Tower Inc. offers a product line of antenna support structures including guyed and self-supporting towers, monopoles as well as antenna mounts and tower accessories. Central Tower said its production fixtures are precision-made to provide one of the closest tolerance products available.

Every tower piece is cut and welded for maximum strength and durability. All company welders are AWS certified.

For information, call the company in Indiana at (800) 664-8222, visit the Web site at www.centraltower.com or circle Reader Service 135.

Jampro Serves Many Needs

Jampro offers a family of RF products and services for broadcasters.

Jampro told attendees about its FM antennas, combiners, filters and hard-line accessories, as well as its work on digital television projects.

Its FM antenna line includes sidemounts, panels, directional antennas, combined antennas, vertical dipoles, horizontal rings and circularly polarized translator/booster systems.

For information, call Jampro in California at (916) 383-1177, visit the Web site at www.jampro.com or circle Reader Service 136.

Grand Prix on Radio

The Indy Racing Network will be back in the Formula One business in September 2000, with live coverage of the U.S. Grand Prix in Indianapolis, Ind.

After a nine-year absence of Formula One series in America, the Indy Racing Radio Network will offer daily reports of practice activities and a full half-hour of qualification action in addition to the two-hour broadcast of the Grand Prix live from the Indianapolis Motor Speedway.

The U.S. Grand Prix will be a part of the IRRN lineup along with the Indy 500, Brickyard 400 and the Indy Racing

League 12 race series.

For information, call Julio Fernandez or John Royner in

Indianapolis at (317) 481-0060, send e-mail to jfernandez@brickyard.com or circle Reader Service 137.



Comrex Covers the World



With products in use on every continent, Comrex is the name broadcasters trust to deliver great sounding remotes.

We deliver high quality audio over telephone lines. Whether on standard dial lines or on digital circuits, Comrex has a solution. No matter what your remote broadcast needs, let Comrex help you cover it.

ABG is the dealer you can trust to deliver your Comrex products.



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Fax: 828-697-2691
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Voice: 800-951-7443
Fax: 803-951-3123
E-mail: jgeorge@abg.com

Southwest Office
P.O. Box 1638
Palmdale, CA 93550
Voice: 800-858-9008
Fax: 805-273-3321
E-mail: tmezey@abg.com

Decisionmark Moves Into Radio

Decisionmark announced a move into radio with BroadcastCounts and proximityradio.com.

BroadcastCounts is a Web-based application that features detailed demographics for the population within a station's signal area contour, customized reporting of more than 300 variables, and mapping of multiple signal contours to help broadcasters better understand

their market demographics. Proximityradio.com gives marketing solutions on the Internet by showing ways to influence clients and prospects, and stay in tune with the market around a station's signal area.



For more information, call the company in Iowa at (877) 494-3156, check out the Web site at www.decisionmark.com or circle Reader Service 138.

Increase Service Area With Ultra Tracker

Antenna Concepts promises radio stations a variety of FM transmission solutions with its Ultra Tracker systems.

Because no sidelobes are produced, the Ultra Tracker and Ultra Tracker II may offer a significant increase in service area and audience without the need for an increase in power (ERP) or antenna height (HAAT).

The company purports both models offer listeners a cleaner, more uniform signal with less multipath and "holes" than competitive antennas. The units can reduce coupling between stations

by as much as 60 to 80 dB.

Ultra Tracker can help stations comply with new RF radiation limits, reduce side-lobe problems and help stations share towers.

For information, contact Antenna Concepts in California at (530) 621-2015, fax (503) 622-3274, e-mail to sales@antennaconcepts.com visit the Web site at www.antennaconcepts.com or circle Reader Service 141.

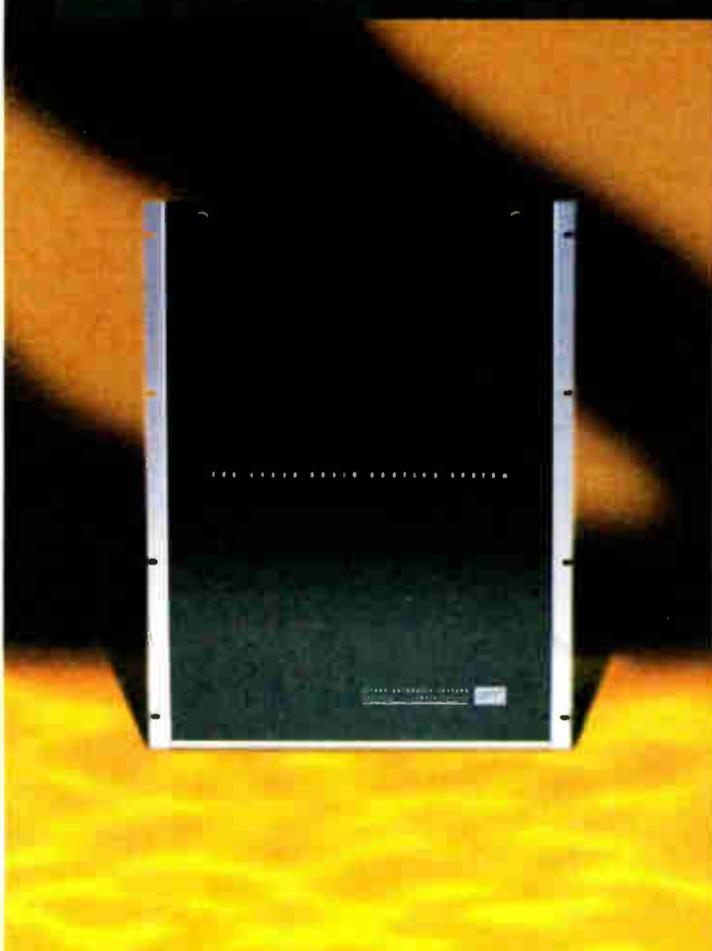


SAS64000 AUDIO ROUTING SYSTEM

Elegant
Analog
Instant
Digital



256 X 256 LARGE • MDNO/STEREO • WIDE VARIETY OF CONTROL PANELS • 118DB ANALOG DYNAMIC RANGE • DISTRIBUTED MULTI-PROCESSOR ARCHITECTURE



If the migration to digital is in your future, then this is the route to take. Introducing the large size, big performance analog router that also speaks fluent digital. A true hybrid that allows you to scale the number of analog and digital ports as needed, now and in the future. And even better, the SAS64000 creates a forward path to AES/EBU digital audio without creating analog obsolescence.

This means you can mix your analog and digital I/O in the same router frame. Go direct analog to analog, or digital to digital. Or mix it up with 24 bit conversion analog to digital and vice versa. Either way, this unique architecture sports flawless signal integrity and non blocking flexibility.

And it's wonderfully simple, just plug in our new digital port expander and that's it. Welcome to digital! Co-existing richly with analog in the same framework.

There's lots more to tell. Call us: 818 840 6749. Fax us: 818 840 6751. E-mail us: sales@sasaudio.com Check the Web site: sasaudio.com And of course, snail mail: 2625 North San Fernando Blvd, Burbank, California 91504 USA



IBOC Technology From ERI

Looking to the digital future, ERI told attendees about its work with digital radio proponent Lucent Digital Radio.

ERI discussed its work on a digital-analog combiner for in-band, on-channel (IBOC) digital radio systems.

The company also promoted its Model 430, a new high-power broadband isolation transformer designed for multiplexing FM stations on AM towers.

Developed for use across the commercial FM band, it has a passive design free of critically tuned resonating elements. The result, according to ERI: an excellent match and low insertion loss.

The rugged design makes the Model 430 suitable for use in harsh environments. The unit is rated at 70 kW.

For information, contact ERI in Indiana at (812) 925-6000, fax to (812) 925-4030, e-mail to info@ERInc.com or circle Reader Service 142.

Webcast Solutions Online Services

Webcast Solutions provides live and on-demand Webcasting for corporate business, organizations and entertainment clients, offering instantaneous global communication from



media capture to turnkey Webcasts.

With Web site designers incorporating recorded content, Webcast Solutions can encode and serve the content from its server, host a Web site and provide the necessary bandwidth.

For more information, call the company in California at (415) 284-9219, visit the Web site at www.webcastsolutions.com or circle Reader Service 140.

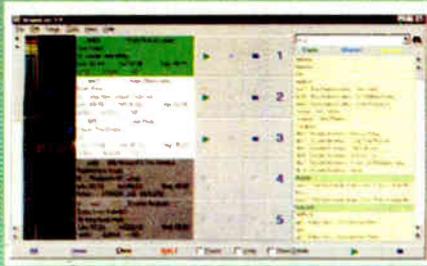
BSI WaveCart 3.0

BSI's WaveCart is a cart replacement software system for Windows 95, 98 or NT.

The \$249 system is 32-bit software, with up to 10 on-screen decks, variable segue and intro times, digital effects, noise reduction and normalization, remote control via modem and Cool Edit Pro LE digital editing software. Audio compression allows up to eight hours of storage per gigabyte.

The WaveCart has can record spots, liners and jingles onto a PC hard drive. The system can also rotate spots

according to percentages and place carts within carts. A trial version is available free on the Web site.



For more information, contact BSI in Oregon at (888) BSI-USA1, fax (541) 338-8656, visit www.bsiusa.com or circle Reader Service 143.

Sonic Foundry Unveils Vegas-Pro

For Windows-based PCs, Sonic Foundry has launched Vegas-Pro, a non-linear multitrack media editing system designed for the Internet author.

The program utilizes dual processors, if you have them. With extra RAM for buffering, a higher number of tracks can be created than those relying on hard-disk throughput. It has the ability to incorporate timeline metadata for both Windows Media Technology 4.0 and RealNetworks RealSystem G2 file formats as well as .MP3.



For those using ACID, there are two new libraries from Sonic Foundry: Robin Storey's Indian-styled Rapoon, and Marc Anderson's percussive Dragon Dance.

For more information, call the company in Wisconsin at (608) 57-SONIC, check out the Web site at www.sonicfoundry.com or circle Reader Service 151.

RadioWave.com Provides Broadcast Services

RadioWave.com says listeners will experience radio like never before. The company's services allow broadcasters to extend their programming and advertising to the Internet.

According to the company, services create an "exciting and visually stimulating interactive experience on the Internet."

RadioWave.com offers complete technical, marketing and sales support for the turnkey program.

For more information, contact the company in Illinois at (800) 788-1270,



send an e-mail request to broadcasterservices@radiowave.com or circle Reader Service 144.

WebRadio.com Continues Internet Efforts

In an ongoing commitment to build what the company calls "the ultimate Internet radio community destination," WebRadio.com has added original content, community, e-commerce and functionality to its Web site.

The announcement was made at The NAB Radio Show.

WebRadio.com, a plug-in-free Internet broadcaster, is providing stations with additional revenue-generating opportunities to increase market share and reach a larger worldwide audience.

The Internet destination is expected to help build user loyalty and build a broader audience.

Meantime, the company also announced that Liquid Audio Inc. will provide secure digital music downloads to users of WebRadio.com. This addition will provide online access to more than 20,000 tracks. Using download-

able Liquid Player software, users are able to sample music, read lyrics and liner notes as well as purchase and download Internet singles securely.

WebRadio.com, a network of radio stations and live Webcasting events from around the world, is a subsidiary of GEO Interactive.

For more information, call the company in California at (888) 643-6782, visit the Web site at www.webradio.com or circle Reader Service 152.



New ISDN Codec By Musicam USA

Musicam USA introduced the Prima LT, the newest in its line of CDQPrima digital audio codecs.

The fully bi-directional, stereo codec accepts one ISDN, V.35 or X.21/RS422 interface module. It comes with 24-bit A/D and D/A converters, and gives users what Musicam describes as "Musicam-enhanced" MPEG Layer 2, MPEG Layer 3 and G.722 coding.

Features include one-touch auto dialing, easy-to-operate controls and online software upgrades. Suggested retail price is \$3,495.

For information, call Musicam USA in New Jersey at (732) 739-5600, send



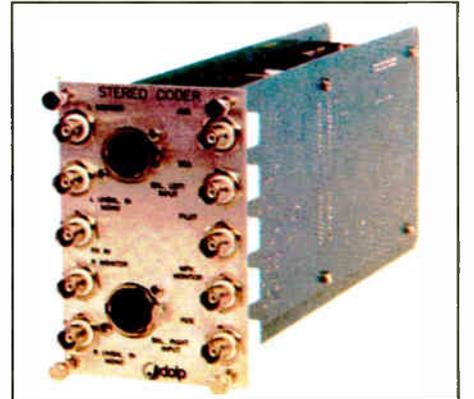
e-mail to jfitz@musicamusa.com or circle Reader Service 91.

Dolp Shows FM Family

Italian supplier Dolp showcased its TFM line of FM transmitters and exciter modules in Orlando. The line is available from 30 W to 20 kW.

Transmitters are solid-state and use a modular design to allow plug-in servicing. Several features are available through a microcomputer controlled interface that can display parameters on the unit or a standard PC.

For information, call the company in Italy at (39) 774-357400 PABX, e-mail to dolp@mail.seinet.it or circle Reader Service 161.



The Dolp stereo coder typifies the modular design approach.

Simple Connection

Simply connect to Broadcast Richmond for 200+ product lines integrated to your exact needs - from input to output.

As a leader in the supply of prewired program racks for AM, FM, & TV - and prewired console and mixer harnesses for air and production studios, our daily mission is to make your job simpler.

Our product expertise and equipment integration will save you time and money.

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Connect to www.broadcast-richmond.com

Aeta Shows HIFIScoop3

Aeta Audio was at the Radio Show, exhibiting its new, easy-to use audio codec, HIFIScoop 3.

This versatile unit is designed to deliver 20 kHz stereo CD-quality audio over ISDN lines. Housed in a 2U rack-mount chassis, the HIFIScoop 3 accommodates a broad range of compression algorithms ensuring stable, error-free connections.



Features include a loopback mode for network testing and a universal power supply.

Also new from Aeta is the updated Scoop Reporter II, a portable audio codec for field reporting. This unit is compatible with both POTS and ISDN lines. Fitted with an internal D cell battery backup and multiple AC voltages, the system is designed to be used anywhere in the world.

For information, contact Aeta in New Jersey at (973) 659-0555, fax to (973) 659-9555, visit the Web site at www.aetausa.com or circle Reader Service 221.

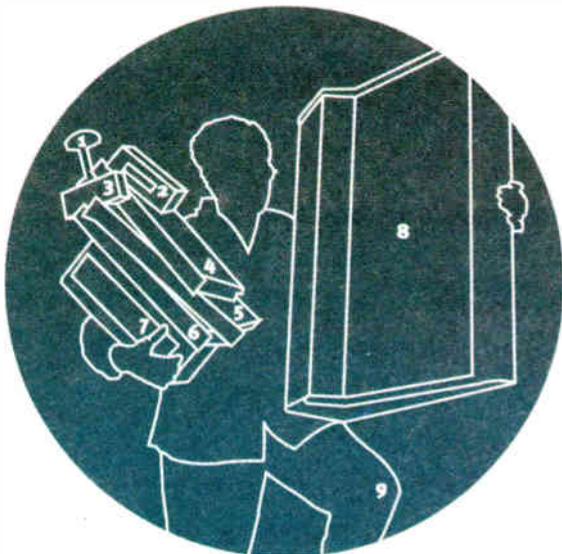
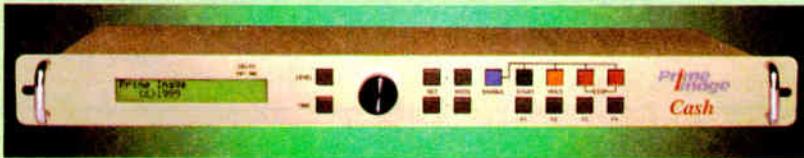
Get Cash From Prime Image

Prime Image brought Cash to the exhibit floor.

This compact processor allows radio stations to create additional commercial space in real time, right on the air. Radio stations can add 60 seconds or more every 10 minutes without reducing program content. The undetectable process does not affect pitch or create digital artifacts.

Models are available for mono or stereo broadcasts.

For information, contact the company in California at (408) 867-6519, fax to (408) 926-7294, send e-mail to primeimagein@earthlink.net or circle Reader Service 222.



radio systems millenium products

- 1 CT-6 satellite receiver
- 2 CT-6 desktop clock / timer
- 3 CT-6 thin clock / timer
- 4 DI-1000 telephone hybrid
- 5 DI-2000 telephone hybrid
- 6 DA-4x4a distribution amplifier
- 7 CT-6 large clock / timer
- 8 RS-12a millenium console
- 9 MRS BRAVERMAN, company spokesmodel



601 Heron Drive, Bridgeport, New Jersey 08014, (609) 467-8000 voice, (609) 467-3044 fax, www.radiosystems.com

Circle (33) On Reader Service Card

Narrator Tracks Music Lease Offer

Narrator Tracks specializes in music themes that are designed to work *under your voice copy*, not work against it. Narrator Tracks provides a CD-ROM search engine that matches the style and tempo criteria with the theme and gives a sample.



Narrator Tracks Music is offering an introductory lease for only \$99 with a 30-day, free, complete-set trial. The regular lease cost is \$499 a year and carries the option to convert the lease payments to a permanent buyout.

For more information, call the company in Wisconsin at (800) 448-6467, visit the Web site at www.ntracks.com or circle Reader Service 223.

PPM Tests Continue

The Arbitron Company continues to test its Portable People Meter, designed as a passive device that allows diarykeepers to report their listening habits simply by wearing the device. The units detect embedded inaudible codes in radio and TV signals that are uploaded via a tabletop modem/recharging port at night.



The results of a small pilot test of the PPM conducted in England last year revealed that participants successfully used a tabletop "docking station" to upload the data collected by the PPM to a central computer. The docking station also recharges the PPM for use the next day.

For information, contact Jay Guyther at (212) 887-1328 in New York, send e-mail to jay.guyther@arbitron.com or circle Reader Service 224.

Eventide Welcomes Orville

Eventide was on hand in Orlando with Orville, its new self-contained, independent signal processing system.

The unit masters processing tasks including DVD and Surround Sound. Orville incorporates Eventide's pitch-shifting technology, UltraShifter, that produces natural vocal harmonies in real time.



Orville has hundreds of new presets along with many of the most popular from Eventide's DSP4000 Ultra-Harmonizer line, and is compatible with 99 percent of those available on DSP4000/4500 plug-in cards.

The unit offers reverbs, pitch shifters, distortion, dynamics, EQ, phasing, flanging and other music and production effects, all selectable on the front panel. Eventide software can be upgraded via the Internet.

For information, contact the company in New Jersey at (201) 641-1200, fax to (201) 641-1640, e-mail to audio@eventide.com or circle Reader Service 225.

AutoPilot Monitoring System

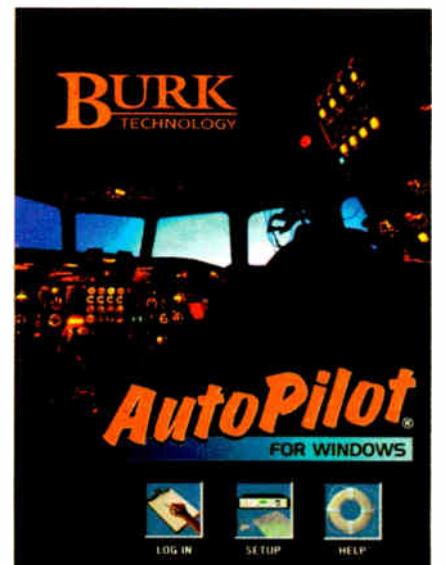
Burk Technology touted AutoPilot for Windows, its new PC monitoring system.

Teamed with the ARC-16 remote control, the system monitors and controls a virtually unlimited number of stations from a PC and creates system logs to record activity. Users can log on at convenient predetermined times and view data at a glance.

The program monitors the status and metering from the ARC-16. Auto-logging and other functions can be scheduled at the user's convenience.

The system allows radio stations to edit and store all ARC-16 configurations and labels that have been uploaded or downloaded.

For information, contact Burk in Massachusetts at (800) 255-8090, fax to (978) 486-0081, send e-mail to sales@burk.com or circle Reader Service 226.



New Transmitter From Itelco

Itelco presented the DAB 1000-W L-Band transmitter at The NAB Radio Show. The product utilizes LDMOS technology, and, according to the company, is the most powerful device of its kind.

The transmitter is a more powerful version of the four 800 watt Itelco DAB transmitters installed in 1998 at the master FM consortium broadcast facility in Toronto.

For more information, contact the company in Colorado at (303) 431-1699, fax (303) 431-2868, e-mail itelco.sales@krenet.it or circle Reader Service 227.

Multimedia Broadcasting

Whether
on the air or
on the Internet,
stations can
rely on Dalet



From production to programming to broadcast, Dalet5.1, the latest technology in digital audio, allows stations to increase efficiency, streamline operations, and reduce costs.

Internet Broadcasting

Stations can easily and quickly establish their Internet presence. Dalet Web Publisher automatically publishes and updates information such as song titles, news stories, and broadcast history onto a web site. Stations wishing to simulcast their on-air program onto the Internet can use our integrated G2 Player.

Reliability

With thousands of stations around the world using our systems, Dalet has the proven expertise to keep your

station on the air. Dalet5.1 goes one step further with Netback2, a powerful utility that complements hardware redundancy (RAID arrays or mirrored servers) by backing up logs and sound files onto a secondary workstation. At a moment's notice, that workstation can be activated and broadcasting restored.

Superior Audio Quality

A variety of high quality sound formats designed to provide stations flexibility in managing their sound libraries is supported. Depending on a station's storage and audio needs, audio can be stored and edited in MPEG and/or LINEAR.



Group Connectivity

Many stations are now part of groups in which operations, production resources, sound files, and schedules must be shared. Stations that are co-located can use a single Dalet system while stations in different sites can easily and cost effectively exchange information and audio over the Internet or Wide Area Network.



Integrated Editors

Surfer and Mix Editor, tools for editing sound files and creating segues, are now easier to use and offer greater precision through the improved use of visual cues and an enhanced scrubbing tool. Additionally, Surfer has been refined with easier to use drag and drop editing, preset zooms, multi-track locators, and time stamping - all of which make editing a breeze. Because both tools are integrated with Dalet5.1, edits, once saved, are available for immediate broadcast.

Music Scheduling

Music Scheduler is an optional module that provides primary and alternate schedule recommendations based upon station defined rules, broadcast history, and title attributes. Since Music Scheduler is integrated with Dalet5.1, stations can avoid the importing and exporting hassles often associated with third-party scheduling software.

On-Air Flexibility

Dalet5.1 offers many options that provide stations flexibility in their on-air operations. A single workstation can be used to record call-ins or interviews in the studio while a program is being played. The on-air staff has greater operational flexibility through the use of an optional control panel and multiple monitors. And, stations can switch between live and automated programming with relative ease.

More broadcasters worldwide choose Dalet than any other system. Among our references: Emmis, Journal, ABC, Radio Unica, Sinclair, Crawford, CNN Radio, BBC (UK), CBC (Canada). Etc.



Call
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or visit
www.dalet.com

Highlights

Linear Audio/Mpeg
Group Connectivity
Music Scheduling
Internet Broadcasting
Archiving
Backup and Redundancy
Integrated Editors
Broadcast History
Macros
Year 2000 compliant

T H E F

What will it

Two tin cans and a string. A simple way to transmit sounds, gone forever except for the memories.



The world is more complex now. We record everything we say and play, storing it for future generations. Technology has taken us to a new level, relegating cylinders, vinyl and analog audiotape to museums, replacing these once ground-breaking media with alphabet soup: ADAT, DTRS, DAT, CD-R, MD.

But now the world of professional audio recording media can be summed up in four new letters: FUJI.

Fuji, an established name in professional digital videotape products, now offers a line of professional digital audio products. Every cassette and disc comes with Fuji's established high quality and consistency.



U T U R E

sound like?



The industry's most advanced manufacturing technology packed in every product. And a knowledgeable and dedicated sales and support staff, ready to stand behind every piece we ship.

We can't tell you what the future will sound like. We can only assure you that we'll be around to record it.



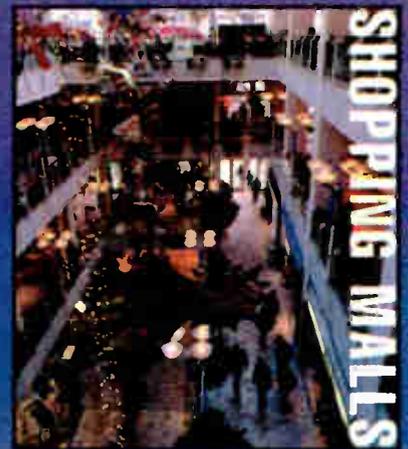
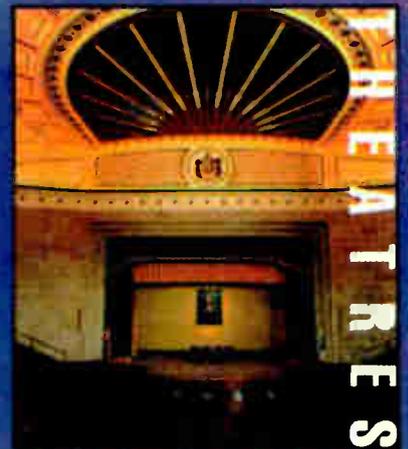
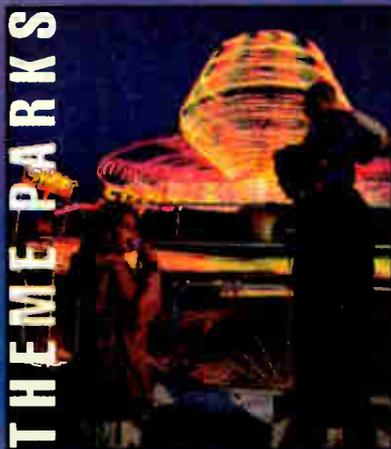
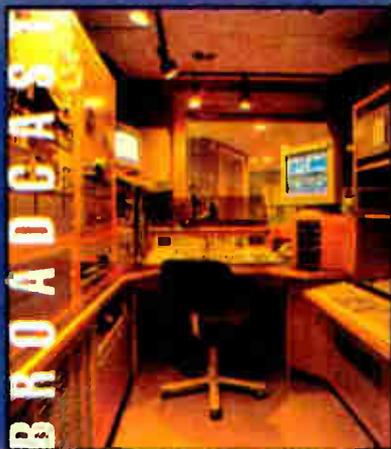
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 **FUJI**
PROFESSIONAL
AUDIO
PRODUCTS

**HERE
TODAY.
HEAR
TOMORROW.**

Circle (35) On Reader Service Card
World Radio History

The Versatility Of MiniDisc



Introducing the new Denon DN-M991R MiniDisc recorder/player. MiniDisc is the most versatile media available for archiving

program material for playback in a variety of applications including broadcast, theme parks, theatres and shopping malls, among others.

The DN-M991R offers all the features and functions that

engineers have asked for, such as a large and easy-to-read florescent tube display with multiple readouts, Hot Start, key-

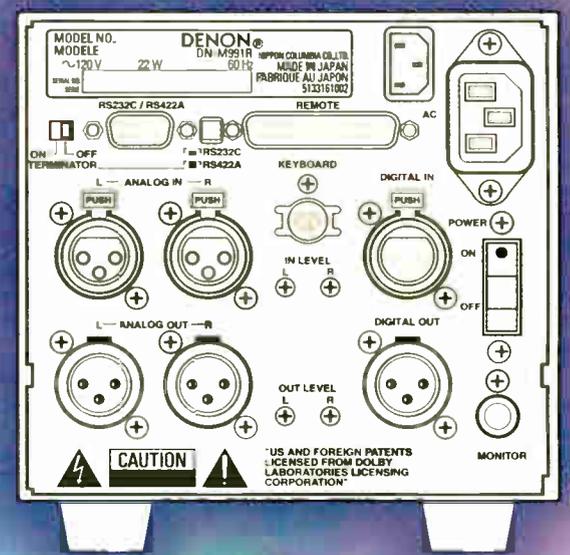
board entry, seamless Sleep mode, front-panel Program Play and a variety

of control terminals including RS-232C, RS-422A, D-Sub 25 pin and PC-compatible Mini Din keyboard connec-

tor. For additional information, contact our broadcast products specialist at (973) 396-7492.



- 10 Hot Starts
- Instant Start
- Auto Cue
- Multiple Display
- Seamless Sleep Mode
- +/- 8% Playback Speed Control
- Program Up To 25 Tracks
- Multiple Editing Functions
- Rotary Track Selector
- Relay Recording
- Auto Level Rec Start
- Optional Wired Remote RC-650



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 Denon Canada, Inc., 17 Denison St., Markham, Ontario, Canada L3R 1B5, (905) 475-4085
 Labrador, S.A. de C.V., Zamora No. 154, 06140 Mexico. D.F., (52-5) 286-5509

Visit our web site: www.del.denon.com

Circle (36) On Reader Service Card
 World Radio History

DENON
 The First Name In Digital Audio

CBSI Shipping DeltaFlex III

CBSI has begun shipping DeltaFlex III, the company's newest traffic and billing software package. It expands capabilities for storage, retrieval and presentation of client data, particularly in financial and sales/management reporting areas.

DeltaFlex III includes a revision of the accounts receivable module, to include a broader range of transaction data that may be entered and retained.

"When we think about how dramatically consolidation has affected traffic and billing operations, we've naturally focused on the complexity it has introduced at the order entry/traffic stage," said CBSI Vice President, Marketing and Sales, Steve Kenagy. "The changes it (consolidation) has brought to how we bill clients are just as significant, though, and that's what this new release addresses."

CBSI also has increased the flexibility of its software reporting function, with storage of predefined sequences in A/R and traffic. The sequencing, says CBSI, allows faster queueing and printing of reports.

For information, call CBSI in Oregon at (800) 547-3930, visit the company's Web site at www.cbsi.org or circle Reader Service 230.

Terminating Loads From Coaxial Dynamics

Wattchman Models 81090 and 81091 are RF Station Monitor/Alarms from Coaxial Dynamics.

The units measure forward and reflected RF power simultaneously in 50-ohm transmission lines. Compatible with the entire Coaxial Dynamics series of 7/8-inch through 6-1/8-inch line sections, the units accept plug-in elements that range from 5 watts to 100 kW, full scale from 0.45 MHz to 2.3 GHz.

Useful features include forward and reflected trip adjustments, a built-in DC amplifier and 110/220 input voltage switches. Abnormal load conditions quickly cause transmitter shutdown within less than 15 milliseconds — including control relay.

Also from Coaxial is the 84000 Series of terminating load resistors. Models cover CW power ranges of 2.5 through 12.5 kW over a frequency range of DC to 2,400 MHz.

For information, contact Coaxial Dynamics in Ohio at (800) 262-9425, fax to (216) 267-3142, e-mail to coaxial@apk.net or circle Reader Service 231.



RF Station Monitors and Alarms

Your Own Station Newsletter

Neal Communications offers stations a service that creates a monthly four-color newsletter for radio sales staffs to use when visiting clients and prospects.

Stations provide their news and a few photos each month, and Neal will design, print, address and mail a custom newsletter that will "keep advertisers sold on your company, publicize your success stories and get your sales message to everyone in the buying process," according to the company.



Neal Communications can also design station brochures and radio sell sheets.

For more information, contact Mike Neal in Atlanta at (800) 833-6325 or circle Reader Service 229.

Gardens, Computers and Strange Sightings

Talk America rolled out several new shows at The NAB Radio Show.

Just in time for one of the busiest times of year for gardeners, the network launched "Paul's Garden," a weekly call-in show with garden guru Paul Parent.

The show will air Sundays from 6 to 10 a.m. EST. Parent has built a following by providing easy-to-understand solutions to indoor and outdoor gardening problems.

"Generic Talk Radio" is TA's new morning program, hosted by Craig R. Smith. Generic Talk will address "hot topics and showcase emerging leaders in the private and public sectors."

"Computer Daze" is a new week-night show, hosted by Guy Kemp. A reviewer in the Los Angeles Daily News called Kemp's show "a major league kick in the head."

And Sean David Morton helped Gene Rodenberry redevelop Star Trek in the early 1980s, and TA says he's the one who located Area 51. Now he is the host of the show "Strange Universe," which airs weekdays, midnight to 6 a.m., EST. The "phenomenologist" will go head-to-head with former boss Art Bell in the overnight slot.

For more information, contact Talk America President Tom Star at (781) 828-4546 in Massachusetts, send e-mail to systar@gis.net or circle Reader Service 228.

Tell the world



powerStar™

The new PowerStar AM/FM solid-state products from CEC are the best way to future-proof your radio station in the digital age. You know the CEC name. Our reputation for building reliable, leading-edge products is unsurpassed. The PowerStar line not only lives up to that reputation — it exceeds it. With its exclusive Digital Signal Processing System, its modular design, and its small footprint, CEC's PowerStar is a sound investment.

DR ORIGINAL READY™

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CEC
CONTINENTAL ELECTRONICS CORPORATION

RDS Phantom

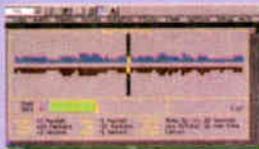
Register Data Systems told NAB attendees about the Phantom, its PC-based automation system.

This user-friendly automation system allows broadcasters to control, schedule and monitor programming.

The main display provides an overview of what is scheduled next, the network and personality now on air, a list of function key commands for live assist and a history of the last three actions, all in plain English.

The Phantom features easy-to-use pull-down menus to guide the user through the steps involved in setup and daily operation, from recording audio to creating and editing logs.

For information, contact RDS in Georgia at (800) 521-5222, fax to (912) 745-0500, send e-mail to sales@registerdata.com visit the Web site at www.registerdata.com or circle Reader Service 232.



One-on-One: 11 Million Weekly Listeners

One-on-One Sports offers live, 24-hour sports talk that reaches 11 million listeners weekly, according to the company.

A turnkey operation, One-on-One programming is delivered digitally via satellite with redundant back-up.

The company said its weekday line-up features personality sports talk shows with call-in participation generating more than 600,000 calls a month. One-on-one delivers interviews with popular coaches, players and experts. Weekend programming offers game-day coverage with previews, updates and live reports from stadiums across the country.

Affiliates can select program blocks to meet individual station needs.

To hear the Live Listen Line, call (847) 509-1830. For information, call (847) 509-1661, visit the Web site at www.lon1sports.com or circle Reader Service 234.



RealNetworks Radio Services

Real Broadcasting Network has established an online broadcasting presence by providing an easy, reliable way to broadcast locally or globally, live or on-demand.

More than 70 million RealPlayers are registered in the marketplace, and more than 85 percent of all sites with streaming media use RealAudio and/or RealVideo.

RealPlayer lets a station include visual elements in its site. RBN helps a station generate online business through additional ad opportunities: prestreaming ads, rotating banners, targeted ads and ad replacement. Online commerce and localization opportunities make RBN a suitable partner to radio stations online.

For more information, call the company in Washington at (800) 444-8011, check out the Web site at www.rbn.com or circle Reader Service 236.

Myon 'Local Internet' Broadcasting

Myon has designed an intuitive Internet portal that provides a variety of locally produced entertainment, community advertising and business content.



Revenue opportunities through a sharing formula include Web site sponsorship and display advertising, polls and e-commerce sales. Secondary audio streaming services are available that could support local sport, government or niche programming.

For more information, call the company in Canada at (877) 211-WAVE, visit the Web site at www.localwave.com or circle Reader Service 237.

Management Data Broadcast Studio 3.0

German supplier Management Data used the Radio Show to introduce its products to U.S. clients.

The company designs integrated software and network solutions. More than 200 radio stations in Europe, with more than 5,000 workstations, run installations by the Management Data Group, which was listed on the Frankfurt Stock Exchange this summer.

Broadcast Studio 3.0 includes a scheduler, archiving, central database, on-air control and production functions. The company's systems are scaleable, for use in single stations or entire networks.

For information, contact the company in New York at (212) 323-8042, visit www.mdata.de or circle Reader Service 233.

BDS Announces New Service for Radio

Broadcast Data Systems, an off-the-air radio airplay data provider, announced a service available to radio stations called BDSradio.com. The service is a Web site-based expansion of its programming research tool, BDS/Preferred Data.

Radio programmers can save time by using the password-protected BDSradio.com site to perform research in real time using a Web browser. Data downloading is no longer necessary.

Radio Show attendees saw the product in action at the Jones Radio Network booth. BDS radio products are marketed to radio by Jones Radio/New York.

For more information, contact the company in New York at (212) 556-9421 or circle Reader Service 235.

Digital Software From Audio Follow

France's Audio Follow offers digital audio products to help stations carry out real-time scheduling (programs, music, spots, etc.), audio production, live and automatic broadcasting.

Software programs include:

- 1 Music and commercial scheduling;
- 2 On-air broadcasting with Air DDO live and automatic broadcasting software.
- 3 Production with the DDO-Feed multi-track recorder.
- 4 Administration with Pass-Port, which manages access rights.
- 5 Archiving with Net Store.

For stations with smaller budgets, Audio Follow now offers Air Lite. This autonomous workstation centralizes basic broadcast functions including recording, audio editing, log scheduling, live assisted or automatic broadcasting.

For information, call the company in Paris at +33 1 46 07 26 26, visit the Web site at www.audiofollow.fr send e-mail to a.mendesnazare@audiofollow.fr or circle Reader Service 83.

BE Transmission and Audio

Broadcast Electronics touted its lineup of RF and audio products, including the new FM-10S solid-state 10 kW FM transmitter.

The company also showed AudioStream, a single-box solution for Webcasting, and AudioPoint, its DSP-based routing switcher that handles analog, digital, synchronous, asynchronous or MADI inputs that can be mixed and switched in the same system.

For information, contact the company in Illinois at (217) 224-9600, e-mail to bdcast@bdcast.com or circle Reader Service 239.

FM ANTENNAS

- FM1
- FME
- FM3
- FM10
- FMU

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Philippines
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Fax: 632.410.6527
E-mail: eje@i-manila.com.ph

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World Radio History

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could you get for an extra
radio commercial every
ten minutes?

If you're in the radio business to
make money (and who isn't)
you need

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Through an exclusive time-
shifting process, Cash creates
additional broadcast time to
sell. It does it in real time, right
on the air. It does it without
reducing program content. It
does it without affecting pitch
or creating a "chipmunk effect."
It does it in stereo or mono. It
does it in variable amounts,
adding from zero to five
minutes, within two minutes to
two hours.

Cash, from Prime Image - you
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CJDS Offers New Software

Columbine JDS Systems Inc., a Denver-based company providing technology solutions for the advertising buying/selling process, announced new Internet-enabling software for radio.

ColumbineNet, which can be used in a single- or multi-station environment, is a traffic and billing solution for group owners. The product provides integration and consolidation and lowers per-station operating costs. Electronic contracting provides a gateway for sales, orders and scheduling between the station or stations and the national rep firm.

For information, call (303) 237-4000, visit www.cjds.com or circle Reader Service 240.

Telos for Talk Shows

Telos exhibited the Series 2101 for talk shows, a multiple-caller system that connects to digital ISDN phone lines. Open architecture allows producers to reassign call-in lines to different studios on the fly.

Series 2101 connects to a variety of digital services, including PRI, BRI, T1 and E1. Analog as well as AES/EBU inputs and outputs are provided. Basic systems can handle up to 24 callers, but can be expanded to 96 with T1 lines.

Telos introduced the Telos Two, an ISDN Hybrid that interfaces directly to digital telephone service. It creates a digital path from the telco central office to the user's studio, taking advantage of ISDN's four-wire configuration and providing audio performance that is not possible with POTS lines.

And Telos announced version 2.0 of its Audioactive Production Studio software MP3 encoder, with several performance enhancements. Users can conveniently source audio from existing PCM audio (WAV) files or via direct CD conversion.

For more information, call the company in Ohio at (216) 241-7225, check out the Web site at www.telos-system.com or circle Reader Service 241.

AudioScience Audio Adapters

The ASI4332 from AudioScience provides cost-effective versatility for PC-based broadcast audio.

Record, play and mix up to seven stereo streams including three feedthrough channels. The card features four stereo playback streams routable to two stereo balanced analog outputs.

In addition, three feedthrough streams are routable to either the record stream or direct to the two balanced analog outs, so you can handle a stereo satellite feed, phone patch and live announcer while playing back any of the play streams.

It's possible to record sound bites while playing program material, or switch from satellite feed to local programming and back without glitches. Formats include MPEG Layer 2 and 16-bit PCM.

Windows 95/98/NT and Linux drivers are available.

For information, contact the company in Delaware at (302) 324-5333, visit www.audioscience.com or circle Reader Service 242.

Citadel Selects Scott Studios as "the Best" Digital System



Larry Wilson (at right), CEO of Citadel Communications Corp., shakes hands with Dave Scott as Citadel standardizes on Scott Systems for its 124 stations and future acquisitions.

Citadel Communications Corp., one of America's top 10 radio groups in 1998 revenues, selects Scott Studios Corp. as its sole supplier of on-air digital audio delivery systems for its 124 radio stations and future acquisitions.

"We thoroughly investigated all of the competitive digital air studio systems and decided upon the best one," says Larry Wilson, CEO of Citadel Communications. "Our regional Presidents and Vice Presidents of engineering and programming spent nearly a year analyzing different options. While no system or manufacturer is 100% flawless, it became obvious to us that Scott Studios is the very best. Their long history of excellent service commitment, the quality of their digital studio products and competitive pricing were our primary reasons for selecting Scott Studios."

Dave Scott, CEO of Scott Studios Corp. says, "It's an honor to be Citadel's sole digital audio vendor and take their other brands as trade-ins on our new equipment. Our systems are designed by announcers, for announcers."

"Of Scott's 61 employees, 43 are former jocks and PDs with 700 years collective radio experience. Competitors work more from the engineer's perspective, although we have 20 former chief engineers on staff also. Scott Studios' digital fits DJs like a glove."

After adding five Oklahoma City stations and other pending transactions, Citadel will own or operate 124 radio stations in 23 mid-sized markets such as Providence, Salt Lake City and Albuquerque.

Citadel is well known across the country for attaining topnotch competitive programming success, and the addition of Scott Studios announcer friendly technology will help Citadel announcers deliver superior information, entertainment and service to their 8,000,000+ weekly listeners.

Citadel's stations are not the only ones who choose Scott: More U.S. radio stations use Scott Studios' than any other digital system, with 5,046 Scott digital workstations in 2,202 U.S. stations. Nine of the ten top-billing groups have Scott Systems.

Scott Systems are the easiest to use! They're intuitive, straightforward, simple, yet the most powerful!

Scott Studios is famous for our uncompressed digital systems at a compressed price, (but we work equally well in MPEG and MP3). Scott Studios' audio quality is the very best and plays on laptops or PCs with ordinary sound cards. We pre-dub your startup music library free. Your PD can auto-transfer songs digitally in seconds with a CD-ROM deck in his or her office.

Scott gives you industrial quality 19" rack computers, but nothing is proprietary: functional equivalents are available at computer stores. You also get 24 hour toll-free tech support! Scott also lets you choose your operating system: Linux, Novell, NT, Windows, DOS or any combination. You also choose from three systems: Good, Better, Best. One's right for you!

The Scott System 32 (pictured at the upper right) is radio's most powerful digital system. Your log is on the left side of the LCD touch screen. Instant access Hot Keys or spur-of-the-moment "Cart Walls" are on the right with lightning-quick access to any recording. Phone calls record automatically and can be edited to air quickly. You can also record and edit spots or voice tracks in the air studio or go on the air from production.

Options include seamless redundancy, self-healing fail-safes, newsrooms, 16-track editors, time and temperature announce, and auto-transfer of spots and voices to distant stations over WAN or Internet. Check our web site and call us toll-free.



The Scott System is radio's most user-friendly. You get instant airplay or audition of any song simply by spelling a few letters of its title or artist. You see when songs played last and when they'll play next. You also get voice tracking while listening to music in context, hot keys, automatic recording of phone calls and graphic waveform editing, all in one computer!

Scott Studios
13375 Stemmons Freeway, Suite 400
Dallas, Texas 75234 USA
Internet: www.scottstudios.com
(972) 620-2211 FAX: (972) 620-8811
800 726 8877
(800) SCOTT-77

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World Radio History

InXsys Is Now BuySellBid.Com

InXsys Broadcast Networks has changed its name to BuySellBid.Com.

The company board decided to make the change to better reflect the company's direction. BuySellBid.Com is a provider of online multimedia advertising and auctioneering.

InXsys Broadcast Networks will become a division of the larger organization, and will continue to develop turnkey Internet commerce solutions.

At the Radio Show, the company promoted its strategic venture with radio station KIIS-FM in Los Angeles, a Clear Channel station. The venture creates an original audio and video programming network for the Net called KIISFMi — not a simulcast of the station, but an alternative program pitched as "the next top 40," aimed at tens and young adults worldwide.

For information, contact the company at (800) 320-7870, visit www.buysellbid.com or circle Reader Service 243.

AP SoundBank

Associated Press Radio offers SoundBank, an archive of news, entertainment, sports and business audio delivered via the Internet.

Get sound from as recently as 72 hours, or search for historical audio from the AP audio library. Actualities, correspondent reports, natural sound and other material are online.

Other notable services from AP include PowerPrep, a resource for radio air talent and show producers; PrimeCuts, an audio soundbite service featuring today's newsmaker audio; NewsPower+, a scripted wire that includes news and weather from your state and two adjacent states; and NewsPower MAX. AP's highest level of service for radio, which provides minute-to-minute news coverage, 24/7.

For information, contact AP Radio in Washington at (800) 527-7234, fax (202) 736-1107 or circle Reader Service 244.

QuicPix by MediaTouch

The QuicPix "Hot Button" Cartwall by MediaTouch is suitable for morning shows and personality-driven live-assist stations. It puts digital audio directly at the user's fingertips.

Talent can play cuts one at a time, or load them in the seven-event player. QuicPix also can create a log of "as-run" audio.

The software also is useful for mobile DJs, notebook remotes and other places where instant playback of digital audio is needed. The suggested price is \$399.

Features include 24 buttons in radio mode, 40 in sports mode; up to four overlapping audio streams for beds and effects; sorting by cut ID, title, artist, length and intro time; built-in fader; large countdown timer; and compatibility with existing MediaTouch databases. Networking is available as an option.

For information, call (800) 636-0123, send e-mail to omt@omt.net or circle Reader Service 247.

**Megatrax Announces
New Libraries**

The Megatrax production music library has added five new CD series to its collection. The Hollywood, Calif., company now offers Drama Edge, Cartoon Comedy Styles, Lounge Deluxe, The Trailer Collection and World Beat.

The company made another announcement at The NAB Radio Show — three new packages of production music and sound effects. The new products are called "Pick 20," "Pick 40" and "Complete Promo Collection Package." The company also is providing its five CD sound-effects package, "Digifects — PowerPack" which contains over 1,000 sound design elements for radio applications.

Megatrax offers a total of 75 CDs containing original music.

For more information, contact the company in California at (818) 503-5240, visit www.megatrax.com or circle Reader Service 246.

**MixMax!
Automated Audio Mixer**

MixMax! is a six-channel stereo mixer designed to enhance automated radio station operations. It is RS-232 controlled and includes Windows operating software.

Features include 6x1 stereo channels, active balanced or unbalanced ins and outs, in a 1RU package. Digital VCAs provide maximum dynamic range and S/N.

The mixer is suitable for stations that run automated, walkaway programming, air frequent live remotes and sporting events, or want a smooth transition to and from EAS.

Suggested retail price is \$1,250.

For more information, call the company in Missouri at (314) 345-1030, check out the Web site at www.radiomax.com or circle Reader Service 245.

Orban Makes Radio Show Announcements

Orban made NAB Radio Show news with the release of version 3.0 software for the Audicy DAW. This updated version expands Audicy's array of on-board real-time effects to include digital delay, chorus and flanging effects, a "stereo toolkit" with a center-channel "vocal eliminator" for some stereo music as well as mono-to-stereo synthesizers and a combination EQ, compressor and limiter effect.

Also, Orban demonstrated the Optimod 6200 online processor in use at KKSF(FM), San Francisco. The Bay-area station's Webcasts use the product to provide what the company calls "loud, clear and consistent sound" over the Internet.

And Orban promoted its efforts toward the "Cart Chunk" protocol. It is working with several companies to create an industry consensus supporting the open-exchange format — an extension to the Broadcast WAV file standard. Cart Chunk allows audio productions to go directly from a DAW to on-air delivery systems with traffic and continuity information embedded in the sound file.

For more information, contact the company in California at (510) 351-3500, visit www.orban.com or circle Reader Service 248.

**Wheatstone Helps
Consolidate Infinity in D.C.**

Wheatstone showed its new D-600 digital consoles in Orlando.

The company said four of the boards will be used in a consolidation project in Washington, D.C., where top-rated Infinity station WPGC-FM is moving to new studios along with sister stations WPGC(AM) and WHFS(FM).

Chief Engineer Tom McGinley said the stations chose the D-600 because it allows a smooth transition from digital to analog. He also anticipated ordering one or more RD-12 digital Audioarts consoles for production duties.

For information, contact Wheatstone at (252) 638-7000, e-mail sales@wheatstone.com or circle Reader Service 249.

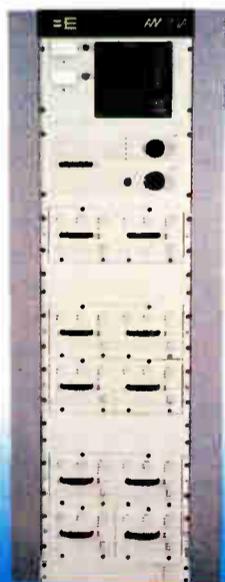
Since 1991, BE has introduced more new AM and FM transmitters, with more advanced ideas and useful technology, than any other company in the world. At the same time we were bringing prices down. No other company can touch Broadcast Electronics for value.

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IS THE ONLY MAJOR MANUFACTURER DEVOTED EXCLUSIVELY TO ENGINEERING
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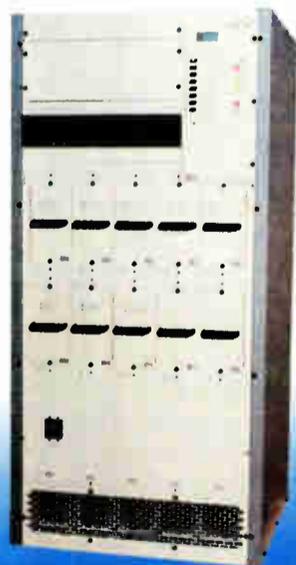
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Logitek Digital Console

The AE32 Audio Engine from Logitek is the core device for all Logitek digital audio consoles. The Engine is a digital crosspoint router which uses a combination of plug-in cards on a high-speed TDM bus that makes the attached digital console flexible and easy to use.

Hot "swappable" plug-in cards make field upgrades and servicing easy and quick without on-air interruption. Connections, LCD information display and card replacement are easily done through the front of the unit.

The units can be fully expanded to offer redundant power supply, 128 megs of RAM for implementing pro-

fanity delay and audio processing and multiple studio console control surfaces. Factory support and service are "built-in" via modem and a diagnostic program links with the console to



Logitek promoted its digital console line including the Numix control surface.

allow Logitek to help configure, reconfigure or troubleshoot.

For information, contact Logitek in Texas at 800-231-5870, fax (713) 782-7597, send e-mail to info@logitekaudio.com or circle Reader Service 258.

Dalet5.1 and Net Tools

Dalet Digital Media Systems showed off its latest digital automation software, Dalet5.1. The company said it provides dramatic enhancements including integrated music scheduling, support for linear audio, multiformat mixing and editing, advanced title search and broadcast logging and a better audio editor.

The company also promoted several Internet tools that are integrated with its automation system and help enhance a station's Web presence: Dalet Web Publisher, which allows stations to automatically update their Web sites with real-time information such as playlists and news stories from the automation system; InterWeb, which allows networks and groups to exchange audio and text over the Net; and VisionCast, which allows content providers to simulcast their on-air programming and multimedia over the Net or via DAB.

For information, contact the company in New York at (212) 825-3322, visit the Web site at www.dalet.com or circle Reader Service 251.

Broadcastspots.com Helps Stations Sell Air

Broadcastspots.com is a buying and selling service for unsold commercial time. It brings together buyers who want discounted inventory with stations and cable systems.

The company promotes itself as the first Internet media buying and selling service in which transactions can be made on the spot, 24/7, with the click of a mouse.

Buyers do not bid against each other and can earn frequent buyer rewards. Sellers pay the commission, which the company says is better than lost income from unsold spots.

For more information, call the company in Illinois at (630) 654-0222, visit the Web site at www.broadcastspots.com or circle Reader Service 80.

NPR Satellite Services

National Public Radio Satellite Services exhibited, offering full-time or occasional space segments from 99 degrees west longitude. NPRSS leases satellite space to radio broadcasters with varied requirements, from state and regional networks to group owners and syndicators.

Its footprint covers all 50 states and much of the Caribbean. The basic transmission method offered is the single-channel-per-carrier technology, which affords audio and data capability, digital and analog audio capability, uplinking from anywhere in the U.S. and network management from a single location. NPRSS says its C-band service is reliable even in inclement weather, which means that geographical location is not an obstacle.

NPRSS also offers multiple-channels-per-carrier technology, which the company says combats adjacent satellite interference, provides enhanced network control and allows store-and-forward capability for localized audio identifiers and spots.

For information, call NPRSS in Washington, D.C., at (202) 414-2626, visit the Web site at www.nprsat.org/nprss or circle Reader Service 253.

Marantz MD and CD-R

Marantz Professional promoted its new PMD650 portable MD recorder.

The unit records in 74-minute stereo or 148-minute mono and carries a suggested retail price of \$1,399. It protects recordings with a back-up table of contents at the beginning of the track. Even if a recording is interrupted by power failure, all recorded info can be retrieved.

Marantz also showed CD-R/RW mastering recorders, the CDR640 for professional mastering and the CDR630 for project studios. While the 630 only offers balanced inputs S/PDIF and optical I/O, the 640 also offers balanced output and XLR I/O (with no optical I/O), GPI control and an optional wired remote control.

For more information, call Superscope Technologies in Illinois at (630) 820-4800, visit the Web site at www.superscope-marantzpro.com or circle Reader Service 254.



PMD650 Portable MiniDisc Recorder

Nagra Rolls Out New Models

Nagra-Kudelski SA introduced two field recorders for broadcast use.

The Nagra-D-II is an update to the popular tape recorder. It implements 24-bit A/D and D/A converters. A new sampling frequency clock source provides additional reference frequencies of 32, 88.2 and 96 kHz. High-resolution recordings can be made in the field, for up to 115 to 120 dB signal-to-noise.

The rotary scanner of the unit has been redesigned, and the incoming and outgoing tape guides are more precise. The advantage is reduced tape tension, producing less oxide shed and longer head life. Other improvements include a redesigned front panel, a slope switch and a new version of the accompanying NADCOM software.

Nagra also introduced ARES-P, a Flash Ram recorder that fits in one hand. It is designed for radio reporting work, and complements the existing solid-state Series-C line of recorder/editors.

For information, contact Nagra USA in Tennessee at (615) 726-5191, visit www.nagra.com or circle Reader Service 255.

Global Media Launches E-Commerce Network

The NAB Radio Show was the backdrop for Global Media's announcement of the launch of its E-Commerce Network, based on the model of syndicated radio networks.

The service will offer companies the ability to private-label e-commerce services, content and advertising through an associate license in which individual stations' brands are protected and enhanced.

Global Media is an Internet company focused on providing revenue-enabling e-commerce tools for entertainment companies.

This launch is focusing on radio stations looking to use broadcasting to generate e-commerce revenues from their existing markets.

For more information, contact the company in Vancouver, B.C., at (206) 727-2880 or circle Reader Service 256.



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Eventide's **BD500 Broadcast Delay** makes talk shows run smoother and sound better, for less. The BD500's multiple dump feature divides the delay time into several "slices" so you're still safely in delay even right after dumping an offensive remark. It's the hassle-free talk solution... even when air talent is working without a producer. No other delay offers Eventide's high quality patented catch-up technology for clean audio combined with fast catch-up. And it's the only delay with optional digital inputs and outputs for new all-digital studios. Yet the BD500 costs thousands less than our previous model. See how much easier talk shows can be with Eventide's 4th generation BD500 Broadcast Delay.

Want to increase creativity without adding personnel? Add life to drive-time shows? Win new

advertisers with better station-produced spots? An **Eventide Ultra-Harmonizer**® brand effects processor really does all that. Designed specifically for radio and production, the new **DSP4000B Ultra-Harmonizer** features radio effects designed by production whiz Jay Rose. Hundreds of comic voices, sound effects, reverbs, pitch changers and more are instantly accessible at the touch of a button. Plus, the DSP4000B has superb **Timesqueeze**® time compression /expansion capability. Shorten a 60 second national spot to allow for a local tag. Squeeze or stretch a music bed to fit the spot. The DSP4000B has optional digital I/O to interface easily with digital editors and consoles. It's the radio effects box designed to bring stations more business and more listeners.

The bottom line: Eventide broadcast products are potent tools for today's radio. To learn more, talk to your broadcast distributor, call Eventide direct at 201-641-1200, or see our website, www.eventide.com.

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PSI CD/Extractor

Prophet Systems Innovations unveiled CD/Extractor, to reduce the time it takes to build an audio library.

The program is available as a standalone product, CD/Extractor Pro, or as an integrated component to run on a NexGen Digital Broadcast system.

CD/Extractor Pro can import multiple CD tracks while passing data to NexGen. With CD/Extractor, stations can record long cuts in a fraction of the normal recording time. For example, a 3.5-minute cut can be recorded in 30 seconds.

PSI also announced that the NexGen system supports the Orban "Cart Chunk" protocol for sharing files with the Audicy workstation.

Also, the company said, users of PSI's NexGen Digital Broadcast software will receive a free upgrade in 2000.

For information, call Prophet Systems in Nebraska at (510) 351-3500, send e-mail to sales@prophetsys.com or circle Reader Service 257.

Three New Connectors From Neutrik

Neutrik U.S.A. released three new connectors — EaZyCon EZ series of XLR connectors, 2-Pole Speakon connectors and the latest version of its Bantam plugs.

Neutrik says the EZ Series reduces assembly time by as much as 60 percent. The connection for the NC3FEZ and NC3MEZ EaZyCon XLRs has self-adjusting cable strain-relief, which Neutrik says makes screwed assembly obsolete and provides increased retention force under tensile stress. The EZ series accept a variety of cable diameters. The 2-Pole Speakon NL2FC and NL2MP

connectors are competitively priced with standard, high-quality 1/4-inch phone connectors.

"The Speakon series solved one of the biggest problems in sound by providing stable and safe jacks and plugs for solid amplifier-to-speaker coupling," said James Cowan, vice president, Neutrik U.S.A.



EaZyCon EZ XLR connector

And Neutrik featured its fourth-generation Bantam plugs (NP3TT-P), which come in two pieces rather than three and require only a standard RG58 crimp tool.

For information, call Neutrik in New Jersey at (732) 901-9488, send e-mail to neutrikusa@aol.com, visit the Web site at www.neutrikusa.com or circle Reader Service 250.

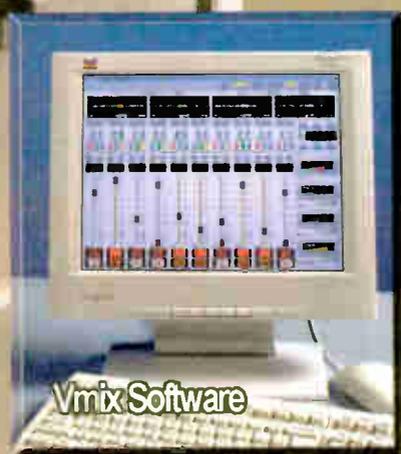
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Harris Offers Digital Guide

Harris Corp. is out with a booklet that helps radio stations implement digital technology now and plan for digital radio tomorrow.

The 118-page book "Key to Digital Radio" covers issues such as sample rate conversion, digital interface standards, console timing, digital audio wiring, STL links, ISDN and POTS codecs, direct file transfer and processing. It offers questions to ask when buying equipment, tips for planning a facility and a thorough glossary of digital terms.

The book includes descriptions of digital products available from Harris, but is more than a sales brochure, including explanations of digital concepts and in-depth discussion of digital issues.

For a copy or for information about Harris products, contact Harris Corp. Broadcast Communications Division in Ohio at (513) 459-3400, e-mail to broadcast@harris.com or circle Reader Service 259.



PR&E Unveils Impulse

Pacific Research & Engineering unveiled its new, affordable Impulse digital on-air and production console.

It comes in sizes of 12 or 20 faders, plus two telco inputs. Inputs accept digital or analog sources and are reconfigurable in the studio from analog to digital by swapping submodules.

Optical digital input modules accept "semipro" digital sources. Full remote control logic is standard.

The Impulse includes three stereo busses, two automatic off-line/program telco mix-minus outputs, a telco record split-feed and a monaural analog output. The digital clock can be slaved to ESE TC-89 or TC-90 timecode.

Other features include fader start, metering-in-cue, and LED meters that can display VU or PPM readings.

For more information, call the company in California at (760) 438-3911, check out the Web site at www.PRE.com or circle Reader Service 260.

Comrex Envoy ISDN Studio

Comrex offers Envoy, a remote product that includes a codec, terminal adapter, NT1 and mixer in a lightweight package.

The unit is compatible with most codecs for a 7.5 kHz, G.722 feed. It also achieves 15 kHz performance with Comrex units such as the Nexus.

Features include four mic inputs on standard XLR connectors, two of which are mic/line switchable; an output to feed a PA system or recorder; mutable program inputs; quick-dial memory; and an ancillary data channel allowing a user to pass data between two computers, such as for call screening or sports scores.

For information, call the company in Massachusetts at (800) 237-1776, check out the Web site at www.comrex.com or circle Reader Service 261.

TFT Digital Insertion Unit

TFT Model 999 is a digital insertion unit that is transparent to an AES/EBU digital stream and provides the capability of interrupting that stream to insert another AES/EBU stream or analog audio.

Applications include insertion into a digital stream of EAS, remote pickup or emergency programming; digital console input expansion; and STL auto changeover between analog and digital.

For information, call the company at (800) 347-3383, visit www.tftinc.com or circle Reader Service 102.

Radio Systems Turnkey Systems

Radio Systems has created a new turnkey facility design and installation group.

The division is headed by Andy Atkinson and will provide services for any size of job, from single studios to multi-station facilities.

The company also announced it had been awarded a contract to build 20 turnkey studios as part of the launch of the Radio Disney network of stations. The job includes Radio Systems Millennium consoles, Studio Technology furniture, digital audio storage by Broadcast Electronics and StudioHub prewiring. The final touch: a console copy stand with a familiar shape of mouse ears.

For more about StudioHub, see the product evaluation elsewhere in this issue.

For information, contact Radio Systems in New Jersey at (856) 467-8000, visit the Web site at www.radiosystems.com or circle Reader Service 264.

OnRadio Rolls Out PCs for the People

OnRadio announced a promotion called PCs for the People. Unveiled at The NAB Radio Show, it is an opportunity for radio stations to convert listeners into users.

"Radio has established a strong community relationship with their listeners — many of whom don't have a computer," said Doug Wyllie, manager, corporate communications. "What this promotion enables the radio station to do is to provide computers to those individuals for what amounts to being a dollar a day."

According to Wyllie, the computer provided is a full, interactive multimedia device including the monitor, 24/7 support and Internet access, all included with the radio station's Web site as the default home page for the Internet browser.

"The radio station that has been promoting its Web site on-air now enjoys the benefit of having a greater number of end users," said Wyllie.

Another bonus for the radio station: the service significantly increases page views to the station Web site every time the user turns on the PC.

PCs for the People was introduced in the 25 largest U.S. markets in mid-September.

This promotion is available only to OnRadio affiliates that agree to carry its content on their Web sites and actively promote PCs for the People on the air.

For more information, call the company at (831) 440-0300 or circle Reader Service 262.



Continental Looks to IBOC

Continental Electronics (CEC) took part in the first public demonstration of its IBOC DAB capabilities in cooperation with USA Digital Radio.

The demo originated in the Continental booth, with CEC's PowerStar F2, a 2.5 kW transmitter, and a mobile radio station rack that included a USADR IBOC test exciter. The system sent a hybrid IBOC signal to a test receiver in the USADR booth.

CEC also showed its PowerStar F10, a 10 kW solid-state FM transmitter, and a prototype of its newest transmitter line, PowerStar Dynamo, a compact, scaleable AM transmitter scheduled to be introduced later this year for power levels up to 1 kW.

For information, contact the company in Texas at (214) 381-7161, visit the Web site at www.contelec.com or circle Reader Service 263.



Dan Dickey of Continental takes part in USADR DAB broadcast press conference.



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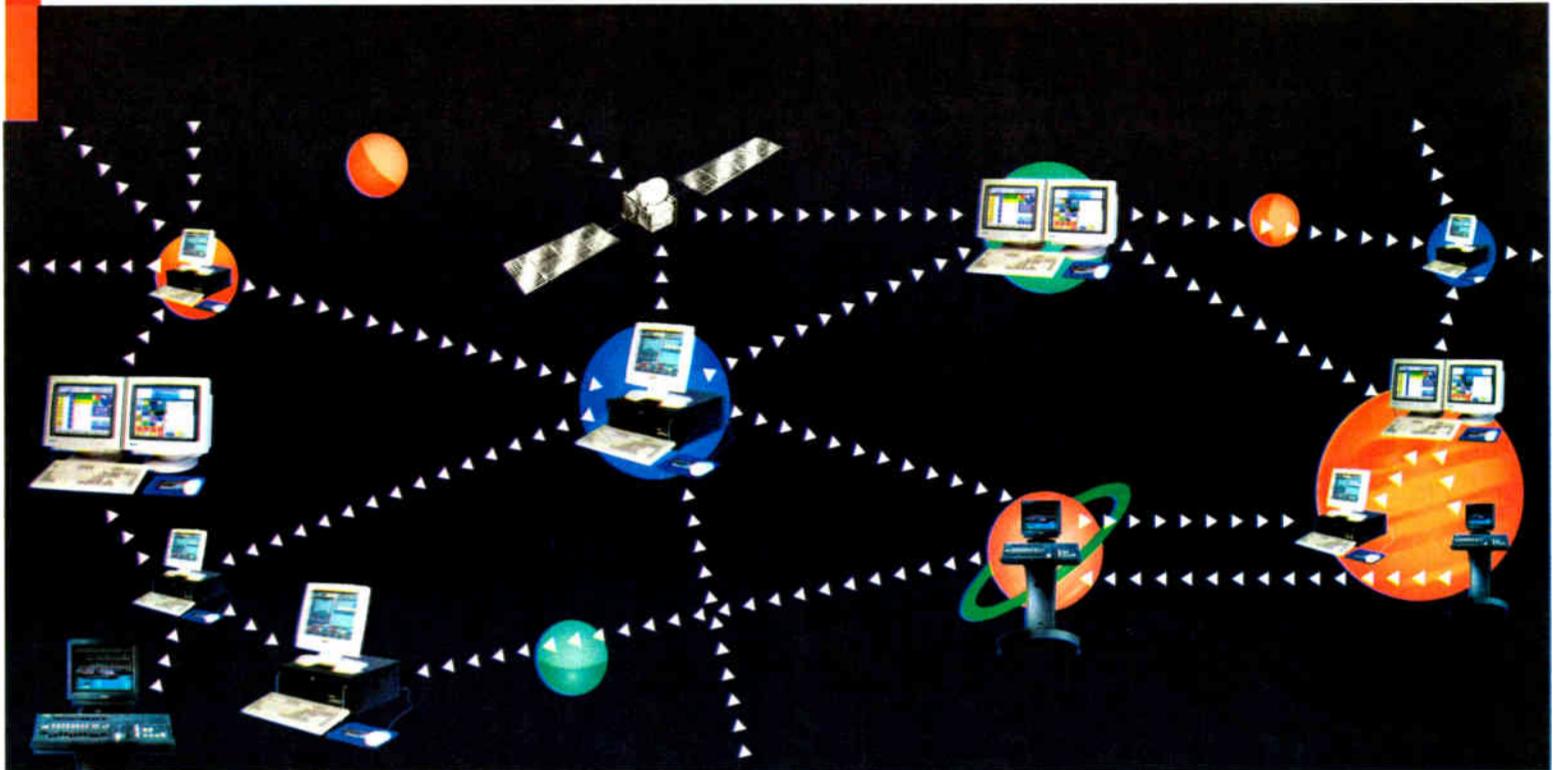
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The demands of today's fast paced broadcast marketplace require maximum utilization of resources to achieve cost effective performance. Thanks to the latest advances in digital technologies, multiple broadcast facilities can now seamlessly share audio inventories, news, scheduling and billing data, and often consolidate other redundant functions.

All of this is possible by combining the advantages of non-proprietary products such as the ENCO DAD_{PRO} 32 Digital Audio Delivery System with Wide Area Network (WAN) architecture. Audio production may now occur from virtually anywhere within a group, information flow is automatically managed between multiple remote locations, and transfer schedules are configured to take advantage of varying tariffs for maximum efficiency and cost control.

The ENCO DAD_{PRO} 32 Digital Audio Delivery System provides a powerful professional audio management tool for both live assist and automated on-air operations, production, and inventory control. Support of Wide Area Networking is inherent with DAD_{PRO} 32, providing capabilities to take full advantage of distributed data and group interconnectivity.



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SBE NEWS

SBE, Positioned for the Millennium

Edward J. Miller, CPBE

The author is outgoing president of the Society of Broadcast Engineers. The SBE will install new officers during its annual national meeting on Oct. 20 in Madison, Wis.

The broadcast industry has witnessed many technological advances in its long history. The transition to HDTV may prove to be the most significant of all.

This change has already distorted the traditional business model. Universally accepted tenets no longer guide the decision process, years of accumulated experience give way to a steep learning curve and the mature industry readies for a paradigm shift.

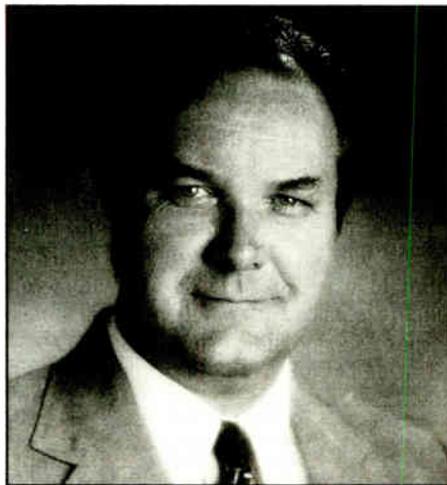
We are inundated with publication upon publication containing technically intense documentaries exploring the changing technologies. Although we know better, we want to say "Enough already!" Yes, we are painfully aware of the change at hand.

Admittedly, I too have been swept up in the excitement and challenge facing the industry. Focusing on emerging technologies, we can easily overlook the efforts of individuals and organizations supporting the broadcast industry.

The Society of Broadcast Engineers (SBE) is such an organization. SBE, celebrating its 35th anniversary, is a non-profit professional organization of more than 5,600 radio and television broadcast engineers and technicians in the United States and internationally. Organized in 1964, SBE provides engineers and technicians opportunity for continuing education, recognition and advancement

through the SBE Certification Program.

Membership in the Society of Broadcast Engineers is at an all-time high, with 5,609 members and a record of 104 local chapters. It is my pleasure and honor to have served as national president of the Society of Broadcast Engineers since September of 1997.



Edward J. Miller

I am very proud of this organization and take this opportunity to share with you the Society's many accomplishments these past 24 months.

Education

The single most important mission of SBE is the education of its membership. Remaining current and accurately informed is essential for success in the broadcast industry.

SBE accomplishes this goal in several ways. First, by encouraging local chapters, as part of their monthly meetings, to advance broadcast disciplines through technical presentations of vendors and manufacturers. Second,

by providing Ennes Regional workshops at venues located throughout the country, and finally by encouraging our members to become SBE certified at the various levels of proficiency as administered by our Certification Program.

This year there were major innovations in the Certification Program. To guarantee that the latest digital disciplines and technologies are represented on each exam, the Certification Committee has revised and updated the question pool.

Making testing periods more assessable to those working toward certification was also a goal of the committee. Subsequently, the number of opportunities for administering these exams was increased twofold. Exams are now available four times each year and are proctored by the local chapter's certification chairman.

A new program was introduced affording individuals, who for one reason or other have allowed their certification to lapse, reinstatement at their previous level of certification. Introduced as the "Millennium Project," this limited time offer is meeting with great success. Numerous members, taking advantage of this opportunity, were recertified.

Networking

It is generally conceded that a solid understanding of technical broadcast issues alone is no longer sufficient preparation for a career in broadcasting. The ability to master computer networking skills has become an integral part of the broadcast environment. Today's engineer is expected to perform both disciplines.

Accordingly, members of the Certification Committee are working on a new level of certification, one that tests the working knowledge of LAN (Local Area Network) administration. Rollout is scheduled for Jan. 1, 2000.



The SBE Certification Program, recognized throughout the industry as an accurate measure of competence, is definitely on a roll. Aggressive planning and sensitivity to changing technologies will insure continued success of this most worthwhile program. At present, the number of certified members has grown to nearly 4,000 with TV Operator Certification alone in excess of 700.

Encouraged by overwhelming membership support, the Society's president, executive director and legal counsel journeyed to Washington, D.C., meeting with numerous members of the FCC Telecommunications Subcommittee. Taking great care to recap the history of FCC and congressional actions made it clear SBE is seriously concerned over the proposed reduction to the 2 GHz band. Alternate options were introduced, including utilizing a portion of the 4 GHz band as replacement channels. Still other explanations were offered as to technical limitations, even with the newly introduced digital equipment.

At the time of our visit, SBE appeared to be the only group publicly voicing concern over this reduction in bandwidth and reaction to conversations with subcommittee members varied. Some individuals had no knowledge of the topic while others, with great understanding, appreciated our concern and offered assistance.

See SBE, page 55 ▶

Butler Is New SBE President

INDIANAPOLIS, Ind. James "Andy" Butler will assume the presidency of the Society of Broadcast Engineers during the group's annual meeting on Oct. 20.

Butler is director of engineering for the Public Broadcasting Service. He becomes the 21st president of the society after an election in which he ran uncontested. He replaces Edward J. Miller, who served two terms.

The new vice president is Richard L. Edwards, president of Tower America Corp. and a past member of the SBE board. Members also elected Barry L. Thomas as secretary; he is director of engineering for Chancellor Media station KCMG in Los Angeles. Voted in as treasurer was John Batson, the southeast engineering manager for Sinclair Broadcast group.

Board members

Butler, the incoming president, has served in the past as SBE treasurer and board member.

Officers are elected for one-year terms. The SBE board of directors also includes 12 board members who serve two-year terms.

Six of those board seats were up for election this year, and were contested

by 11 candidates. Elected to new terms were Dane E. Ericksen, Clay Freinwald, Ralph Hogan, Keith M. Kintner, Christopher H. Scherer and Thomas P. Weber.

Clay Freinwald of Entercom Communications is new to the board. Weber served as secretary last year. The others were reelected, and six other board members are in the middle of their two-year terms.

According to the society, 1,082 members voted in the election. The SBE has about 5,500 members. The officers and board members will be installed during the SBE's annual national meeting this month in Madison, Wis.

Executive Director John L. Poray expressed pleasure with the ballot process, noting that the number of ballots was up slightly from last year.

He also said three past SBE officers and board members will step down as the new board takes its place: Troy D. Pennington as vice president, Larry J. Wilkins as board member and Terrence M. Baun, who sat on the board as immediate past president. Miller now takes that role (see related story, above).

— Paul J. McLane

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PRODUCT EVALUATION

StudioHub Puts CAT-5 to Work

Frank McCoy

As the saying goes, luck is when opportunity meets preparedness. The opportunity to test this materialized when the fire marshal appeared at our nine-station buildout in Roanoke, Va., pointed to the multipair cable and asked to see the UL plenum qualification (it had none).

Freshly back from the NAB, Radio Systems saw the setback in Roanoke as an opportunity to show off the flexibility and speed of installation of its new StudioHub wiring system, which had earned a Cool Stuff Award from Radio World at the convention.

I and other Capstar engineers gathered in Roanoke to confirm that StudioHub works. The goal was to confirm the lab measurements in a real-world installation. We came armed with an Audio Precision System Two Dual Domain, wanting to measure every claimed performance characteristic.

RJ-45 solution

StudioHub is an idea that grew from the concept of the RJ-series connector.

Mike Sirkis, principal designer for Radio Systems, knew he was looking at an answer to several nagging questions the first time he saw a modular telephone plug and jack (RJ-45). "I've been wanting for years to build something that uses these," he said.

Sirkis was tired of XLRs that are so large they often define the size of individual components in the broadcast plant.

"XLRs are meant as microphone connectors, that's all," said Sirkis. But old ideas die

wiring. In the past we typically brought all the console I/O out to insulation displacement blocks somewhere in the studio furniture, usually beneath the countertop on the side opposite the console.

This time, instead of clipping, stripping, punching and shrinking dozens of ends, we simply plugged in the supplied console harness. The result was neat and the installation was fast.

Most console providers offer pre-wired I/O harnesses but these still require the user to connect peripherals. StudioHub comes with peripheral cables that plug in using RJ-45s. As fast as the user can unbag the cables, peripherals are connected — no punch tool and no shrink gun.

An entire studio can be complete, literally, in a few hours. This includes the pesky stuff, like headphones and the on-air light. StudioHub comes with plug-and-play components for each of these functions.

router. All the file and audio servers are in a central rack room, along with Ethernet hubs, WAN DSU/CSU, Cisco routers, monitoring, transmitter remote control, satellite receive and STL equipment.

Ordinarily, this would have been a vast assortment of different kinds of wiring. Instead, it almost all uses CAT-5. Analog DAs are part of the system and are integrated into an insulation displacement frame. For space efficiency, the Siemens "type-110" displacement terminations are used instead of the "type-66" blocks that are common in broadcast.

By now, you're wondering about performance of the system. So was I.

In particular, I was concerned about crosstalk and noise immunity. Remember, we are using CAT-5 for all the audio and, while shielded overall, there is no shield between the left twisted pair and the right twisted pair. Each CAT-5 has four pairs, eight individual conductors. With two pairs for audio, that leaves four wires. Three are plus, minus and ground for the bipolar supply; the last is unassigned.

In an ideal world, balanced differential audio should be self-canceling as far as stray magnetic fields are concerned. Currents flowing in the conductors of a balanced pair should be equal and opposite. Thus no external field is generated.

Similarly, external fields should induce identical currents — so-called "common mode" currents — in a balanced pair. These should be eliminated by the common mode rejection of the receiving circuit.

Crosstalk

In previous experiments using telco-type twisted pairs, I found them to have marginal crosstalk performance for high-quality audio. Truthfully, I expected trouble with StudioHub. Instead, I was surprised to find that CAT-5 comes much closer to theoretical performance. I attribute that improvement to the manufacturing tolerances for CAT-5.

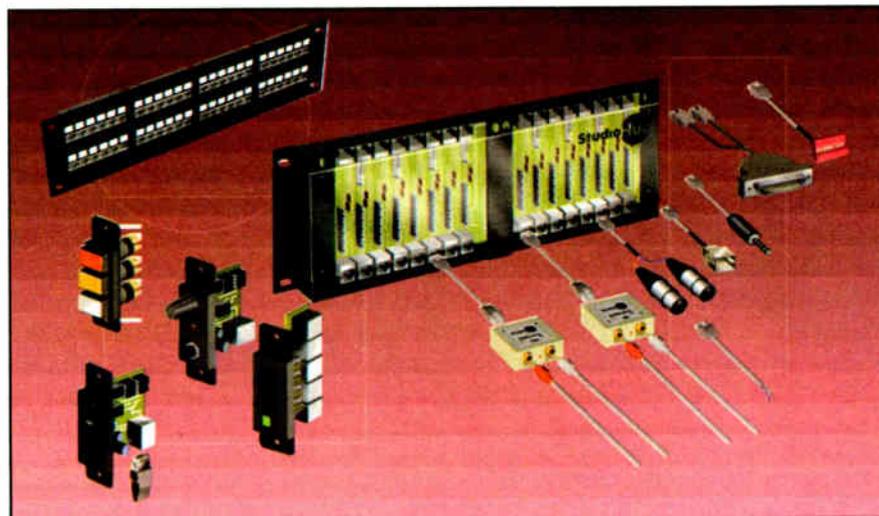
In data applications, CAT-5 must perform like balanced transmission line. A uniform characteristic impedance guarantees that the digital waveform arrives with a minimum of group delay, tilt and other rise time distortions.

CAT-5 also has a specification for crosstalk, referred to in the industry as NEXT (near-end crosstalk) because Ethernet uses individual pairs for sending and receiving. Induced noise requires packet re-sends and compromises network performance.

We set up several tests, designed to reveal any weaknesses. Using the pluggability of StudioHub, we created a long run from a studio to the rack room and back again. This run passed through several StudioHub termination panels and across a number of fluorescent lamp ballasts.

Using the Audio Precision, we drove one pair and looked for noise in the other. The measured noise was 120 dB or more below the drive applied to the alternate pair. This raised the question of how much the common mode rejection of the receive device contributed to this performance.

We wanted to make sure the superior CMRR of the AP System Two was not influencing the results. To evaluate this, we created a "bad" CMRR device. Since a balanced input device made with 1 percent resistors has theoretical mean CMRR of 40 dB, we felt that a device with performance 6 dB worse than that (34 dB CMRR) represented a fair example of "bad." For reference, an entirely unbalanced input has 6 dB of CMRR.



The StudioHub Integrated Analog/Digital Wiring System

hard in broadcasting. Stations continued to be wired using XLRs, traditional punch blocks and individually shielded audio pairs.

Meanwhile, computer LANs became the norm in radio, particularly those facilities where several stations were housed in a single studio plant. A separate infrastructure wiring scheme of Category 5 twisted pair data cables often runs right alongside the audio cables.

Engineers were now accustomed to seeing RJ-series connectors on network cards and hubs in addition to the telephone system. Modular connectors have shown themselves to be reliable and easy to install. Radio Systems figured, "Why not use them for everything? And while we're at it, why not use the cable they were made for?"

CAT-5 cable is inexpensive and widely available. It comes in flavors for every environment, including plenum-rated versions. At the direction of its president, Dan Braverman, Radio Systems began testing and developing the key components of an integrated wiring system that combined the data and audio worlds, and called it StudioHub.

Virginia install

Back in Roanoke, the proprietary components that make up StudioHub began to arrive and were installed. They looked a little different than what we were accustomed to, but invoked all the regular functions. The system had a "punchblock," which was a breakout insulation displacement terminator that accepted RJ-45 connectors. Infrastructure cables plug into these.

Perhaps the biggest time saver is the interconnection scheme used for console

After the studio is wired, if changes are needed, no problem. Just unplug it from one input and move it to another.

Because StudioHub includes an integral bipolar power supply, active system components are no problem. If your studio includes unbalanced, consumer-type I/O devices, the system includes an active buffer amp. Packaged in a telco-type "biscuit" enclosure complete with adhesive mounting, it allows you to plug an RJ-45 in one side and your unbalanced peripheral in the other.

Presto! Balanced, differential I/O for that consumer-type VHS machine the morning guys use to dub movie drops.

The headphone amplifier assembly is particularly slick. Braverman designed it to fit in a standard electrical supply outlet cover of the kind sold by Leviton. You've seen this series of electrical jobber components — they are the modern-design switches that include a large rocker switch. The faceplate has a rectangular opening about 1-by-2 inches. This makes neat, attractive flush mounting in studio furniture easy for anyone.

In the same package, StudioHub offers a remote control for the Sierra routing switcher. Look for an array of devices to be packaged to match this standard. Radio Systems also offers a 19-inch rack panel punched to fit these peripherals.

Figuring out what you need is not difficult. Make a list of the equipment in your studio plant and then get a copy of the spreadsheet that Radio Systems has designed for ordering. Just fill in the blanks and e-mail it back. Web-based ordering can't be far away.

Our studio plant there is built around a Prophet hard-disk playback and a Sierra

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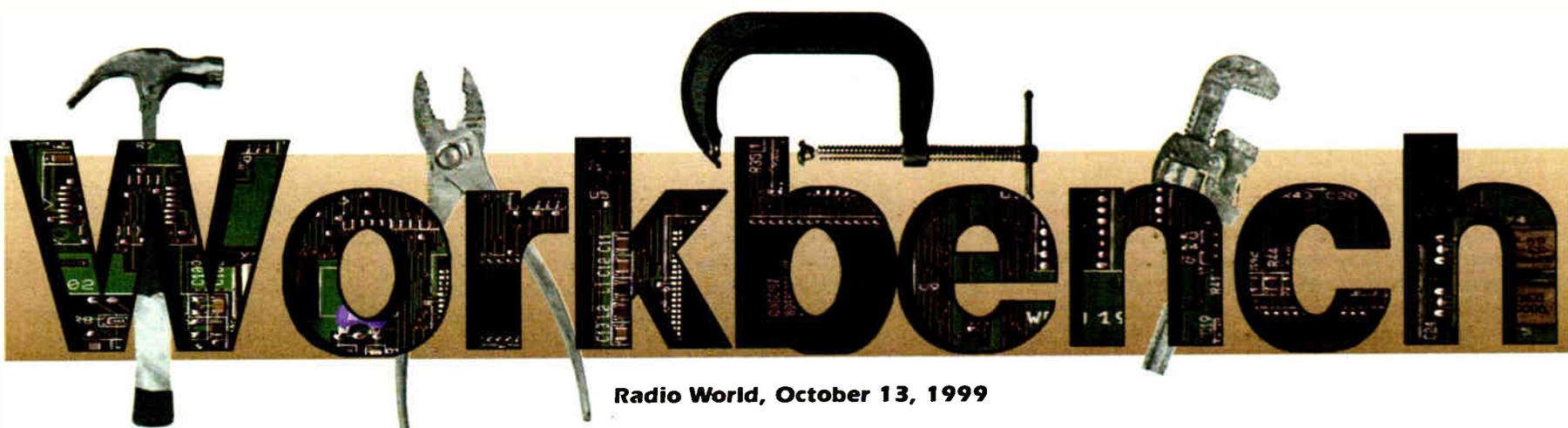
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Radio World, October 13, 1999

Tapes, Ball Gaps and Sealing Foam

John Bisset

For the third year in a row, I was privileged to host The NAB Radio Show's AM-FM Transmitter Workshop. Thanks to the more than 80 registrants who attended, and who will receive SBE credit for the workshop.

Once again, the NAB recorded not only the transmitter workshop, but also the Digital Facilities and AM Directional Antenna workshops. For ordering information, please contact Mobiltape at (800)

air, a good way to prematurely age tubes.

Bruce demonstrates a novel method of tying a halo ground system into the outside perimeter ground, if the system has been added after the building was erected. Figure 2 shows the halo ground wire penetrating the cinder block wall, to the left, just below the copper ground strap.

Figure 3 shows how to prevent damage to the wire when it exits the cinder block. Using PVC conduit, trimmed and slipped over the end of the ground wire before it is cad-welded to the perimeter ground or

should be smooth bare metal, and to work properly, never painted.

As for the adjustment of ball gaps,

knowledgeable engineer, with a great sense of humor, Jim may be best-known for designing and manufacturing products like the AirCorp mike processors. But Jim also applies his design talents to improving existing broadcast gear.

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Figure 1: Sealing Transmitter Building Entry Holes

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★ ★ ★

In recent columns, we've discussed preparing for the winter weather. Figure 1 shows how Bruce Blanchard at WSCL(FM) in Salisbury, Md., sealed

ground rods, the ground wire is protected. A bed of gravel discourages weeds.

Cables passing through the block, entering telco demarks, are also sealed. In this case, a rubber butyl-type caulk is used. The caulk can be easily removed, should additional cable runs be needed.

★ ★ ★

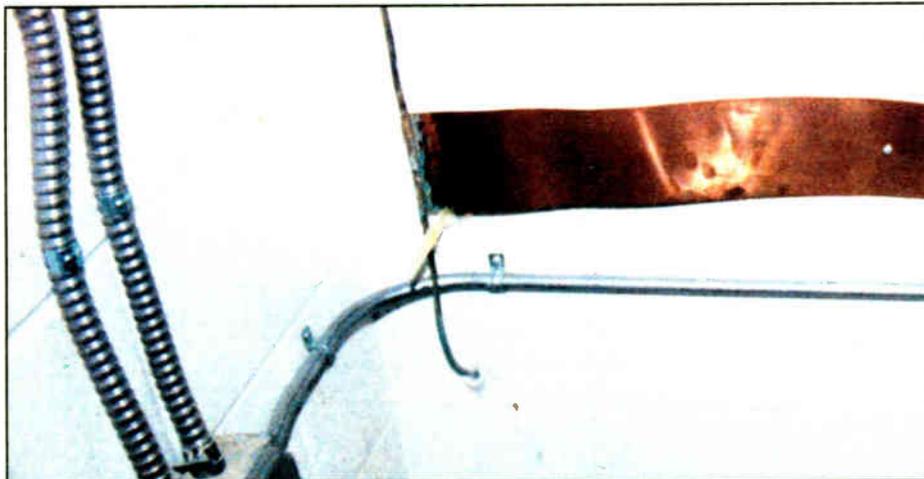


Figure 2: A 'halo' ground wire penetrates the cinder block wall ...

conduit leading from his generator transfer switch out to the generator.

Not only will a can of sealing foam keep insects, mice and snakes out of your transmitter shack; dirt is kept out too. Sealing the cracks and crevices means you must be more diligent with intake air filters — if they are allowed to clog, you'll end up starving your transmitter for

Our e-mail (jbisset@harris.com) was full of comments regarding our tower ball gaps (RW, Sept. 1).

Rodney Norris (rnorris@amfm.com) noted that he had not seen "painted" ball gaps before. Good point, and a reason why you should supervise tower painting. Rodney notes correctly that the opposing surfaces of ball or spark gaps



Figure 3: ... and exits the block building, protected by PVC conduit.

Cris Alexander of Crawford Broadcasting Co. in Denver and a regular contributor to RW cautions that in addition to watching for storms and ensuring the transmitter is off, he strongly recommends grounding the tower base any time you are working on something at tower potential. Cris is at cbceng@aol.com

Even with no storms in the area, very high static voltages can develop across the base insulator with just a little wind

soles. Jim has worked up a modification for the 801 CSM module to permit dual IFB using a Comrex Nexus. Actually, the modification will work with any bi-directional remote equipment — be it POTS, ISDN or a Marti with SCA IFB.

The Studio "A" and Studio "B" sections of this module are modified to provide two independently controlled IFB feeds instead. The modification makes a jock's life easier, especially when handling multi-



Figure 4: Rubber caulk can be removed to make way for future cables. In the meantime, it seals the building to the elements.

and dry air. So how do you ground the tower? A battery jumper cable will do just fine, and provides the insulated handle to boot!

A few years ago, we did some work in the Middle East. The static discharges caused by blowing sand would rival some lightning strikes! Cris is right, never take anything for granted, even if the skies are blue — you may only get one chance!

★ ★ ★

Jim Loupas was the first audio consultant I ever worked with. (We won't discuss how many years ago that was!) A

ple remote feeds, or a remote and a common feed like a traffic service, where the talent needs to talk to the control room.

Like more information? Contact James Loupas Associates at (972) 304-0455, or circle Reader Service 68.

■ ■ ■

John Bisset has worked as a chief engineer and contract engineer for nearly 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.

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



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WIRED FOR SOUND

Digital Patching? Look to Coax

Steve Lampen

We left our last installment (RW, Sept. 15) in a rather depressing state.

We had concluded that standard patch panels, or even those with low capacitance to help digital signals on their way, could not be used for AES/EBU digital audio signals because mults (i.e. adding patches) were not possible with impedance-specific (110-ohm) digital audio.

The solution is either to abandon mults — i.e. not allow half-normals — or to use one very elegant solution: go back to coax. If you convert your AES digital from twisted pairs to coax, you have bandwidth of from 4 MHz to 25 MHz, depending on your sampling rate.

What if you used off-the-shelf, 75-ohm analog video patchbays? The advantages are obvious: impedance-specific jacks, impedance specific plugs, impedance-specific patch cords, low-capacitance throughout and, the key to the whole thing, impedance-specific normalizing!

But there's even one more trick video people have up their sleeves.

What about distributing AES signals? Why not just use an analog video DA? What's the bandwidth of analog video? 4.2 MHz. What's the bandwidth of digital audio? 4 MHz to 25 MHz, with the most common being 6 MHz and below.

Yup, an analog video DA works great for digital audio. The only requirement is that the inputs and outputs are, of course, coax, and the signal levels are 1 volt (like a video signal).

Some older AES digital audio equipment has an output signal of up to 5 volts. So some of the baluns that convert from twisted-pairs to coax also have a network to drop the signal to 1 volt, for just this reason. When you

those video people already have lying around! (And they could be the ones they were going to toss to make room for the digital video and HDTV stuff coming down the pike.)

And the fact that you don't run any video certainly doesn't prevent you from using coax. At least one major Hollywood recording studio is wired entirely with coax running AES/EBU digital. They're all audio, and all coax.

The fact that you don't run any video certainly doesn't prevent you from using coax in your radio station.

order baluns, if you intend to use video DAs, just ask for baluns that also drop the level. (Or just be sure that all the AES gear you have only puts out 1 volt or less.)

Save that panel

So if your digital audio is in coax, you can use both patch panels and D/As

So what kind of coax should you use for AES/EBU? Because AES uses less bandwidth than analog video, almost any high-quality video cable will work just fine. We're talking relatively low frequencies, 3 MHz, and this is not high enough to have significant skin effect. The signal runs down the entire area of the center conductor.

Therefore, stick with an all-copper center, with a braid shield of good coverage (at least 85 percent). Almost any standard or precision baseband video cable would work fine. Avoid CATV/broadband cables that are copper-clad steel center conductors. They are intended to work at 50 MHz and above where TV channels start. And avoid consumer hook-up cables that are often stranded aluminum center conductor and spiral shields, intended only for analog audio below 20 kHz.

Sony and Phillips

There's one final format of digital audio intended to run on coax cable, and that is the Sony/Phillips Digital Interface, or S/PDIF.

This is the consumer standard for digital audio. It runs at a much lower voltage than AES, so it can't go as far. But it is a consumer format, and usually only runs a few feet. One of the key problems with S/PDIF is connectors. The standard for S/PDIF is the RCA plug. While fine for non-critical home applications, the RCA sometimes is unreliable in professional installs.

Further, the format of S/PDIF is not the same as AES/EBU. If you run a professional AES signal into an S/PDIF input, assuming you don't overload it with excessive level, the basic payload will be translated, but the header information might be stripped off.

I say "might" because I have recently heard of new S/PDIF equipment designed specifically to retain header information.

So, if you are considering using consumer or "prosumer" digital audio gear in your installation, you should contact the manufacturer with some pointed questions. And thorough testing for compatibility between consumer and

professional gear would definitely answer all your questions.

Out with the noise

Back to twisted pairs.

Despite some of the advantages of digital audio on coax, the majority of installations still choose twisted pairs. And twisted pairs do have some advantages. The key one is their ability to reject noise, something recognized with twisted pairs in analog.

The rejection of noise by a twisted pair is an interesting subject that has been studied in depth by many people such as the phone company. The amazing thing is that all this research has only recently been put into practice.

It is now quite clear that the reason we would shield a twisted pair is because the pair is imperfect. An imperfect pair will either radiate part of its signal to adjacent pairs (called "crosstalk," or sometimes "egress") or accept interference from outside (sometimes called "ingress").

In fact, both ingress and egress are caused by the exact same flaws in the cable: poor balance. We've discussed balanced before (a year ago), but this needs repeating. The better the balance of the pair, the lower the ingress and egress. So what exactly is balance?

Balance is really quite simple. It means that the conductors are exactly the same length, exactly the same size, and exactly the same distance apart, and occupy the same space. Well, as you can guess, this is exactly impossible.

And perhaps this was part of the reason we settled for "good enough" at the turn of the century. While there have been stabs at making better pairs ("twinax" was one such attempt), real progress in twisted pairs began with the rise of Category cables for computer network wiring.

More to come

Category cables were a direct outgrowth of the unshielded twisted pair cables used to wire up telephones. They had specific color codes and wire size (24 AWG) and were configured in a specific way in every phone jack.

The second influence was from a distributor of wire, Anixter Wire & Cable, which instituted a program of "levels" in an effort to make sense of various kinds of cable and their performance potential. In their original levels program, it included coax cables, twisted pairs, even fiber.

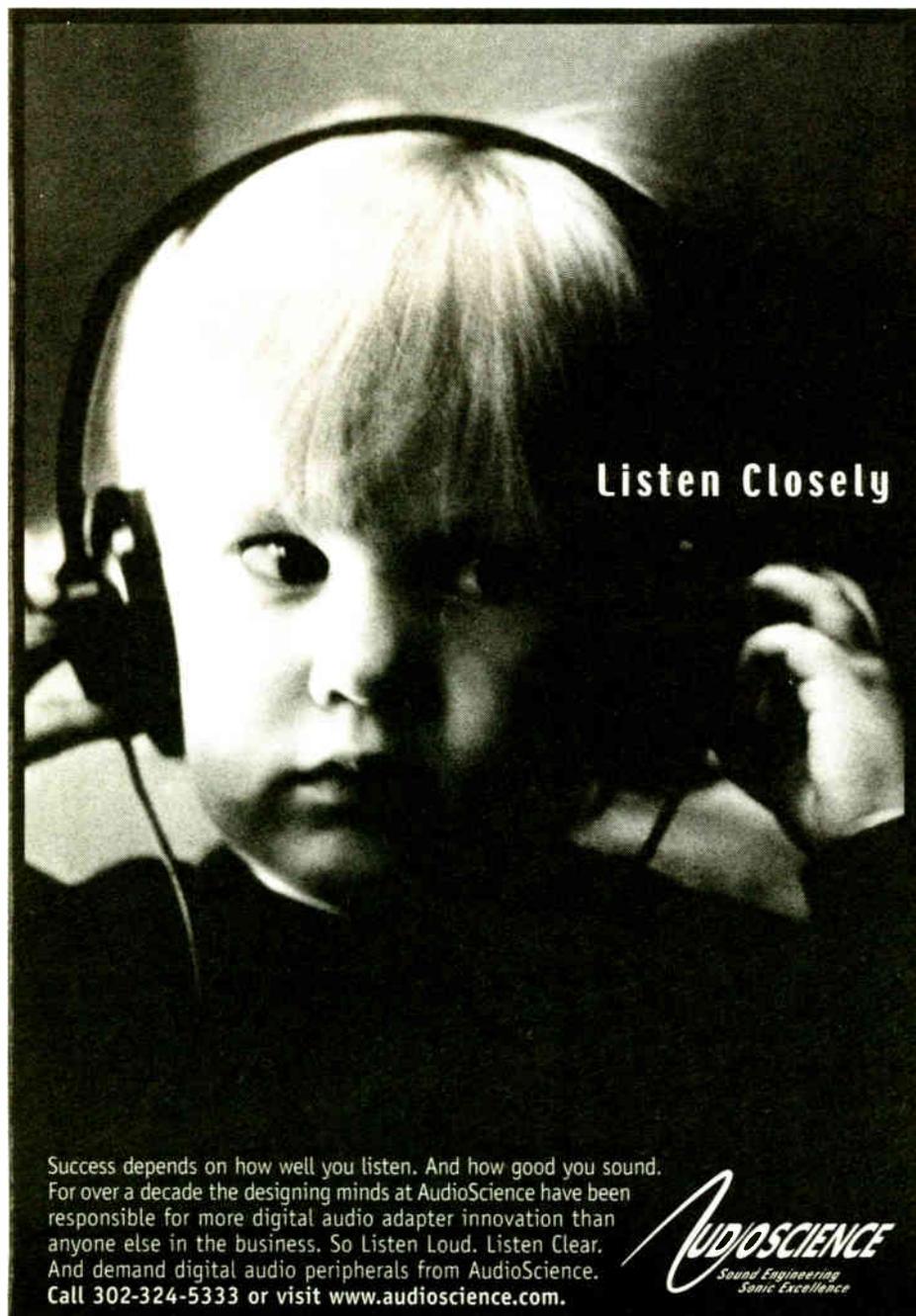
And it was an idea whose time had come. The Electronic Industry Association (EIA) and the Telecommunication Industry Association (TIA) modified that into a series of Categories, each with an attached list of specification, and applied only to twisted pairs.

Their original list covered Category 0 through Category 3. But Category 4 soon followed, as did Category 5. EIA/TIA is hard at work on Category 5e, 6 and 7.

We will talk about these cables, and what they mean to us audio folks, in our next installment.

■ ■ ■

Steve Lampen is technology specialist, multimedia products for Belden Electronics Division in San Francisco. His book "Wire, Cable, and Fiber Optics for Video and Audio Engineers" is published by McGraw-Hill. Reach him at shlampen@aol.com



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Learn the Basics of Monitoring

Ed Montgomery

This is one in a series of articles about the fundamentals of AM radio. The previous part appeared Sept. 15.

In the present age of broadcasting, when engineers can be far from the station when a problem develops, management and operating personnel should know how to perform trouble shooting without causing harm to the transmitter, antenna or themselves.

You cannot expect to become an engineer by reading a short series of articles. However, you can become familiar with the function of equipment found in a typical AM station. You also can use the information here to prompt a useful discussion with your engineer, before a problem develops.

In particular, employees should be familiar with some basic test instruments. Along with being able to read voltage and current meters, they should master certain other instruments.

Check the level

The most common test instrument is the VU, or Volume Unit, meter. This measures audio levels in decibels and is used to indicate the input levels into a console. This meter also often is used on audio processing equipment to indicate

the amount of limiting or compressing taking place. It is used to determine the level of signal coming in from telephone lines or satellite receivers.

The VU meter gives an immediate indication of proper operating levels. The optimum operating level of a VU meter should have the meter peaking around the zero or 0 mark. This is the optimum operating level for the equipment or console.

Levels above this are indicated in red and should be avoided. While the console may be able to pass audio levels above 0 with-out distortion, due to built-in headroom, audio equipment that receives that signal later may not be able to handle such

a large signal. The result will be distortion. Levels peaking far below the 0 level indicate a weak signal that may be susceptible to noise, reducing the signal-to-noise ratio.

The VU meter is more than a colorful animated addition to broadcast equipment. It illustrates the audio signal level. The 0 VU level indicates a specific output of the audio equipment, measured in dBm, or decibels above 1 milliwatt. Inputs and outputs on broadcast equipment can often be set to levels above 1 milliwatt.

One thing to keep in mind: The output level of one unit and the input level of the device to which it is connected should be

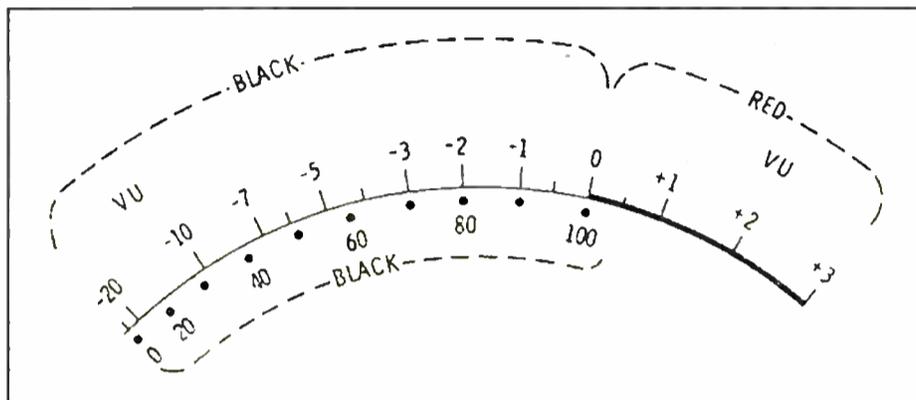
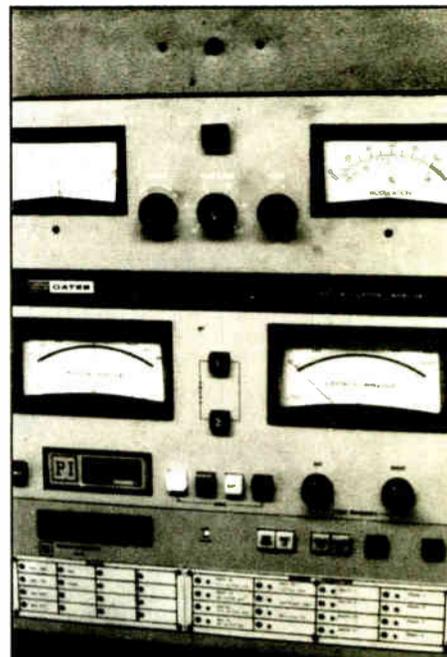


Figure 1: The VU meter reads audio levels in decibels. The '0' is the optimum operating level that an operator should use as a reference.



Become familiar with critical test and monitoring equipment at your station. Shown: a modulation meter, top, and an antenna monitor.

invite trouble for the listener.

The antenna monitor is a necessity with directional antenna systems. This instrument actually reads a sample from each of the towers and indicates the relative amplitude and phase of this current, compared to a reference tower.

The amplitude, or ratio, meter indicates the amount of current in each tower relative to the reference tower. The phase meter indicates the phase lag or lead, in degrees, of the current when compared to the reference tower. Management and operating personnel should know what the antenna monitor should read and what the high and low readings are.

A field intensity meter is a calibrated receiver reading the radio signal in volts-per-meter. Setting up the meter to measure a radio signal takes some time and care, but you should know how to do it. It is not that hard to understand. Many field intensity meters also are capable of reading second-harmonic radiation as well.

Monitor points

The field intensity meter is used in conjunction with monitor points. These locations are established by the engineer tuning up the directional antenna and are critical locations in the radiation pattern. The exact location of these points is described in the station license, and a photo of each point should be included in the directional antenna proof-of-performance. You need to know where they are.

If you notice the antenna monitor giving readings that are outside the licensed limits, you can check to see where the problem might be. The field intensities at the monitor points should be read. If they are within the licensed limit, then the problem likely is within the antenna monitor or its associated cables. Through some deductive reasoning you can determine what the problem is, notify the engineer and have repairs made in less time.

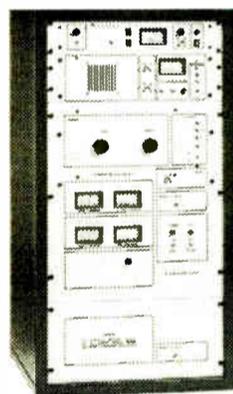
Whether the problem is audio or radio frequency, understanding how these test instruments work can greatly improve the performance of your broadcasting station.

Ed Montgomery is the video technology and communications lab director at Thomas Jefferson High School for Science and Technology, Fairfax County, Va. He has worked as a broadcast engineer and college-level instructor. Reach him at emontgom@lan.tjhsst.edu

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matched to prevent the introduction of distortion or excessive compression.

Mod monitors

A modulation monitor is not required as standard equipment in a broadcasting station, as it once was. However, it is valuable and should be considered a necessity for proper operation; you will find one in most stations.

The modulation monitor indicates the power in the sidebands as well as the stability of carrier power. Older transmitters requiring high-level modulation occasionally have failures in their power supplies causing "carrier shift." This occurs when great changes in sideband power cause the transmitter power supply to lower or increase carrier power. In amplitude modulation the power in the sidebands should not affect carrier power.

AM broadcasting stations are permitted to have asymmetrical modulation — the positive peaks can be greater than the negative peaks. The maximum modulation peaks are 125 percent positive and 100 percent negative. The meter on this monitor is similar in appearance to the VU meter with the 0 VU location identified as 100-percent modulation.

Some monitors have two meters to indicate negative and positive modulation levels. When negative peaks equal 100 percent, the energy in the sideband is abruptly cut off, creating "splatter," spurious signals on frequencies outside the normal bandwidth. This could interfere with other radio stations. Modulation monitors will detect this.

Sideband power that rarely approaches 100 percent positive or negative indicates a weakly modulated signal susceptible to noise in the receiver. Remember, the AM receiver has a fixed bandwidth channel that must be filled with information.

Audio is a variable. In this age of wall-to-wall radio frequency noise coming from computers, telephones, calculators, etc., it is important to transmit the loudest signal possible. Low modulation levels

More Truth in Advertising



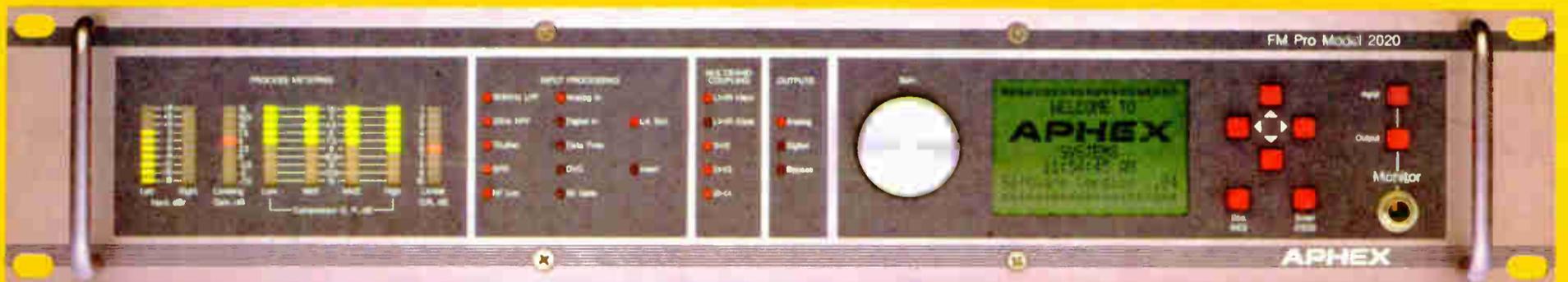
It's no longer a secret, people all over the world are discovering, despite the hype, that digital dynamics processing can't compete with good analog. Even Cutting Edge® claims their Omnia unit sounds almost as good as analog, while both Cutting Edge and Orban® claim each others digital product trashes the signal.

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CAT-5 Does the Job

► **STUDIOHUB**, continued from page 46
 Our "baddie" had a noise floor of -78 dBu, so to measure common mode crosstalk, we drove one pair at +20 dBu and measured the output of the modified balanced-input amp. We read -58 dBu. This means the actual crosstalk, which appears as common mode, is -20+34-58 dBu or -44 dB. So a receive device that has at least 34 dB of CMRR will get you back to separation approaching 80 dB.

External fields did not measurably penetrate the CAT-5 Mylar foil shield on the outside of the conductors. As a precaution, I would avoid sharing unrelated signals in a single CAT-5, but the measurements tend to discount my concern.

Finally, we measured the performance of CAT-5 for AES/EBU. Not surprisingly,

CAT-5 is a terrific product for serial digital audio. Consistent twist characteristics yield very low jitter and reliable AES/EBU propagation. This conclusion was also reached by the BBC in measurements they performed and published in "Transactions of the IEEE."

Three months later, Ben Brintzer, regional SeaStar chief engineer, said the system is performing very well at all nine stations. "It solved my problem," he told us.

The only downside Ben noted was that once you've installed the system, it's not practical to mix old-style wiring with StudioHub.

"It's great as long as you keep buying the support devices," he said. "As long as you use their breakout boxes and hubs,



Mike Sirkis, left, and Frank McCoy set up the AP System.

it's a very good point-to-point system."

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Frank McCoy is vice president/director

of engineering at AMFM Inc. in Austin, Texas.

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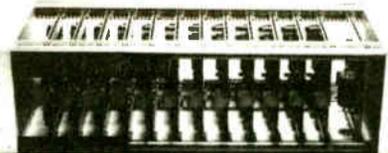


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READER SERVICE NO. 182

Miller Reflects on SBE Term

► SBE, continued from page 43

We may never know what impact the visit had, but we were assured SBE would be considered a resource to the subcommittee's efforts overseeing FCC action when Congress next convenes. Our visit did foster new relationships with key House members.

What is an engineer?

At a later date, SBE filed comments to the FCC regarding ET Docket 95-18 (Allocation of the 2 GHz Spectrum Use by the Mobile-Satellite Service), third NPRM. As of this writing, no official rulemaking is available concerning spectrum reduction to the 2 GHz band. SBE and others remain optimistic a portion of the band will be returned minimizing reduction to channel bandwidth.

SBE also filed an "amicus curiae" brief with Novell Inc. Novell successfully defended its use of the term "professional engineer" as a viable certification title for those trained in Novell network topologies. This was a signifi-

In response, SBE took the initiative encouraging high school students to consider a career in broadcasting. In the fall of 1998, SBE introduced the new category of Youth Membership. To date, some 41 students throughout the United States have joined the Society. Youth membership continues to grow.

At present, SBE does not participate in an annual national convention. The demise of World Media Expo prompted the Society to hold its annual board meeting and awards banquet at various hosting regional conventions. Alignment with existing venues has proven to be most effective in spotlighting the value of regional conventions, maintaining national presence and providing personal contact with area membership. Chapter 24 in Madison, Wis., will host the annual Broadcasters Clinic and SBE National Meeting this month.

NFL deal

Most recently, the Society of Broadcast Engineers and the National Football League have announced a cooperative

sonally rewarding experience for me to be part of this growth and activity. It is important to note that none of this would have been possible without the total commitment and dedication of the national staff, elected officers, board of directors and, most important, the support of the membership.

The depth of expertise and diversity of the board members truly represents the needs and concerns of the broadcast engineer, and I thank them for their support.

With the end of my term drawing near, I am convinced the Society is stronger than ever and is best posi-

tioned to represent accurately the broadcast engineer/technician. I am equally convinced the new leadership will continue the Society's mission, serving the membership and the cause of broadcast engineers and technicians well into the next century.

With a firm grasp of broadcast issues, sound financial footing and no increase in membership dues for the eighth consecutive year, the Society of Broadcast Engineers is soundly positioned for the millennium.

■ ■ ■

Edward J. Miller is consultant/project engineer with PATLIN Electronics Inc. in Richfield, Ohio, and former chief engineer for Scripps Howard WEWS-TV in Cleveland.

Reach him at emiller@ameritech.net

Membership in the SBE is at an all-time high, with 5,609 members and a record of 104 local chapters.

cant victory for Novell and ultimately for SBE, possibly affecting ongoing use of SBE's term Certified Professional Broadcast Engineer.

Several new publications were introduced to the SBE library.

"Introduction to DTV RF" by Doug Garlinger, "Radio Chief Operators Handbook" by Jack Layton and "The SBE Guide to Writing Station Operations Manual" by Fred Baumgartner are the latest and among the most successful publications.

The timeliness of "Introduction to DTV RF," addressing concerns of DTV conversion, created an instant bestseller. The authoring of "Radio Chief Operators Handbook" was in direct response to numerous requests from our membership. "The SBE Guide to Writing Station Operations Manual" filled a void, by providing a comprehensive treatise on operational procedures.

Workshops and youth

SBE's involvement with the NAB Convention grows as Ennes Workshops moved to a prime Wednesday slot. Overall attendance at these and other Ennes Regional Workshops increased 30 percent. An increase was also realized in the dollar amount and number of Ennes Scholarships awarded these past two years. Representatives from SBE continue to serve on the joint SBE/NAB Engineering Conference Committee for the NAB Spring show.

The broadcast workforce is changing as the industry matures. No real mechanism was in place to swell the ranks with new young talent replacing the engineers/technicians approaching retirement.

effort to coordinate frequency use for all regular season and post-season NFL games beginning with the 1999 season.

The SBE, through its local chapters and frequency coordinators, will appoint a game-day event frequency coordinator for each team's home games. The NFL will equip event frequency coordinators with a laptop computer, scanner, press box space and a telephone. The NFL will provide database software and contact information for each team's personnel and local and network media. Event frequency coordinators will work as volunteers.

For many years, SBE coordinators have coordinated NFL regular season and playoff games, working with various networks, local stations and other users. The ever-growing media demands of NFL games along with the enormity of playoff games, especially the Super Bowl, require a massive effort on the part of these local coordinators to coordinate the hundreds of requests for frequencies.

Coordination is essential, not only to keep users of these frequencies from interfering with each other but also with those of local broadcasters. This cooperative effort between SBE and the NFL will provide all licensed users of frequencies at stadiums around the country as interference-free an environment as possible.

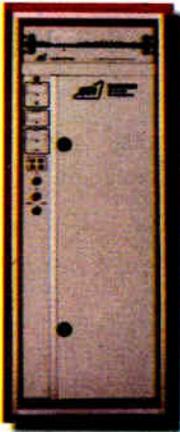
Member support

This recap is certainly not all-inclusive, but does reflect the ongoing commitment to the broadcast industry and to the Society's membership.

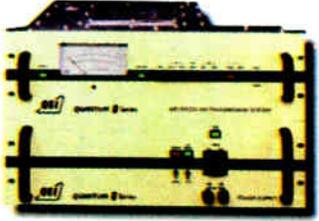
It has been a challenging and per-



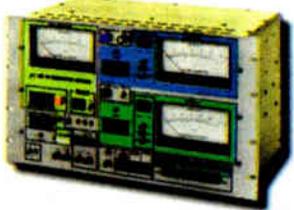
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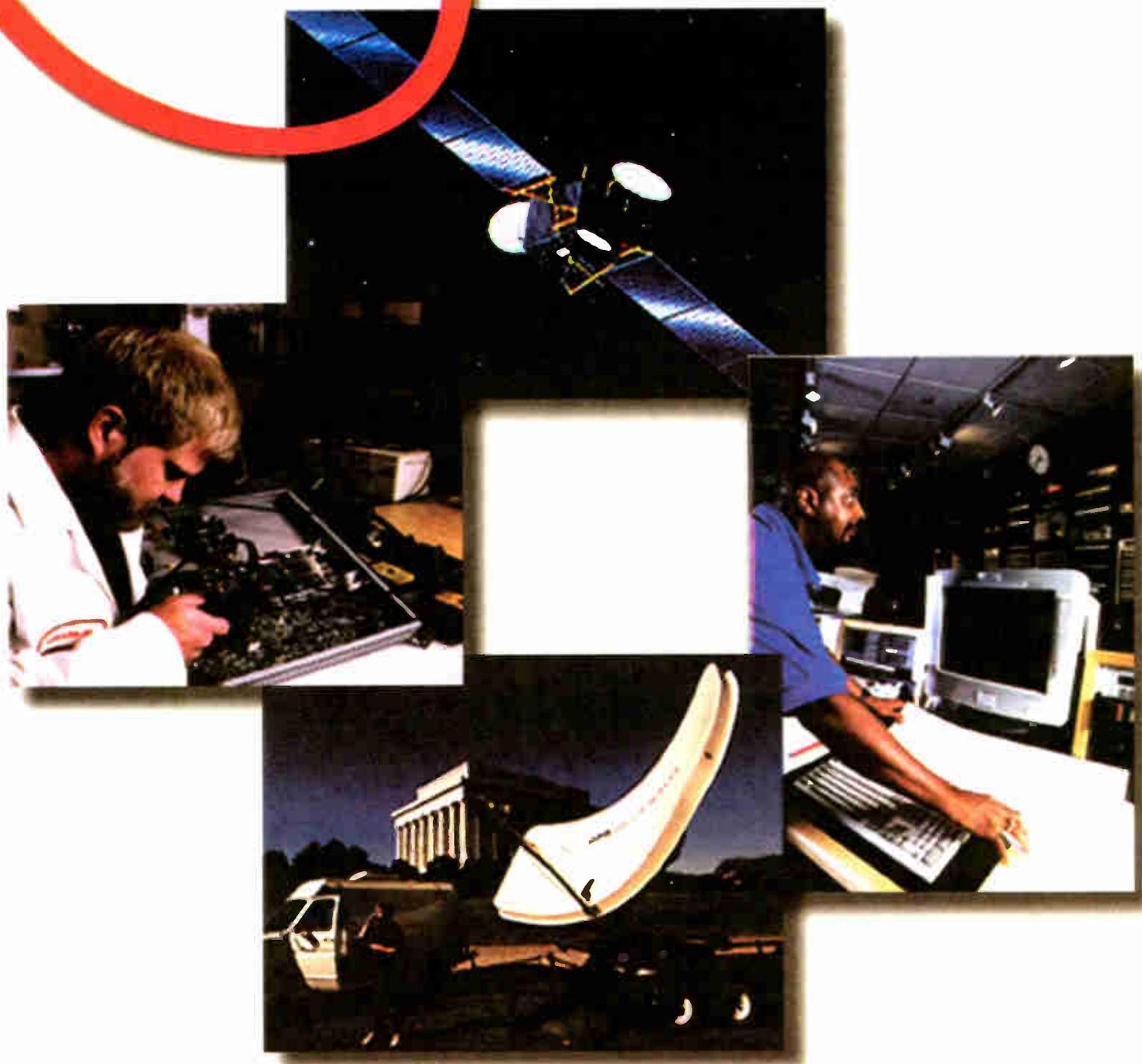
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Infinity/CBS: Bound for Success

Lynn Meadows

What a year this has been for Mel Karmazin and for CBS Corp. stockholders. The president and CEO of CBS Corp. successfully maneuvered his multimedia company through acquisitions and Internet deals to release its finest second-quarter figures ever in 1999.

Then, barely a month after the release of those figures in August, Karmazin announced that his company was about to become more diversified thanks to a merger with Viacom.

If merging radio corporations were labeled mega-groups, what can this \$80-billion behemoth be labeled?

Radio industry observers say the merger is unlikely to affect Infinity, and Dana McClintock, vice president of communications at CBS, agrees.

"All operations within radio will continue as planned, and it would be premature to indicate any changes are underway. There are almost no changes that will come," said McClintock.

Although Viacom sold its radio holdings to Chancellor Media in July 1997 for \$1.075 billion, it is unlikely that the company will part with Infinity Broadcasting after the merger is completed.

First, Infinity is Karmazin's "baby,"



said broker and industry observer Richard Foreman, president of Richard A. Foreman Associates Inc. Karmazin came to CBS when Westinghouse/CBS purchased Infinity Broadcasting, in 1996. Second, "Radio can only add to the synergistic opportunities of the union," Foreman said.

Analysts will watch to see how the two companies use those synergies when they become one. Second-quarter figures showed that CBS had successfully figured out how to utilize its multiple media platform holdings.

But the merger will take cross-media synergies to the next level.

Viacom Inc. operations include Blockbuster, MTV Networks, Paramount Pictures, Paramount Television, Spelling Television, Paramount Parks, Showtime Networks, Simon & Schuster, 19 television stations and international theatrical exhibition operations.

Viacom's parent company is National Amusements Inc. which operates around 1,300 motion picture screens throughout the world.

CBS has a majority stake in Infinity Broadcasting Corp., which operates 163 radio stations and an outdoor business. Additionally, CBS Corp. holdings include the CBS Television Network and 15 tele-

vision stations along with CBS Cable, which includes two country networks and regional sports operations. This list does not even include the CBS stake in several well-attended Internet sites.

Skeptics question whether two tough businessmen such as Karmazin and Sumner Redstone, chairman and CEO of Viacom, will be able to work together. Redstone will be chairman and CEO of the new company, while Redstone's heir apparent, Karmazin, will be president and COO.

Although the major publicly traded radio companies are all experiencing good times, analysts still gave the credit for the successful Infinity/CBS second-quarter results to the company's management.

Steve Pruett, managing director of the New York-based investment bankers Communications Equity Associates, said that industry-wide, consolidators are doing well, but he gave credit to CBS management for the recent success.

"I think that what you are seeing is a good job done by CBS, not necessarily just a rising tide in the industry," Pruett said.

PaineWebber Inc. broadcast analyst Lee Westerfield said that Infinity outclassed most but not all radio groups in the second quarter. Westerfield credited the management of the company for the results.

"The second-quarter results were extraordinary," said Westerfield, "CBS did many things right."

As one would expect based on the results radio has shown all year long, he said, the Infinity results were strong.

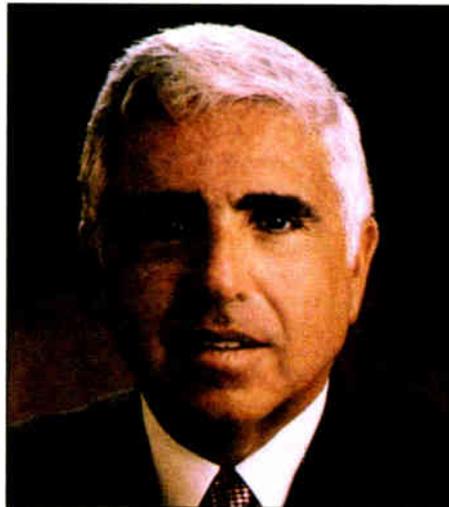
Infinity Broadcasting reported net revenues up 31 percent to \$596 million. Operating cash flow surged 34 percent to \$265 million. Net free cash flow grew 40 percent to \$164 million.

CBS television, radio and cable segments all had record operating cash flow growth during the second quarter. Operating cash flow in second quarter was \$427 million — an increase of roughly 55 percent over the \$275 million operating cash flow figure in the second quarter of 1998.

Net revenues for the second quarter were up 13 percent from \$1.484 million in second-quarter 1998 to \$1.678 million in second-quarter 1999.

Stockholders were smiling. The CBS stock price, which until January seemed unable to keep its head above \$30 per share soared up, up and away to over \$45 per share in second quarter, and continued to climb to over \$50 per share in the wake of the Viacom merger announcement.

Commenting on Infinity's record second-quarter results, Karmazin said "I am particularly pleased that Infinity's core, same-station growth in revenue and operating cash flow continues to outperform the industry. Infinity's growth is in large part due to the company's franchise position of its radio station and transit advertising properties in virtually all of the major markets in the United States."



Mel Karmazin

One insider credited Karmazin with the good second-quarter results. He said Karmazin has been able to digest the acquisition of American Radio Systems and take advantage of economies of scale while continuing to grow the sales and revenue machines in place at each radio station.

CBS acquired American Radio Systems stations in June 1998 for approximately \$2.6 billion in the middle of the rapid-fire consolidation that took place after the Telecom Act of 1996.

Late last year, CBS issued an initial public offering of Infinity stock. That IPO paid down a good chunk of the company's debt from the ARS acquisition.

See CBS, page 65 ▶

Hispanic Radio: A Sleeping Media Giant

Peter King

The Vice President of Training for the Radio Advertising Bureau had a question: "Who's asleep?"

Kippie Romero answered her own question: "Any advertiser *not* using Hispanic Radio."

She made the point during a session at The NAB Radio Show titled "Hispanic Radio Marketing: Awakening the Sleeping Giant."

Those who sat in on the session heard that there are common bonds and differences between so-called mainstream marketing and targeting the huge and growing Hispanic population.

Programming problems

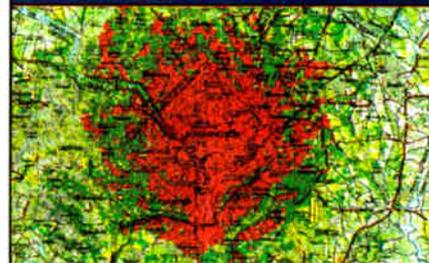
Maureen Bulley, president of Toronto's "Radio Store," faces a problem in Canada — marketing to a bilingual country, with niche formats for Asians and other minorities in Toronto — that is familiar to many urban programmers in the United States.

Bulley said mainstream advertisers like Tropicana have specifically and successfully aimed promotions toward Toronto's large Chinese community with 68-cent coupons, building on the

See HISPANIC, page 71 ▶

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Radio Stations: Use Web More!

Paul Kaminski

Just scant months ago, the words "Webcast," "dot-com" and "streamies" would most likely be the topic of conversation only in a Silicon Valley coffee-house, but those words took on a tone of urgency in the conversations of radio broadcasters across the convention floor at this year's NAB Radio Show.

Arbitron and Edison Media Research revealed the findings of their copyrighted Internet Study III, called "Broadcasters vs. Webcasters: Which Business Model will Win?"

Greg Verdino, Arbitron vice president and general manager of Internet information services, and Larry Rosin, president of Edison Media Research, presided over a packed room. What they found seemed to get the attention of that audience.

As reported in the Sept. 29 RW, the study found:

1. The number of Internet listeners continues to grow. "Streamies," online consumers who have used an audio or video

Webcast, now make up 30 percent of the online population. For comparison, the estimated 32 million Americans who have tried online radio at least once, equals the combined populations of the New York, Los Angeles and Chicago radio markets.

2. Online listeners are more likely to buy from a Web site than those who don't.

3. Seven in 10 online listeners bookmark favorite Web sites; they are more likely to bookmark a radio station Web site than non-listeners. They are three times as likely to have actually visited a radio station Web site, when compared to non-online listeners.

Perhaps the most significant findings concern Internet penetration and buying behavior.

In August 1998, an estimated 30 per-

cent of the population accessed the Internet either at home or at work. In July, that estimate was raised to 42 percent. Thirty-four percent of online Americans have made a purchase via the Internet.

Verdino and Rosin's presentation also addressed radio station Web sites and their functionality. One example was the finding on DJ pictures and information — a full 75 percent of radio station Web sites in the top 100 markets had this feature; however, only 36 percent of Web users say they are interested in the pictures.

It seems some stations aren't promoting their own Web sites.

Sixty-two percent of the Web users recall hearing radio stations talking on air about their Web site. That means almost four out of every 10 Web users can't



Greg Verdino



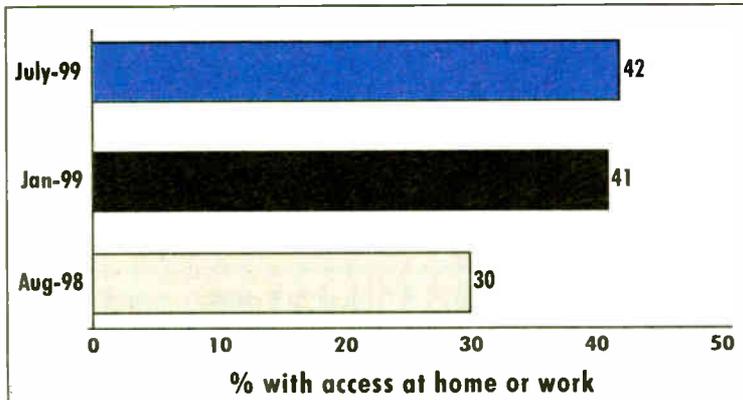
recall a station promoting its site.

The study got the attention of RAB President Gary Fries, who mentioned it in his state of radio sales address at The Radio Show (see related article, page XX).

The survey used a sample base of 3,032 interviews. Of those, 1,527 were known users of streaming media randomly contacted during their visits online. Telephone interviews of 1,505 randomly selected Arbitron Spring '99 radio diary keepers rounded out the study.

The full text and the two previous studies are available online at www.internet.arbitron.com or www.edisonresearch.com

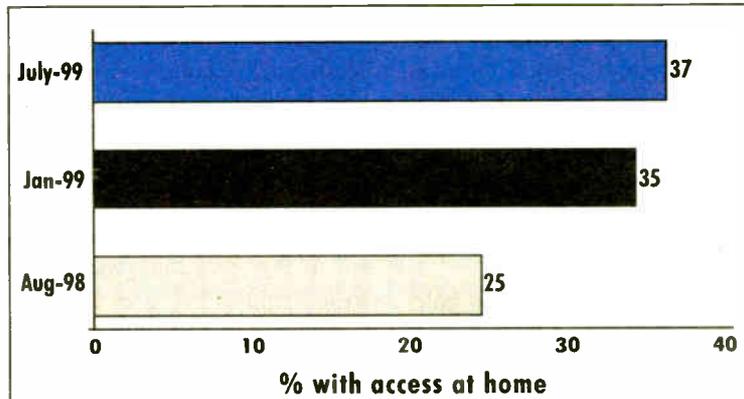
Combined home/work Internet access is up to 42%



Base: Total Sample

Source: Arbitron/Edison Telephone Survey

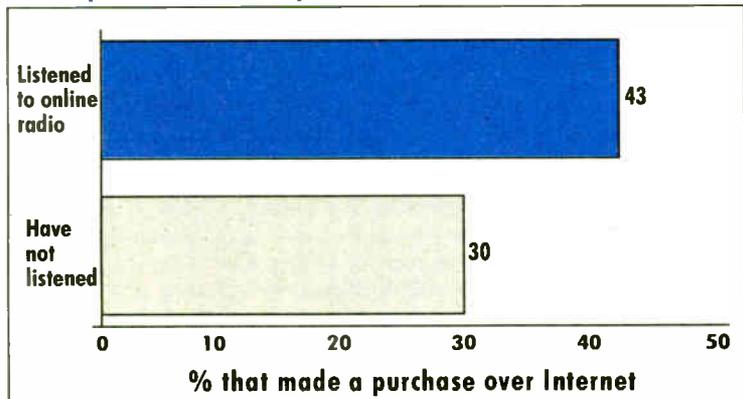
Home Internet access is up to 37%



Base: Total Sample

Source: Arbitron/Edison Telephone Survey

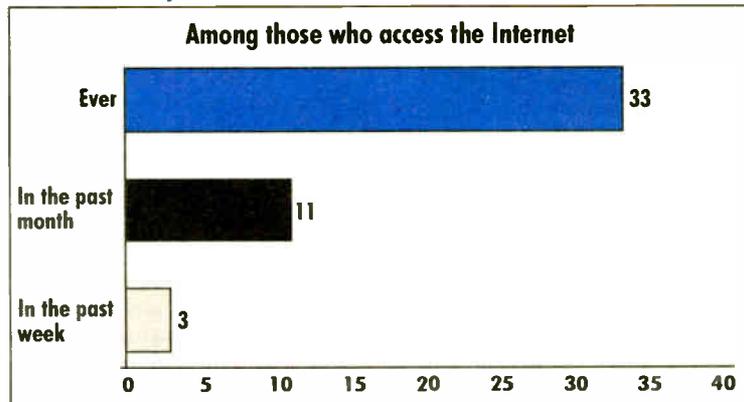
Have you ever made a purchase from an Internet Web Site?



Base: Currently access the Internet

Source: Arbitron/Edison Telephone Survey

Have you visited a radio station Web Site ...



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No-Glitch Switch to Consolidation

Paul Kaminski

One of the more interesting sessions at this year's NAB Radio Show was the "Consolidation by Design" discussion of radio station consolidation. The panel had representatives from station management, station engineering and contract engineering discussing the pitfalls and benefits of combining station operations. Peter Bloomfield of Bloomfield and Associates Architects in Philadelphia was the moderator.

Tom Severino, vice president and general manager of WIBC(AM) in Indianapolis, talked about his station's move into what some describe as the "showplace of radio station consolidation," the Emmis Broadcasting complex on Monument Circle in downtown Indianapolis (RW, Jan. 20). This facility,

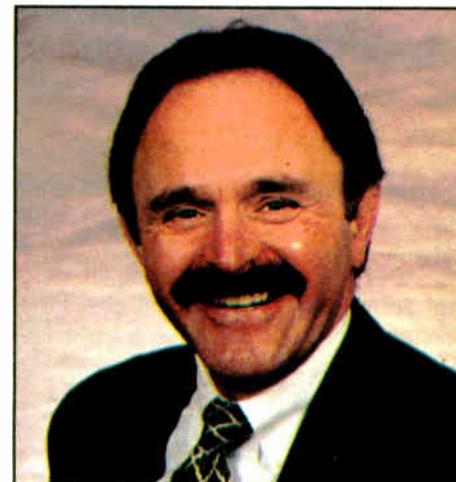
and concepts for managers planning a consolidation:

- Site selection does not just include a good business location. Issues of rent, property and other taxes, utilities, telephone service, a clear path for the studio-transmitter link and the structural integrity of the new facility must be addressed.
- Moves also include the costs for moving out of the present facility, and, if necessary, bringing it back to lease standards. Reuse of furniture and equipment in the new facility should be considered where economically feasible.
- The true challenge is the organization of the various spaces needed by a radio station — public spaces, reception, engi-

neering, administration, sales, programming and production.

- Different stations have different cultures, which makes organization interesting.
- People who work at a radio station need space to do their jobs well. The design of a consolidated facility should consider the allocation of space in that context, rather than older hierarchical models of status and a reward for past work.

A question-and-answer period touched on the cost per square foot for a consolidation. While the specific figures for projects were proprietary, general discussions found a range of from \$50 to \$130 per square foot. Bloomfield cautioned that the costs could and



Tom Severino

would vary with location and the complexity of the build out.

Build in the capability before you need it. It'll be less expensive to buy it today than it will be in the future.

— Tom Bohannon

according to Severino, helps the five stations and two state radio networks "share technical resources, while maintaining separate identities for programming, promotion and sales."

He cautioned managers against getting totally immersed in any planned consolidation.

"You have to balance the day-to-day business and the move. Remember, the P&L (profit and loss statement) still comes out at the end of the month."

Focus and delegate

Dennis Sloatman, AMFM's market director of engineering in Orlando, Fla., shared his experiences with consolidation. He became the in-house "project manager," and left day-to-day operations with other engineering staff members while he planned the activity.

"AMFM policy kept the station general managers out of the specific details of the build out," said Sloatman. He said his four-month schedule of 18-hour days, seven days a week working on the move paid off.

Tom Bohannon of Bohannon Engineering Service in Orlando, Fla., discussed more of the nuts and bolts of a buildout, using his Orlando experience as an example.

"A consolidation allows you to shape and form your version of how to do radio from the ground up."

He also had advice on budgeting for a build out. "Build in the capability before you need it. It'll be less expensive to buy it today at today's prices than it will be in the future."

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New FCC Rules Are a Hot Topic

Lynn Meadows

Sit four media lawyers beside Roy Stewart, chief of the FCC Mass Media Bureau, and you will not have to wait long for a lively and educational discussion. This year, the discussion during the "FCC Radio Ownership Rules" panel was especially heated at The NAB Radio Show.

Instead of talking about what the FCC has yet to do, panelists discussed what the FCC already did with its release of ownership changes in August.

Stewart said the new rules reflect a balance in competing interests by trying to maintain both free over-the-air broadcasting and diversity.

Under the new cross-ownership rules, the number of broadcast stations one party may own corresponds directly to the number of "independent voices" in that market. Local independent voices include all independently owned full-power commercial and noncommercial television stations; all independently owned commercial and noncommercial radio stations; daily newspapers and wired cable service.

Providing there will be at least 20 independent voices after the merger, one owner may own one TV station and up to seven radio stations or two TV stations and up to six radio stations. In markets where at least 10 media voices will remain, one owner may own one television station and four radio stations. And in the smallest markets, one owner may own one television station and one radio station.

There are opportunities for waivers in the case of failed stations. The FCC has been granting "conditional" waivers to the ownership rules since 1996, said panelist Anne Swanson of Dow, Lohnes and Albertson. She said owners with a conditional waiver who now meet the requirements of the new rules must file a statement with the FCC.

There are at least 13 cases where owners with conditional waivers have station counts that exceed those allowed by the new rules, said Swanson. She said the FCC would not make any decisions regarding those waivers until 2004. However, those combinations will not be considered grandfathered if they are sold.

Panelists also discussed the FCC adoption of a new "equity/debt plus" attribution rule. Under this rule, anyone who is either a major program supplier to a licensee or a same market media entity and holds a financial interest of equity and/or debt in excess of 33 percent of a licensee's total assets is considered to have an attributable interest.

Panelist Lewis Paper, of Dickstein, Shapiro, Morin & Oshinsky, said the EDP rule may preclude some people from making investments in other properties.

"We certainly do not want to curtail the flow of money into the business," said Stewart. "We're concerned about business relationships."

Another heated discussion arose when panelist Bruce Ryan, of Paul Hastings Janofsky & Walk talked about the roles of the DOJ and the FCC in reviewing deals. He said radio broadcasters who buy stations face a game of "agency ping pong."

Voices vs. contours

Ryan said the FCC has recently been "raising a red flag" on public notices of purchases when a purchase will mean one owner owns 50 percent of the revenues in a market. For cases where a deal is too small to be looked at by the Department of Justice, panelist Harry Martin of Fletcher, Heald & Hildreth said the FCC red flag can hold up a deal "interminably."

Ryan said there is a bill in the Senate (S-467) that — if passed — will expedite the entire process. He said the bill allows the FCC 180 days to process transactions that are reportable to the Department of Justice and 90 days to process those that fall below the \$15 million threshold for reporting to the Department of Justice. Further, the bill states that if the FCC fails to act within the time frames, the deal is considered approved.

Another discussion focused on how the FCC counts radio stations to determine how many may be owned by one entity. Stewart said the issue of how the FCC counts stations in a market will be covered in the biannual review of other ownership rules. He said he hopes to complete that review before the end of the year.

Swanson pointed out that the radio ownership limits use contours to determine how many radio stations are in a market, while the new cross-ownership rules count media voices to establish limits.

Stewart said the FCC was "working



Roy Stewart

toward bringing clarity" to the station-counting issue as well as the red flagging of applications. Moderator Jack Goodman, senior vice president and general counsel, NAB Legal and Regulatory Affairs, said he expects there to be some Petitions for Reconsideration regarding the new cross-ownership rules and that the question of what constitutes a media voice might prompt such a petition.

How to Make Morning Show Magic

Peter King

One of everyone's first radio lessons is "As the morning goes, so goes the station."

What makes the morning show "go" is a little more complicated, but panelists on the Radio Show's "Making Morning Show Magic" forum agreed that it's not just about talent and content, it's also about teamwork, roles and personality management.

A little respect

Consultant Randy Lane said, "There's got to be respect for talent that's equal to the GSM and program director, and that hasn't always been the case in the past."

Respect, he said, includes giving the morning show its own office, involving the players in major decisions, being honest with the ensemble, providing a producer, even in smaller markets, and making the radio station a fun place to work.

Marty Bender, operations manager for WFBQ(FM), WRZX(FM) and WNDE(AM), oversees the syndicated "Bob & Tom" morning show. "A PD's role is to help the morning show get better, and to ask what assistance they need to do it."

Aircheck sessions and PD hotline calls came under attack.

Lorna Ozmon, president, Ozmon Media, said that PDs should capitalize on the fact that morning show staffs love to eat. "If you want their attention, take them to lunch!"

Morning host Elliot Segal of WWDC-FM, Washington, D.C., said the PD is the last person he wants to hear from during an airshift. Even if he calls with a compliment, Segal said, it's still like "waiting for the other shoe to drop."

All agreed that browbeating aircheck sessions don't work. Lane suggested managers ask first before criticizing. Bender cautioned against "premature evaluation" in a session, while Ozmon said that a good PD is "assertive, not aggressive, a coach, a director, and *not* a boss."

The underlying theme: The PD must be a fan of the morning show for it to be successful. Bender said the manager should understand the strengths and weaknesses of each morning show player.

Lane said roles and characters should be clearly defined. "We go through each personality and draw an in-depth personality profile ... then identify the two or three standout characteristics that each person wants to be known for."

Bender said that an on-air persona should be an exaggeration of a character's true personality, comparing morning show characters to the "Seinfeld" cast, which

had several individually distinct and different characters with common bonds.

What gives your morning show a unique voice? Most morning show content is basically the same, with topics coming from the headlines. Bender said what puts your morning show at the head of the pack is when something big happens, and a listener thinks "I wonder what (your morning show) will say about it tomorrow!"

Water-cooler talk

Lane said any subject can be filtered through your morning show's personality characteristics, even "down" topics like JFK Jr.'s plane crash and the Columbine High School Shootings.

Segal compared a morning show to going to dinner with friends, and "talking about everything ... If you know everyone's going to wake up talking about kids who shot up a school, and you don't talk about it, you're doing yourself a huge disservice. You shouldn't even be on the air."

Content, Segal said, is easy. What you do with it takes talent.

The panelists agreed that slumps happen to everyone, from Mark McGwire to morning show staffers. It may come down to having done everything the same way for years, suddenly reflected in bad ratings or negative research.



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World Radio History

Fries: The Times Are Confusing

Paul Kaminski

Radio Advertising Bureau President Gary Fries sounded a clarion call in Orlando, Fla., when he looked at the state of radio advertising in an NAB Radio Show session.

Although the business of radio sales is solid, and times are good, Fries said that in spite of signs of abundant prosperity and growth all around us, the times are confusing.

"We are not the only businesspeople consolidating and changing," he said, pointing to what he perceives to be radio's major competition — satellite radio and the Internet.

"If we stand by and do business as usual, they will walk on us," said Fries of competition from new media.

Internet dawn

Fries described radio as the bridge-builder to consumers and advertisers.

"We have to build on our strengths of the best programs, service, our research, our documented success and do the best

we've ever done in selling. We're no longer in the business of selling spots, shares and Arbitron numbers. Our future is in marketing solutions and understanding what the Internet can and will do."

We are not the only businesses consolidating and changing.

— Gary Fries

Fries gave an example of taking a local bookstore and helping them to become a "dot-com" advertiser. In the top 15 radio markets, the "dot-com" category is credited for an increase in sales, although the practice hasn't fully filtered down to smaller markets, Fries said.

"Dot-com advertisers are finding radio

to be the fastest, most-efficient brand-building medium, a results medium," said Fries.

He quoted from the Arbitron/Edison Media Research Internet Study III, which showed that 14 percent of all Americans have responded to a radio commercial and visited a Web site, and that 36 percent of adults 25 to 44 years old went online to visit a "dot-com" site they heard about on radio.

Fries said the value of electronic commerce will increase as more people shop online, which presents more opportunity for stations with Web sites.

"Keep your Web sites compelling, like your programming. Don't give the banner ads away. And remind the advertisers to mention their 'dot-com' address in their commercials."

Fries outlined plans for five RAB workshops around the country designed to help stations use the Internet to raise profitability and dollars. He also talked about the progress of the new RAB academies for basic salespersons and



Gary Fries

sales managers.

His parting comments for the attendees: "Radio won't become obsolete. It can ride the wave of the future. We are the security blanket of the American consumer. They trust us and love us."

■ ■ ■

Paul Kaminski is the news director for the Motor Sports Radio Network. Reach him via e-mail at motorsportsradio@compuserve.com

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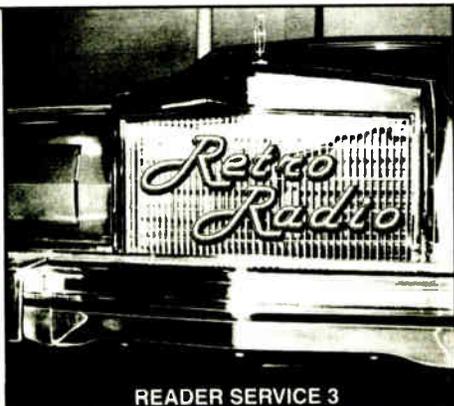
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Oldies: A Format Threatened, Not Down

Peter King

Oldies stations face aging audience numbers and an onslaught by today's hot, jammin' or rhythmic oldies formats, but don't count them out yet.

"Oldies is a great format! It evokes more passion and enthusiasm than any other format," said Joe McCoy, vice president programming for WCBS-FM, New York, speaking at The NAB Radio Show's oldies format forum. But, he said, you have to "watch it like a child" to keep it current. "You can't get fat."

General Manager Bill Phillips of WAVH(FM), Mobile, Ala., agreed, saying oldies have "treated us well," thanks to the station's high profile in the market and contemporary jocks.

How do you fight the rhythmic challengers? Long-time oldies programmer Rick Peters, president of Peters Communications, said oldies PDs should stop thinking about 35-44 demos.

"You can't play enough '70s music to make it work. You've got to hunt where the ducks (45-54) are."

He said the best way to accomplish that is to "not screw around with the music."

To jam or not to jam?

WAVH's Phillips said a tight playlist and heavy research are always under discussion at his station. At times they tighten the list, but they've also gone the other way to reduce the burn-out factor on certain oldies, which Phillips says has resulted in higher time spent listening.

McCoy's advice? "Have fun — and fight what they do."

He said Chancellor, now AMFM, did all the right things with its debut of the "Jammin' Oldies" format in New York, with liners that said "This is not your father's oldies station."

But WCBS-FM nudged back with its

own liners on Father's Day: "Happy Father's Day, Dad, I still love our oldies station — it's the only thing we agree on!"

Peters doesn't believe the Jammin' formats have much staying power, because not everyone in the core demo likes the music, and the music will burn out quickly. "If you're just the best oldies station you can be, you won't have a problem."

Breaking the rules

How about those '70s Oldies? WCBS-FM breaks the rules of most traditional oldies station, playing hits from the '50s through the '80s.

McCoy said there has to be a compelling reason to play those songs. Part of that reasoning goes back to the station's first two decades, when it played currents as "future gold" during the '70s and '80s. McCoy said people don't mind hearing that music on his station, but he cautioned other stations against going from left to right too quickly if they're considering '70s titles.

"If it's right for your station, you should play it."

When it comes to personalities, McCoy said it's beneficial to use big-time personalities who grew up doing top 40 in your market, as long as they understand '90s radio.

"What they did in the '60s may not be right today — clichés, trite sayings may not work in the '90s."

McCoy said jocks at WCBS-FM understand that their audience has grown with them.

"If you're hiring someone, make sure they love the music, feel passion and understand the music."

WAVH's Phillips agreed.

"It's too long a journey for personalities to get there if they don't know (the music). They also have to be up to

See OLDIES, page 65 ▶

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World Radio History

CBS/Infinity: A Winning Pair

► CBS, continued from page 57

The sale of stock reduced the company's net interest expense from \$85 million in the second quarter of 1998 to \$46 million in 1999 — a savings of 46 percent.

Insiders also point out that much of the success of CBS as a whole came because the TV network slimmed down expenses and won the major network ratings wars.

Asked about the good quarter, McClintock, said the results were not too surprising.

"We consider ourselves to be in a growth business," he said, adding that the company continues to make acquisitions to increase revenue.

Analysts agree, and point to the recent second-quarter announcement by CBS

that it had entered into a definitive agreement to acquire Outdoor Systems Inc., for approximately \$6.9 billion in Infinity common stock, plus assumption of approximately \$1.8 billion of debt. Analysts expect even better results after Infinity completes its acquisition of Outdoor Systems Inc.

Infinity/CBS launched its Infinity Promotions group this year. The goal is

vision. Infinity will receive a share of the investment's returns.

In a CBS statement, Karmazin said, "The newspaper business has long been the sole recipient of the \$17 billion classifieds-advertising market. As that revenue is increasingly ceded to the Internet, we believe that Jobs.com is well-positioned to benefit from the transition."

"But a CBS Internet tracking stock

Approximately 1 percent, or \$80 million, of total CBS advertising revenues are currently generated by Internet accounts.

— Jordan Rohan

Oldies Can Rock, Win And Deliver

► OLDIES, continued from page 62

date." Peters lamented that it's much easier to find CHR personalities than oldies jocks, and that "you have to hone your own, to a degree."

Peters said frustration in finding good talent for small and medium markets led to the development of "StarSystem" voice-tracking at Capstar, where Peters was most recently president of the company's SouthernStar division.

"The last two years I've kind of been the antichrist of talent," he said. "We resorted to hiring major-market talent and feeding them out to smaller stations. It's much better to find someone local."

Internet

How about the Internet? Peters describes himself as a convert, having not believed a presence on the Web was important as recently as three years ago.

Now, he says, not only is a presence important, you've got to be careful "not to have a lousy Web site."

Peters said stations may eventually consider streaming separate channels for '50s, '60s and '70s formats on the Web.

McCoy's WCBS-FM isn't streaming yet, but he hopes to "as soon as we can figure out a way to make a lot of money with it." A good Web site, he said, helps the listener feel more involved.

What's holding back traditional oldies? McCoy said, "Many of you are sitting in boxes sometimes, you sometimes have to program out of the box."

Too many PDs, he said, won't take chances, because consultants tell them to do what everyone else is doing.

"If you do that, there's going to be nothing special about your radio station. You have to take chances once in a while. That's what being a good program director is. If you're a general manager, give your PD an opportunity to be creative."

to leverage the national platform of the radio group to put together sponsorships, sales and marketing plans that can be done at a local level on a national scale, said McClintock.

As other companies struggle to find the right tie-in to the Internet, CBS has invested relatively little cash to get a stake in 11 Web sites.

"CBS is very smart with its Internet acquisition strategy, where they trade ad inventory for a stake in the Internet company. We have not seen that with any other companies," said Jordan Rohan, author of a Wit Capital report on the CBS Net strategy.

Internet company acquisition revenue is starting to become a factor, said one insider. Consider the first two agreements CBS signed with Web providers in 1997. Both of those providers — MarketWatch.com (NASDAQ: MKTW) and SportsLine USA (NASDAQ: SPLN) — have since gone public. McClintock said the CBS stake in those two companies alone is worth half a billion dollars, with almost no cash changing hands.

In 1999, CBS has acquired stake in nine more Web companies.

"It is very rare for money to change hands in these deals," said McClintock. He said the companies can find money easier than they can find the promotional opportunities available with a company like CBS.

For instance, CBS will acquire a 35-percent interest in Medscape Inc. and a 20-percent interest in Rx.com, an online pharmacy, in exchange for promotion and advertising.

The company also will soon have a stake in StoreRunner.com, Office.com, Switchboard.com, Hollywood.com and ThirdAge.com. ThirdAge.com is a site for the 45-64 demographic.

Karmazin told analysts earlier this year that he was considering a plan to spin off to the public a portion of the Internet assets of CBS, including the stakes in MarketWatch.com, SportsLine USA and the Internet companies acquired in 1999.

However, one recent CBS/Infinity Internet acquisition, Jobs.com, looks like a keeper. CBS Corp. agreed to take 38 percent in the privately held employment site for \$62 million in advertising, promotion and other considerations.

In an example of the integrated media strategy that Karmazin plans to follow, Jobs.com will be promoted on CBS media properties over the next five years, including radio, outdoor and tele-

will be much more attractive to Internet investors — more than CBS Corp. would be to such investors," Rohan said. "It also appeals to Internet companies who find it a strong incentive to attract and retain employees," Rohan said.

According to a recent analysis from Wit Capital, CBS is a major beneficiary of increased demand for radio, television and outdoor advertising inventory, generated by a substantial new category of advertisers, the so-called "dot-coms."

"These new e-commerce companies tend to be less price sensitive and more focused on prestige and premium placement, unlike traditional consumer com-

panies like General Motors, Procter & Gamble or Coca Cola," Rohan said.

The report cites CBS's Howard Stern radio show as an example of one of the most desired formats for Internet companies to broadcast radio spots.

"The show boasts a young male audience and major-market focus characteristics that correlate to high Internet usage," Rohan said.

Additionally, cash-laden Internet companies are purchasing radio and television time in the spot market, paying the highest rates available, according to the Wit report. The additional demand for advertising space from "dot-coms" is spurring dramatic growth at CBS.

"We estimate that approximately 1 percent, or \$80 million, of total CBS advertising revenues are currently generated by Internet accounts," Rohan said.

The second quarter was significant for CBS another reason. CBS realized an \$18 million after-tax gain on the disposal of discontinued operations associated with the divestiture of former Westinghouse Electric Corp. businesses that were sold to Bechtel National Inc. McClintock said CBS has sold off virtually all of the Westinghouse Industrial properties.

Originally, when it announced it would purchase CBS, Westinghouse management said it would split the company into a manufacturing business and a media business. By the time the deal closed in late 1997, management decided instead to divest the industrial properties in favor of creating one media giant. If it was not already apparent, second-quarter 1999 results proved that they had. And the Viacom merger takes CBS into the next chapter.

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00:02:03 Loop Trip Unload

Music Log [06-06-2006]

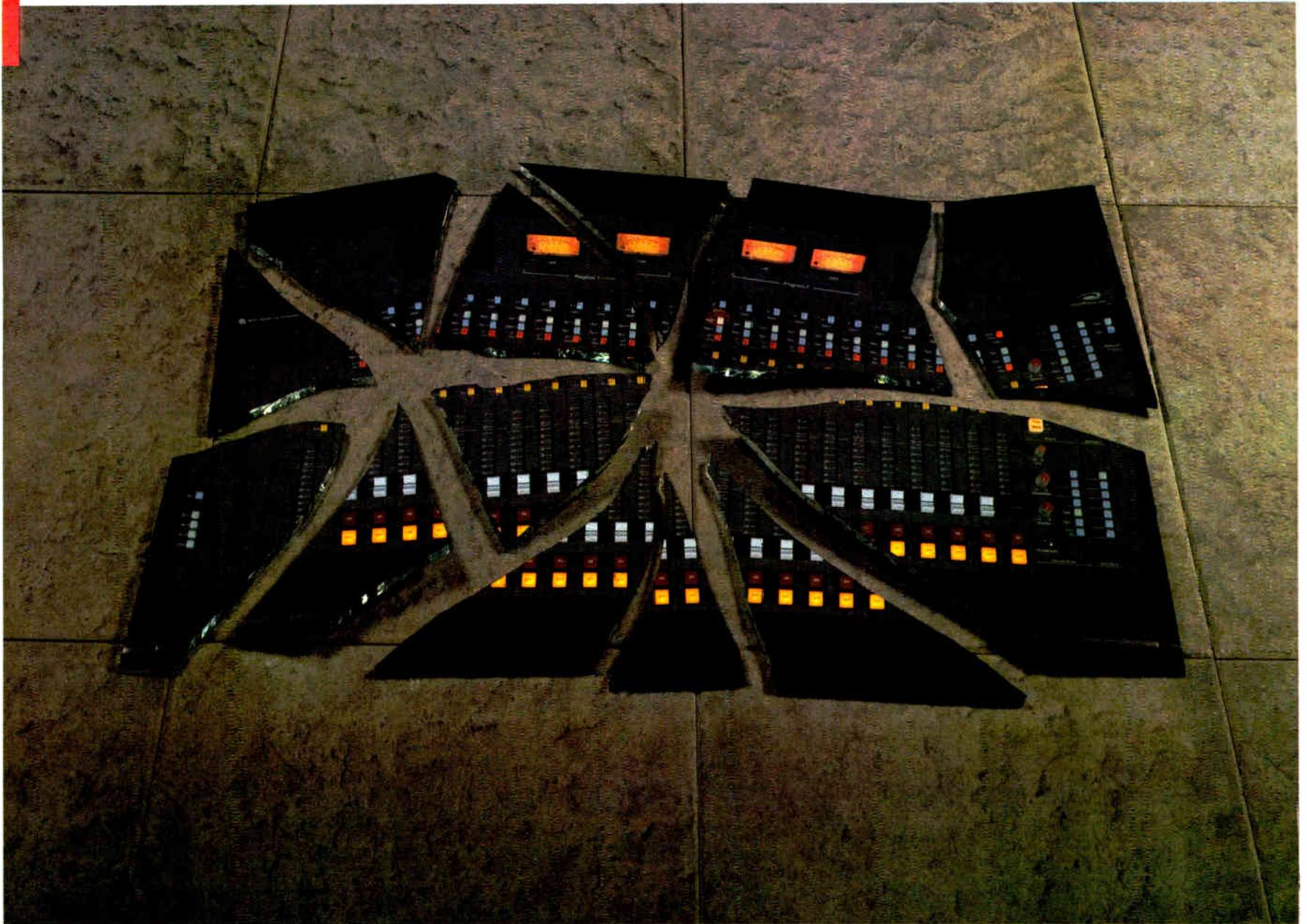
Time	Cart	Title	Artist	Length	Intro	End	Type
12:13:07	L002	Liner # 2		00:05			LC
12:13:12	M1012	Photograph	Def Leppard	04:54	:22	F	MUS
12:18:06	M2174	Friends	Elton John	02:20	:05	C	MUS
12:20:26	M1732	Dance The Night	Van Halen	02:47	:13	F	MUS
12:23:13	V026	Voice Track 26		00:12			VTK
12:23:25	DALIVE	SPOT SET		03:00		I	COM
12:26:25	J011	Jingle / Fast		00:06			Jin
12:26:31	M0713	Listen To Her Heart	Tom Petty	02:48	:11	C	MUS
12:29:19	V027	Voice Track 27		00:15			VTK
12:29:34	M2214	Black Friday	Steely Dan	03:40	:12	F	MUS
12:33:14	M0015	All Day Music	War	04:04	:19	F	MUS
12:37:18	L015	Liner # 15		00:15			LC

00:03:23

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World Radio History

Harry Tries His Hand at E-Filing

Harry Cole

Like it or not, the FCC appears not to be joking about all this electronic filing stuff. As many readers may have experienced first-hand in August and September, the first round of broadcast auctions started off with mandatory electronic filing of FCC Form 175, a (truly) short-form application.

In grudging recognition that the computer age may really be upon us, Team Cole's Law fired up its venerable Commodore computer (souped up with scavenged Heathkit parts) and tried its hand at filing a couple of 175s.

Lo and behold, the FCC's system seems to work pretty well. In fact, the FCC's computers worked so well that it looked like the commission was even grabbing all of our outgoing e-mail for a couple of days — even e-mail not addressed to the commission and having nothing at all to do with the auctions.

But more on that later.

Brave, new paper-free world

If you have not yet enjoyed the thrill of cyber-applications, you probably will in the foreseeable future: The FCC clearly is moving away from a paper-based application system to an electronic system.

To get into the game, you need first to configure your computer to speak with the FCC's network. Note that this is different from simply pointing your browser to www.fcc.gov and looking at all the cool graphics. The commission has provided detailed instructions on how to configure your dial-up networking to get you to the FCC Auctions line for application filing purposes. This process involves (for all you Windows 95 and 98 users) setting up a "New Connection" icon dedicated to the FCC's 800 number for auction applications.

The commission's instructions for this configuration process, which are available at the FCC's normal Web site, are clear and simple to follow, and they work like a champ. On the first try after we finished the process, we were connected with the correct site and proceeded to file our applications without significant difficulty.

The only problem that popped up was in revising one of the applications prior to the deadline. Each applicant gives itself a password upon accessing the site. That password is then used to access the application thereafter for the purpose of reviewing and amending it, if necessary.

With four hours to go before the deadline on applications (and amendments),

we tried to access one application which we had filed. The FCC computer balked, claiming we had the wrong password. We knew we had the right password, because we had used it before with no problem; so we tried again.

The FCC balked again. After another unsuccessful try or two, the FCC's computer advised that we had maxed out on password mistakes, and we would be barred from accessing the application until we had worked things out with the folks at the FCC's auctions hotline.

We called them right away, and they

meant that our e-mail was leaving our offices and then taking a detour through the FCC's system before getting to where it was supposed to go.

While we have nothing against the FCC and assume that they probably wouldn't normally want to read our mail (not that there's anything that interesting in our mail anyway), we figured it would be a good idea to figure out how this happened and correct it pronto. Fortunately, the fix turned out to be quite easy, and in less than a business day our e-mail was free of the bidder.fcc.gov routing notation.

The FCC clearly is moving away from a paper-based application system to an electronic system.

helpfully confirmed, obviously through some kind of magic process, that we were in fact typing in the correct password. But they still wouldn't let us access the application until the applicant itself called them and confirmed that it was all right.

The applicant did so, but then the FCC wanted to see a fax of our driver's license, (really, this is not a joke). We sent that along, and finally, with only about an hour left before the deadline, we got back into the application.

Momentary excitement

But other than that momentary excitement, the electronic filing process was pretty uneventful.

The real fun occurred the following day, when a recipient of some e-mail we had sent out (through the same computer with which we had submitted the application), called to ask why we were routing our e-mail through the FCC's computer system.

This struck us as an odd question, because we had not been routing our e-mail through the FCC — as far as we knew. But our e-correspondent pointed out that in the e-mail he had received, the "header" section showing the source of the mail certainly seemed to indicate that our message to him had traveled through some bidder.fcc.gov site before arriving at its intended destination.

Intrigued, we sent ourselves a test message, looked at the source "header," and sure enough, there was that pesky bidder.fcc.gov notation.

Our immediate fear was that this

at Cole's Law use a standard dial-up networking set-up; our computers run Netscape 3.0, with the e-mail utility provided by Netscape. The quirk we are describing here may not happen at all if you are using other set-ups, different software, etc.)

Still, if you find your own outgoing mail reflecting a bidder.fcc.gov source, you can eliminate it (in Windows 95, at least) by going to Settings, then "Control Panel, then Network." In the Configuration window, scroll down to TCP/IP — Dial-Up Adapter, and click on Properties. Then click on the DNS Configuration tab and click on Disable DNS.

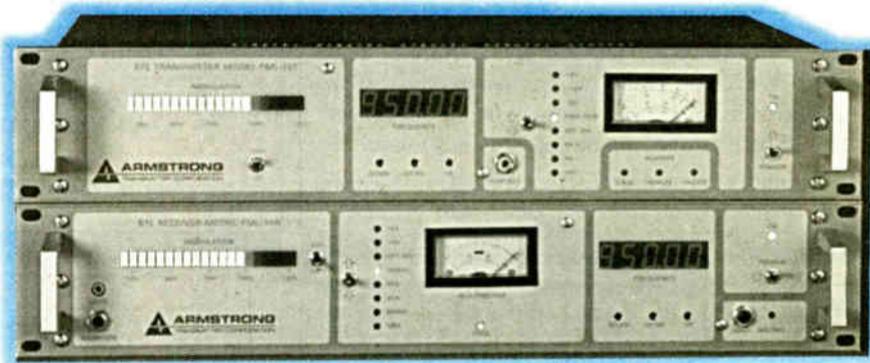
This effectively undoes at least some of the changes that the FCC's configuration directions caused you to make in the first place. But at least it eliminates the suggestion that your e-mail is taking a sidetrip through the FCC. Of course, if you want to file more Form 175s, you will have to reconfigure per the FCC's directions.

Again, it appears that no e-mail is actually being routed through the commission. At least one source advises us that the FCC's bidding computer network is not even capable of passing messages back out onto the Internet. That's comforting — but not as comforting as getting rid of the bidder.fcc.gov routing reference.

■ ■ ■

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. He can be reached at (202) 833-4190 or via e-mail at coleslaw@erols.com

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9	10	11	12			

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S	M	T	W	Th	F	S
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	1			



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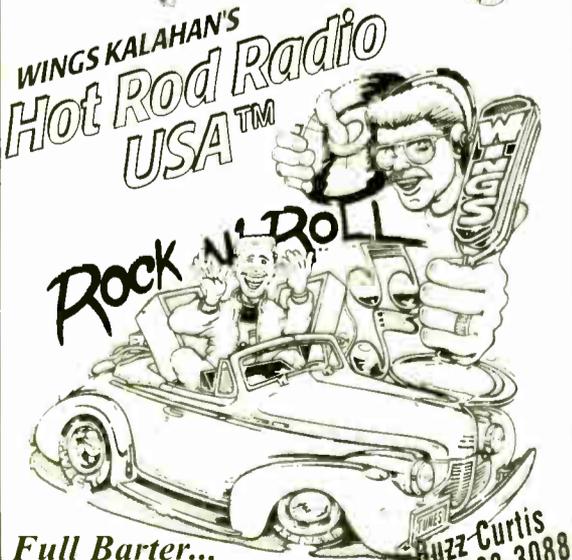
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Small-Market Radio Rate Increases 101

Lynn Meadows

Roger Utnehmer of Nicolet Broadcasting offered his techniques for creating service and fiscal strength at The NAB Radio Show session, "The Other Glass Ceiling: Small-Market Rates."

Assessing the service that your station is delivering to clients is the first step toward a rate increase, said Utnehmer. In addition to sales meetings, Utnehmer said that six months before doing a rate increase, stations should hold occasional "service meetings."

The meetings could be used to have salespeople write thank-you notes to top clients or to listen to a client discuss what he or she likes and does not like about sales.

Steps to strength

Utnehmer suggested that sales managers make at least two courtesy calls every day to ask clients to comment on the service the station is providing. He said it offers a way to give instant feedback to salespeople.

Utnehmer recommended including a local business news section in the newscasts.

"We've got a waiting list for people who want to buy local business news — office supply stores, computer stores, Internet providers." He suggested news reporters get relevant comments from clients when possible. For instance, a local banker could comment on a story on rising interest rates.

Testimonials are another way to show service strength, Utnehmer said. He described a client who owned a coffee shop in a small town. Utnehmer sold him one ad per hour, 24 hours a day, seven days a week, which resulted in a 56-percent increase in sales at the shop.

The client said in his testimonial, "If you don't have a big bill at the radio station at the end of the month, my advice is to get one."

Visibility is another key for establishing a position of strength. Utnehmer leases window space and sign space from clients to display his call letters. In return, clients get a chance at a drawing once a month for 100 ads. They also receive 5 percent more ads on every schedule they run.

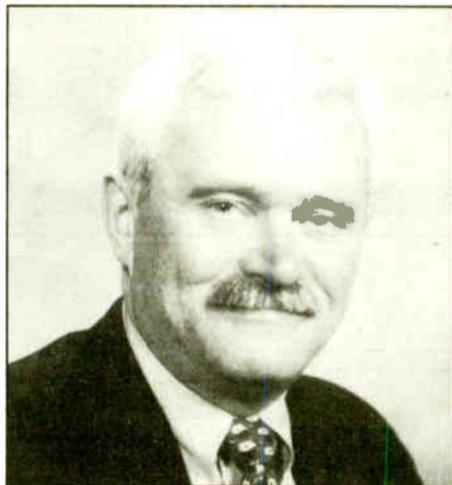
Giving clients more than a bill at the end of the month is another way to win their respect. Clients want ideas and appointments, said Utnehmer.

"If we can start being known as a medium that presents ideas and sells by

appointment and is professional, I think we're going to get more than 7 percent," said Utnehmer, referring to the piece of the entire advertising pie that radio typically earns.

Loyalty is another key issue for establishing a service base. Doing business with advertisers will help establish a trust relationship, said Utnehmer. Where unemployment is very low, referring potential employees to clients is another way to gain trust and notice.

Almost any small business faces four problems, said Utnehmer: competition from a Wal-Mart or similar store, inability to attract and keep good people, retail sales leakage and in-store theft and secu-



Roger Utnehmer, Nicolet Broadcasting

rity issues. He recommended starting files with articles relating to those topics and sending them to clients to make a good impression.

Next came a discussion about fiscal strength. Utnehmer said "big asks" focus client attention away from price per spot.

"I would bet that there are car dealers in markets where I own radio stations that spend more money on coffee for their showroom than they do on some radio stations," he said.

Ask for enough money to be respected, he said. Calculate what the average order is on your radio station and then ask the salespeople never to ask anybody to buy less than the average.

Also, he said, the typical salesperson will not ask a client to spend more money in one year than he or she makes in 12 months. If you do not ask for more, you are not likely to get more, said Utnehmer.

Small-market radio operators who want to contact Utnehmer can reach him by e-mail at utnehmer@pcpros.net

Newspapers: the Big Radio Competition

Peter King

Don't let your friends at the local newspaper read this article!

After all, your first lesson in radio sales probably went something like this: "The newspaper is your enemy. It's your biggest competitor. It wants to take money out of your pocket."

When you see how much money is spent on newspaper advertising vs. radio, it's easy to understand why these words have been the adage of broadcast salespeople ever since the invention of the radio spot.

George Hyde, executive vice president for the Radio Advertising Bureau's Training Division, told an NAB session on newspapers. "We must be cold and hard and realistic — it's ugly."

For example, in 1998, he said, financial institutions spent about \$500 million on newspaper advertising, only about \$180 million for radio, according to a Voice Trak survey of 172 markets.

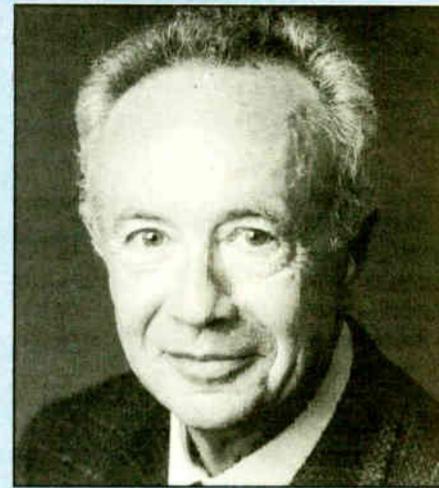
He gravely rolled off more numbers showing newspaper revenues dwarfing radio income from supermarkets, car dealers, wireless communications and other advertising staples.

Hyde said these numbers should be a wake-up for broadcasters to get a larger chunk of change from newspaper advertisers.

Radio advantage

Make no mistake, advertisers love newspapers for several reasons. An RAB/Arbitron survey cites newspapers' ability to show the product and handle last-minute changes, and its wide reach and effectiveness.

What do advertisers like about radio? Targetability, creativity, ability to make last-minute changes and frequency.



Andy Grove

You may laugh at the line about newspapers' abilities to make last-minute changes, but, Hyde said, "Newspapers have made a concerted effort to become more adaptable and more responsive to their advertisers." Many of those changes can now be made at the last minute, thanks to technology.

From the same study, advertiser complaints about newspapers include high cost, placement uncertainty (a competitor's ad could be adjacent to yours), poor print quality and declining circulation.

By comparison, many advertisers said they disliked radio because it is not visual; it is a fragmented market with too many stations; airtime is cluttered; and results are difficult to measure.

Hyde said in order to reach the people who control hundreds of billions of advertising dollars, radio salespeople need to remember radio's strengths and newspapers' weaknesses, and that while

See COMPETITION, page 73 ▶

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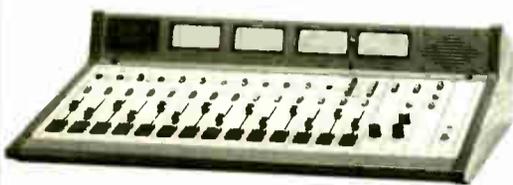
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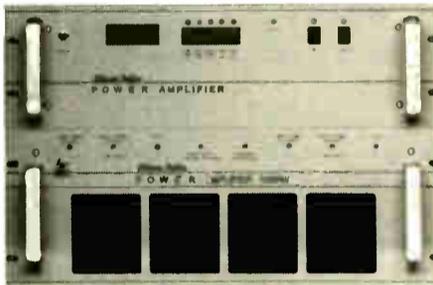


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Too Big to Miss: Hispanic Market

► **HISPANIC**, continued from page 57
 knowledge that the numbers 6 and 8 combined mean "all roads lead to prosperity" in the Chinese culture.

"It's just a matter of really getting to know the culture. Successful advertisers are committed to ethnic advertising to the extent that they're taking creative risks," she said.

Race not a barrier

Brian Barber may be a rarity — an Anglo selling Hispanic radio successfully. The general sales manager for WAMR-FM, WRTO(FM), WAQI(AM) and WQBA(AM) in Miami, Barber is a native who watched the area's evolution.

The Hispanic population, he said, is the fastest-growing segment of the U.S. population. By next year, there will be 32 million Hispanics in the United States, about 12 percent of the total population, and Hispanics will become the country's largest minority by the year 2010, thanks to political situations in Latin America that help draw more people here.

Barber said Hispanic media and listenership have soared, but Hispanics remain a huge untapped market.

Linda Hinojosa is the GSM for KKPS(FM), "Que Pasa 99.5" in Weslaco, Texas. A Hispanic who admits listening to the Osmonds and Jacksons as well as Spanish music as a child, she stressed the importance of dismissing stereotypes and recognizing important cultural differences. "Do you know us or do you just like our food and think that's all we are?"

Hinojosa said there are major differences between first-, second- and third-generation Hispanics, and that one message may not appeal to all groups.

Her advice? Learn different dialects, and reflect that knowledge in your sales and advertising.

"First-generation Hispanics want to be related to in Spanish. And you'd better find out what Spanish they're speaking — Tex-Mex, regional, border Spanish."

The local chamber of commerce and local production pros can be invaluable resources to understanding the Hispanic market in an area.

"Pay them, it's worth it!" she said. "The bottom line is results for your client."

An audience member commented that if mainstream Anglo media want to sell to Hispanics, "You have to embrace our culture, who we are and who we are becoming. We're not just numbers, we're not just a language. Embrace us and assimilate yourselves."

Study the culture

Barber agreed, saying one must like the culture to be effective. He says he loves Latin music, and after selling general market radio for a couple of years, he found it too sterile.

"I think sometimes in our Anglo roots, we lack some of that emotion which is found in Hispanic culture. Immerse yourselves," he said.

Hinojosa said reaching the Hispanic population isn't difficult or much different than reaching any other radio listener.

Her station uses event marketing

and relationship marketing, with promotions based on important Hispanic cultural events such as Quinceañera, which is a girl's 15th birthday, akin to a "coming out" party; Cinco de Mayo; a commemoration of the 1862 Mexican victory over the French at the Battle of the Puebla; and Bodas, or weddings, which she said tend to be huge family events.

With these promotions come sponsorship opportunities. Que Pasa 99.5's annual events include a station birthday bash and Diesciseis de Septiembre Fiesta on Sept. 16. The station uses a produced video of past events to market Hispanic and Anglo advertisers.

Barber said in the Anglo market, selling is all bottom-line oriented. But his experience is that Hispanic clients tend to be more emotional.

"A lot of times, you bond and become friends with your client. You go to the client's family's baptisms, weddings, you go to pick up a check but you don't just pick up a check, you have a dialogue for about an hour, and have coffee with him."

'Are you serious?'

For mainstream advertisers who don't advertise on Hispanic radio, Hinojosa asked, "Are you serious? Where I come from, one out of every

five persons is Hispanic, whether you're listening to general market or Hispanic radio. How can you not want to target Hispanic listeners in both languages?"

Barber added that in sheer numbers, the new Dade County, Fla., census will probably show about a 70-percent Hispanic population.

"Now, Anglo advertisers realize they're missing the boat if they don't (advertise to Hispanics). There are still some who drag their feet, but the sheer numbers show them they need to address the market."

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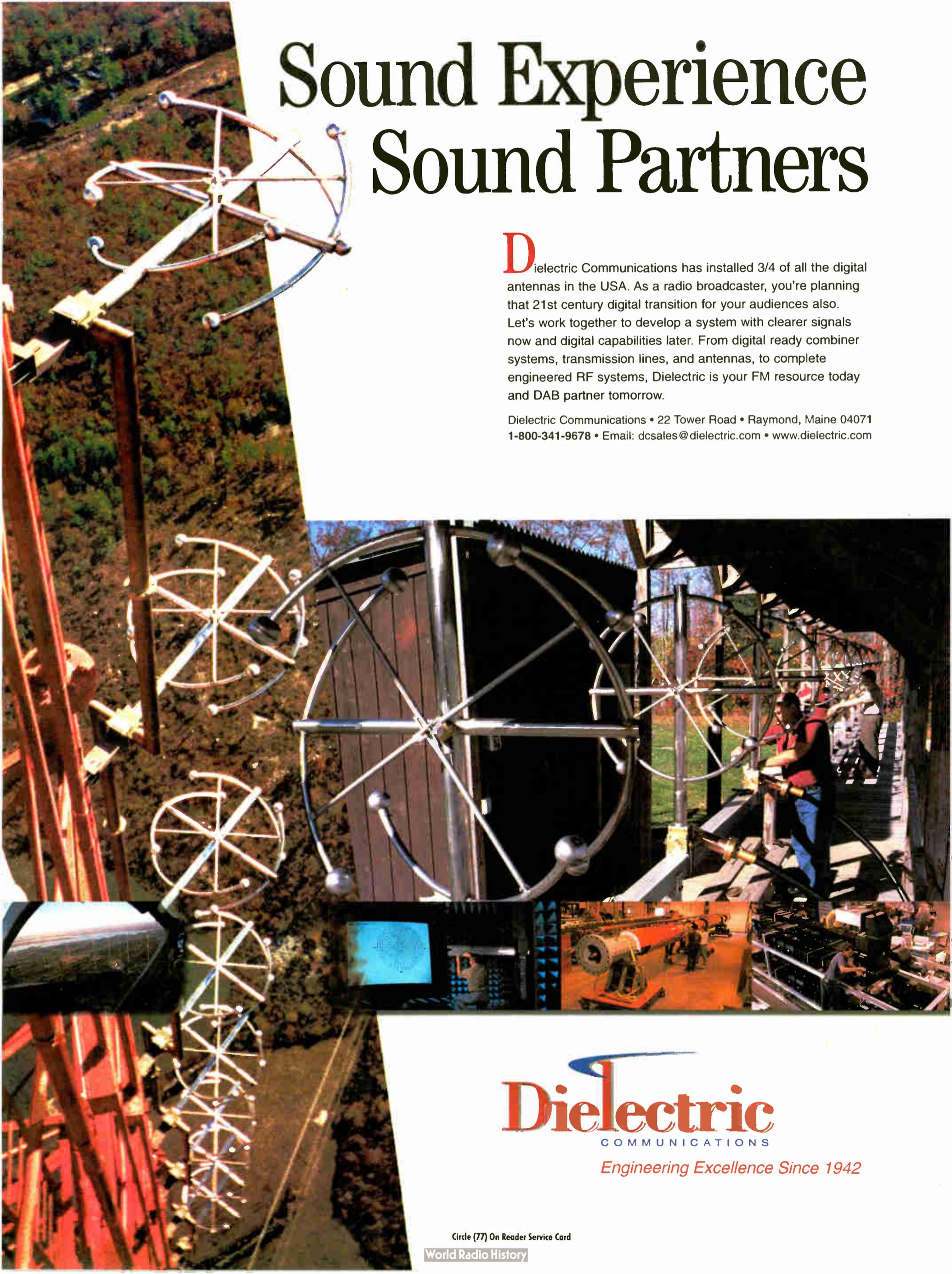
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PROMO POWER

How to Do a Good Remote Event

Mark Lapidus

While surfing the Web listening to stations from around the country, I've recently stumbled across a number of live remote broadcasts. During the first on-air remote, the disc jockey was using his radio station as a public address system to make announcements to the small audience present at the theme restaurant where he was broadcasting from a booth. The second remote I listened to didn't even sound like a remote. The audio was so clean and the programming so sterile, it mattered little that the talk show host was even at a remote location.

While live broadcasts are one of the oldest methods of reaching out and touching the public, they are still commonly botched. Perhaps this is why many veteran programmers simply choose not to do real remotes at all anymore.

I may hold the minority view, but I'm still a believer in doing live remotes for both music and talk formats. When executed properly, remotes can add a theatrical dimension that is typically missing from most ho-hum daily broadcasting. Like most things, doing remotes the right way is simply a matter of returning to the basics.

Our first order of business involves deciding whether or not the remote even has true merit. Is there something planned for this particular remote which can't be accomplished by staying in the studio? For example, if your station has a true celebrity talk show host, what difference could it make if he or she does a remote? This answer could depend on

timing, available guests, location and your interest in having a real town meeting where audience members can walk up to a microphone and ask questions. These elements can produce drama.

For a music station, if you've got a talent who is capable of bringing to life the experience of hanging out backstage with a band before a show, you have great potential of creating something more memorable than the typical "Top Ten at 10."

Engineers may have to mix in more live sound or even use prerecorded ambient noise to create the impression of live excitement.

If you read between the lines, you've already picked up the problem that bothers most program directors: talent, or lack thereof. Most personalities are simply not capable of doing what I've already outlined. This is our own fault. By avoiding remotes altogether (even in many small and medium markets), we have not taken the time to teach talent how to use live situations to their benefit.

Most talent hasn't learned the difference between an appearance and a remote.

An appearance entails engaging and entertaining an audience at a location and attempting to get them to like and

remember you and your station. At many appearances, it's also part of our job to help a retail establishment sell a product.

On the other hand, a remote is about using a live audience and those guests present to entertain people who are listening to the radio. Perhaps because this is so simplistic, it's commonly assumed that talent understands the difference.

Another common failure involves technical aspects of remotes. Too often,

public address systems relay the remote back to the audience present with feedback, delayed sound or no sound at all.

It's not easy to do this properly, yet often the assumption is that an intern can take care of setting up and running the public address system. It seems amazing to those of us who have done this prior to the computer age, but now some remotes actually sound too clear — I never thought I'd have to complain about that!

This clarity is the blessing of ISDN and even some of the new POTS systems. With a directional microphone and a quiet room, talent may sound as if they're broadcasting from the studio! It shouldn't be necessary for a talent to have to explain to a listening audience that they are live on location — an audience should know this by hearing it. Engineers may have to mix in more live sound or even use pre-recorded ambient noise to create the impression of live excitement. This is one of the reasons why a site visit and pre-broadcast trial over the line to the studio is so important. Also, while it's not as common today to find bad lines — or even no lines — it's still vital to discover any possible problem well in advance.

Even with seasoned talent, you may wish to consider having a separate on-site host to work the audience during spot breaks and perhaps even before the show begins. This is why many TV hosts have a comedian come out prior to the top banana coming on live. Having an on-site host different from the talent can also allow the star of the show to concentrate on what really matters — the listening audience.

When taking out truly big-name talent, make sure you've got enough security. Don't make the mistake of having the talent seem like a bad person just because they don't feel like having to sign autographs for an hour. Let someone else play the heavy in crowd control.

Finally, consider the possibility of having the talent "practice" the remote with the program director a day or so before the actual show. A proper remote can really help radio put the Show back in Show Business.

Lure Ad Dollars From Newspapers

► **COMPETITION**, continued from page 69. radio listening is up, newspaper circulation continues to decline.

"Newspapers don't attract younger readership," Hyde said, adding that the average person will stay with radio for much longer periods of time than he or she will look at a newspaper.

Print in trouble

Talking about readership trends, Hyde said, a Newspaper Industry Association of America study reported declining readership from 80 percent in 1970 to less than 60 percent of the general population in 1998. In another 15 years, Hyde said, readership could fall to less than 50 percent.

How about the clutter question? Newspapers are 65 percent ad content, Hyde said.

"It would take 36 minutes of spots per hour to equate to the advertising content of your local newspaper. You have to do a better job of telling the subjective story that radio works!"

Part of that story, said Hyde, is that most people don't spend more than 20 minutes reading their daily paper, if they read it at all.

Starch statistical survey scores and other research show that most can't remember a full-page ad they saw 24 hours earlier, and when advertisers

spend money on newspapers, their cost increases much faster than the number of potential customers they can reach.

"When people give me less of something than I got before, I don't want to pay more for it," Hyde said. As newspapers become less effective, their ad rates are rising.

Using Orlando, Fla., as a profile market, Hyde said that using a combination of five radio stations would reach more customers than the Orlando Sentinel newspaper in any given week, and do so more cost-effectively.

Drop in numbers

Hyde said a recent Audit Bureau of Circulation report shows that most newspapers are losing circulation, the only major gains shown by USA Today and the New York Times for the six months ending in March of this year. The reports are issued in March and September, and present opportunities to show clients that his/her newspaper advertising is losing value.

Hyde quoted Intel chairman Andy Grove, speaking to newspaper editors, as saying "Newspapers have three years to live." What he meant was that newspapers will have to reinvent themselves in order to compete effectively with broadcast and the Internet—a good opportunity, he said, for radio to strike back.

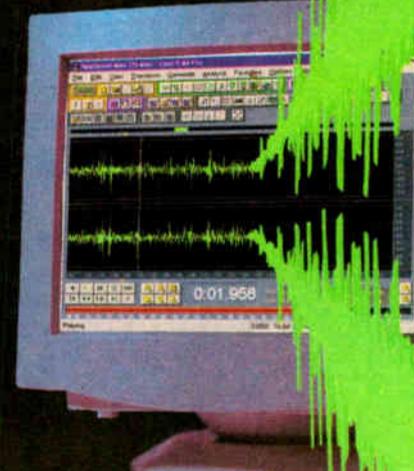


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- Dave Oliwa, Radio And Production, May 1997

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World Radio History



H A Harman International Company

Studio Sessions



July 4 Power Scramble
Page 79

Radio World

Resource for Radio Production and Recording

October 13, 1999

Jingle Pioneer Bill Meeks Dies

Ken R.

Radio a Go Go! Fun Vibrations!
All-American Radio!

These are just a few of the phrases that William B. Meeks coined for his top 40 jingle clients as president of PAMS Inc. of Dallas.

Bill Meeks died of cancer Sept. 8 in Dallas at age 78.

As a staff musician at WRR(AM), WFAA(AM) and later KLIF(AM) in the late 1940s, Meeks began writing "jingles" for some of the local advertisers. In 1951 he opened a company in Dallas known as PAMS Advertising

Agency Inc. to handle his growing list of clients.

The now-famous combination of letters stood for "Production, Advertising, Merchandising Service."

Syndicated jingles

Prior to that time, each jingle was recorded individually. Meeks wanted to "syndicate" his jingles across the country by using a common instrumental track with new lyrics sung for each city.

For example, the same musical track created for "First National Bank" in Dallas could be resung for "Third

National Bank" in Louisville.

Recalling his beginnings for an interview taped in the early 1970s, Meeks said the head of the Dallas musicians' union called New York for guidance because this kind of thing hadn't been done before. He said the national headquarters was too busy to deal with a local problem like this, so Dallas was left to negotiate its own rates and rules for syndicated jingle work.

Birds Orchestra at WFAA in the early 1940s, he would walk into the room carrying a saxophone, clarinet and flute and always stumble in late. He was one of the truly colorful characters in those days."

Rautenberg sang with Vaughn Monroe's Moon Maids and ended up back in Dallas recording "many, many jingle sessions" with PAMS.

By 1958, Meeks was having his first big taste of success producing IDs for radio stations but in 1960 he came up with the idea of the "variable

PRODUCT EVALUATION

Easycorder Eases Field Reporting

Lawrence Hallett

Hard-disk-based portable recorders are making rapid progress in a field long dominated by analog-tape-based equipment.

The use of digital storage media for radio newsgathering is nothing new. DAT, MiniDisc and similar easily portable digital recording systems are common where analog tape-based
See EASYCORDER, page 78 ▶



Bill Meeks

"A few years later, the national union finally figured out what was going on in Dallas and tried to change things," Meeks would recall, "but by then the jingle business had really taken hold." The musicians by that time were willing to take the work with or without the union's blessing, a stance made possible because Texas is a "right-to-work" state.

Competition

With the musician and vocal talent pool Meeks developed, several competing studios sprang up in Dallas, putting that city on the map for radio ID jingles.

Tinker Rautenberg, one of the earliest vocalists to work for Bill Meeks, met the young entrepreneur in 1946.

"When Bill played with the Early

logo." Simply stated, this was the notion that each station could have its own call letter melody, which could remain consistent from package to package.

'Dramatic Signatures'

The name of the demo introducing this concept was "Dramatic Signatures" and was the 14th PAMS jingle series.

In 1961, Meeks dreamed up a concept that would finally put PAMS on the map.

The Sonovox was a novelty invented by Gilbert Wright that had been used as early as 1941 in dance bands headed by Alvino Rey and Kay Kaiser. It employed about \$10 in electronic parts and an electric guitar amplifier

See MEEKS, page 80 ▶



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World Radio History

So What the #@%+* Are Dingbats?

Alan R. Peterson

Do you know what dingbats are?

Fans of the TV show "All in the Family" have their own idea. Classic cartoon aficionados will recall a character called a "dingbat" in the old Gandy Goose Terrytoons films.

According to the Merriam-Webster WWWebster Online Dictionary (www.m-w.com), dingbats are typographical symbols or ornaments. These are found above the number keys on your PC keyboard. Cartoonists have their own definition: a string of symbols used to substitute for strong or improper language.

Or in other words, #@%+*.

The concept of using dingbats in place of icky language is universal. The star of the 1980s arcade game QBert would swear in dingbats if he lost a round. The Beetle Bailey comic strip in the newspaper makes liberal use of creative dingbattery. And have you ever taken a close look at the red "bleep" button on the 360 Systems Short/cut?

Working around the station, it is almost imperative to speak and think in dingbats when things don't go completely your way.

True, the world is a lot more forgiving these days when a potty word or two

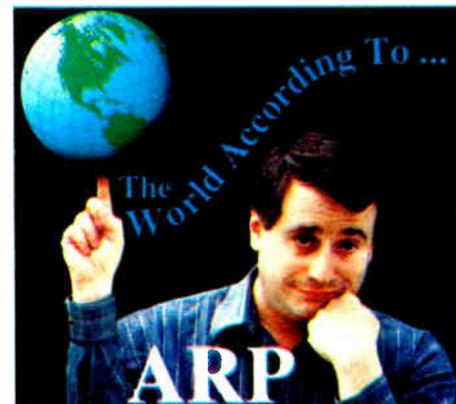
slips through onto the air. But in most situations, it still pays to watch yourself in a room where a mic may be open.

Two worldly examples include former President Ronald Reagan's "We start bombing in five minutes" gaffe, and, from an earlier day, kiddy host Uncle Don's "That ought to hold the little #@%+*."

We all know to keep our pie holes shut when we are in the air studio and the host is busy. But how often do we duck into a production room or voice booth to conduct a little conference with someone, totally forgetting that maybe, *maybe* the DAW might be rolling, capturing everything we are saying?

How often have careers been derailed because of such slip-ups?

It astounds me just how much swearing goes on behind the scenes in radio, compared to how proportionally little goes over the air. Which is why maybe a spoonful of dingbats may help the blood



You: "Well, your tape sounds good, but we're a Soft Hits station."

Them: "Hey, that's no problem. I'm flexible."

You: "I'm sure you are, but you have to understand that a shock jock won't work at all doing middays on our FM."

Them: "Look, I can shape the performance. Just give me the job and I will show you that I can fit the format and work out to your satisfaction."

You: "Well ... okay."

Naturally two days later,

You: "Scott, you can't come out of a song saying, 'Boy, that Michael Bolton is really lame. I mean, who wants to listen to that jerk?'"

Them: "Then why did you hire me? You knew what you were getting!"

Reaction: #@%+*!

I'll bet you didn't know that it is actually possible to pronounce dingbats. Any child of the '60s and '70s will tell you "#@%+*" is pronounced, "Ratza-fratzin-ratzin-frackin."

The great linguistics expert and television villain Muttley Mutt established this years ago in the Hanna-Barbera cartoon series "The Wacky Races" and "Dastardly and Muttley in Their Flying Machines." How handy this knowledge would have been to me some time back when the lights went out at WHMP-FM, Springfield, Mass.

One stormy morning about 5:40 a.m., our studio lights were flickering from high winds and nearby lightning hits. More than once, the lights and turntables would dip as the power line sagged, then come back. This went from being a minor annoyance to a serious inconvenience very quickly.

Finally, one hit took the lights and studio down for good during a backsell. My natural though inappropriate reaction was something like, "Oh, terrific. Now what the (*really* bad word) do I do?"

Had I known the power supply capacitors in the console still had enough juice left to spread my sentiments around Western Massachusetts before discharging, I might have waited a little longer to vent. My utterance was the last thing that headed out the door on a leased line to the distant transmitter site, still fully powered.

I kept my job and the incident is now among my souvenirs, but "Ratza-fratzin-ratzin-frackin" might have been a more suitable choice at the time. If only I had known then that a "dingbat" was something more than a secondary name for Edith Bunker.

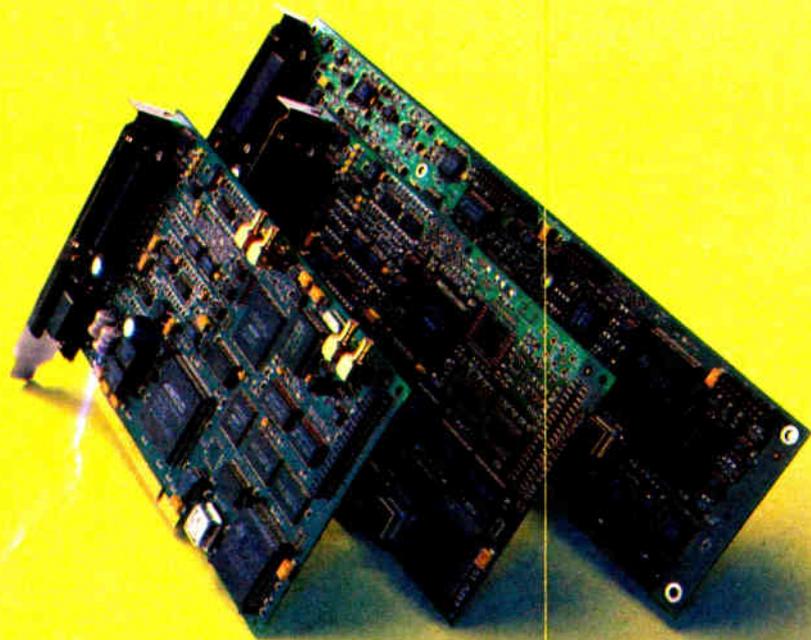
■■■

Al Peterson is the #@%+* manager of technical systems at Fairfax Public Access Corp. in #@%+* Fairfax, Va.

Ever had an on-air slip-up of your own, when "Ratza-fratzin" might have been a better choice? Tell us about it at radioworld@imaspub.com

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LINE OUT

Understanding Polar Patterns

Bruce Bartlett

We're all familiar with the cocktail-party effect: We can focus on a particular conversation in a noisy crowd. Some microphones have a similar ability. Almost as if by magic, they can focus on certain sounds while rejecting others. This characteristic has made them highly useful tools.

A graph that shows how a microphone does this "focusing" is called a polar pattern. Many engineers are uncertain about the differences between various patterns, but this month's column aims to clear up some of the confusion.

It's all about direction

Microphones differ in the way they respond to sounds coming from different directions. Some respond the same to sounds from all directions; others have different output levels for sources at different angles around the microphone. This varying sensitivity vs. angle can be graphed as a polar pattern or polar response.

The three major polar patterns are *omnidirectional*, *unidirectional*, and *bidirectional*, as shown in the figure.

An omnidirectional mic is equally sensitive to sounds arriving from all directions. A unidirectional mic is most sensitive to sounds arriving from one direction — in front of the microphone — and rejects sounds entering the sides or rear of the microphone. A bidirectional mic is most sensitive to sounds arriving from two directions — in front of and behind the microphone — but rejects sounds entering the sides.

Three types of unidirectional patterns are *cardioid*, *supercardioid* and *hypercardioid*.

A microphone with a cardioid pattern is sensitive to sounds arriving from a broad angle in front of the microphone. It is about 6 dB less sensitive at the sides and about 15 to 25 dB less sensitive at the rear.

To hear how a cardioid pickup pattern works, talk into a cardioid mic from all sides while listening to its output. Your

reproduced voice will be loudest when you talk into the front of the microphone and softest when you talk into the rear.

The supercardioid pattern is 8.7 dB down at the sides and has two nulls, or points of least pickup, at 125 degrees off axis. "Off axis" means "away from the front."

The hypercardioid pattern is 12 dB down at the sides and has two nulls of least pickup at 110 degrees either side off axis.

Note that a polar plot is not a geographical map of the "reach" of a microphone: a microphone does not suddenly become dead outside its polar pattern. There is no "outside." The graph merely plots sensitivity at one frequency as distance from the origin; it is not the spatial spread of the pattern.

The supercardioid and hypercardioid

reject sound from the sides more than the cardioid — they are more directional. But they pick up more sound from the rear than the cardioid does.

In a good mic, the polar pattern should be about the same from 200 Hz to 10 kHz. If not, you'll hear off-axis coloration; the mic will have a different tone quality on and off axis. Small-diaphragm mics tend to have less off-axis coloration than large-diaphragm mics.

You can get either the condenser or dynamic type with any kind of polar pattern, except bidirectional dynamic. Ribbon mics are either bidirectional or hypercardioid. Some condenser mics come with switchable patterns. Note that the shape of a mic does not indicate its polar pattern.

If a mic is *end addressed*, you aim the end of the mic at the sound source. If a mic is *side addressed*, you aim the side of the mic at the sound source.

A *boundary* microphone is surface mounted; this type of mic often is seen in conference rooms or on stages. The boundary mounting increases the directionality of the microphone, thus reducing pickup of room acoustics.

An omnidirectional boundary mic has a half-omni, or hemispherical, polar pattern. A unidirectional boundary mic has a half-supercardioid or half-cardioid polar pattern.

All directional mics have at least two ports for sound to enter: one in front of the diaphragm and one behind. By comparing the phase and level at those two ports, the mic has the "intelligence" to know where a sound is coming from, and how to respond to it.

Bruce Bartlett is a microphone engineer and the author of "On-Location Recording Techniques," published by Focal Press.

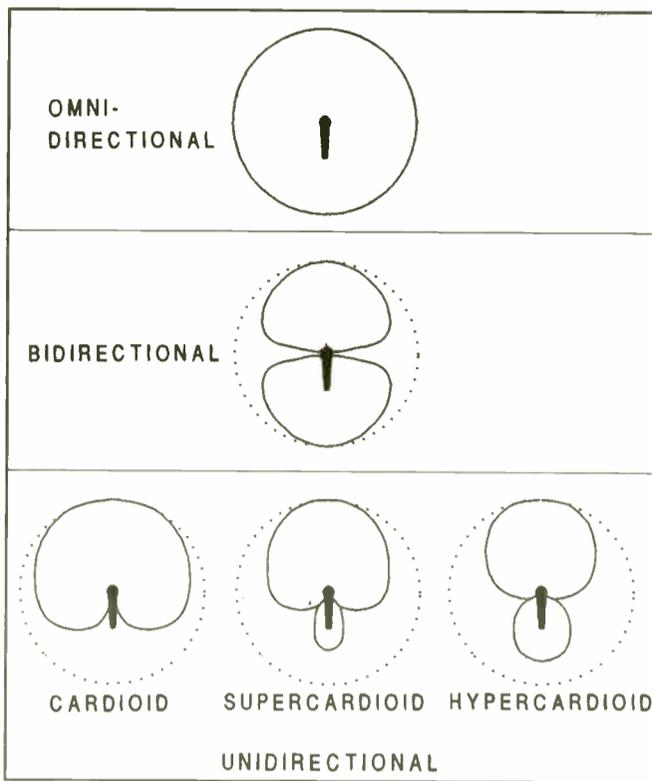


Figure 1: Various polar patterns are shown. Sensitivity is plotted vs. angle of sound incidence.

Traits of Polar Patterns

Omnidirectional

- All-around pickup
- Most pickup of room reverberation
- Not much isolation unless you mike close
- Low sensitivity to pop (explosive breath sounds)
- Low handling noise
- No up-close bass boost (proximity effect)
- Extended low-frequency response in condenser mics. Good for pipe organ or bass drum in orchestra, symphonic band.
- Lower cost in general

Unidirectional (cardioid, supercardioid, hypercardioid)

- Selective pickup
- Rejection of room acoustics, background noise and leakage
- Good isolation — separation between tracks
- Up-close bass boost (except in mics that have slots in the handle)
- Better gain before feedback in a sound-reinforcement system
- Coincident or near-coincident stereo miking

Cardioid

- Broad-angle pickup of sources in front of the mic
- Maximum rejection of sound approaching the rear of the mic

Supercardioid

- Maximum difference between front hemisphere and rear hemisphere pickup (this is good for stage-floor miking)
- More isolation than a cardioid
- Less reverb pickup than a cardioid

Hypercardioid

- Maximum side rejection in a unidirectional mic
- Maximum isolation — rejection of reverberation, leakage, feedback, and background noise

Bidirectional

- Front and rear pickup, with side sounds rejected (for across-table interviews or two-part vocal groups, for example)
- Maximum isolation of an orchestral section when miked overhead
- Blumlein stereo miking (two bidirectional mics crossed at 90 degrees)

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Life Is Easier With Easycorder

► EASYCORDER, continued from page 75
portable units once reigned.

The inherent flexibility of the digital alternatives, particularly when combined with PC- or Macintosh-based editing software and integrated with a hard disk-based playback system, helped supplant the long-proven analog units.

User requirements

However, despite improved recording quality and the flexibility of digital recording, DAT technology never was ideal for the harsh environment of news-gathering or other radio interviewing situations.

Essentially a miniaturized version of the system employed in VHS video recorders, DAT machines are both complex and delicate. They require just as much, if not more maintenance than older analog tape equipment.

Being tape-based, DAT also cannot provide instant access and speedy on-site editing, perhaps the greatest additional benefits of digital recording, as found on MiniDisc recorders or more specialist hard disk-based recorders.

Nowadays, the market for professional hard disk-based portable recorders is developing quickly, providing stations with the opportunity to escape the need to hang on to any type of tape-based equipment.

One of the latest designs to reach the professional broadcast market is the

Easycorder from Maycom Automation Systems B.V. of the Netherlands.

The unit is supplied in a tough plastic transit case with space for required accessories. The first thing that strikes the user about the Easycorder is its visual design and careful attention to operational ergonomics.

The bright blue unit measures approxi-

mately 9.5 by 7.5 by 2.5 inches and weighs approximately 5 pounds. It runs for up to six hours from a nickel metal hydride (NiMH) battery.

The unit comes with a soft, padded case and a shoulder strap. The user manual is slim, but effective, although less experienced users might find additional background information, for example about recording modes or level adjustments, useful.

The front panel supports all the major operational controls, together with a

large, backlit LCD display. All buttons light up for ease of operation in low-light conditions — although the user must learn their layout as the button labels do not illuminate.

On top of the unit are ancillary controls and a small monitor speaker.

External connections to the unit are on either side, with the digital I/O on one

side and the analog ones on the other.

Analog is on the right-hand side of the unit, including a quarter-inch monitor headphone socket; left and right microphone/line three-pin female XLR inputs; left and right three-pin male line outputs; and the connector for an external variable 90- to 250-volt mains adapter.

Additional analog switches to configure recording mode — phantom power, microphone/line level, low-pass filter and limiter — are located on a switch panel on the top of the unit.

Digital connections are on the left, including a three-pin male XLR AES/EBU output; S/PDIF phono I/O; a D-connector LPT port for direct connection to a notebook or desktop PC; and a PCMCIA card slot for hard-disk or flash memory cards.

By far the most complicated face of the unit is its front panel, which hosts all the major operational controls. A small push-button switch powers up the unit. To avoid accidental powering down, shutting off the machine requires confirmation via the enter key on the LCD display and control panel.

Above the power button is a pop-out rotary volume control for both the internal loudspeaker and headphone levels. Connecting headphones to the unit disables the external speaker.

Setting the recording levels is via a dual concentric rotary control. Left/right levels typically are adjusted simultaneously and identically, although it is possible to set different levels for each.

Most of the other push-button controls on the unit are reminiscent of a standard analog cassette tape recorder — play, record, fast-forward, reverse, pause and stop.

In addition, there is a mark button used in conjunction with editing functions, as well as skip-forward and -back buttons for jumping to the next or previously recorded item or marked point.

Helpfully, the design includes a sliding lock control that locks front-panel controls except the mark and record buttons. An amber LED lights up next to the switch when it is activated.

Setup of the Easycorder is via the front-panel LCD display. Many functions are password-protected, allowing the maintenance department to preset the controls and preventing journalists from making incorrect adjustments in the field. These supervisor-mode adjustments

include password setup, creation of audio presets and various system parameter adjustments.

The most important of these options is the ability to create a new audio preset. Each preset includes a variety of parameters, including recording algorithm, mono or stereo mode, sampling and bit rates, and file format.

Any engineer should take care to power-down the unit to escape from supervisor mode before passing the unit over for use by non-engineers; otherwise, all the setup parameters remain adjustable.

The excellent dynamic range of the Easycorder, means that for typical interview situations the limiter almost inevitably will be required.

If there is one criticism of the design of the Easycorder it is that the microphone level and limiter controls are real switches rather than software based, which makes them relatively easy to mis-set in the field. A caveat: Over-recording in the digital domain sounds even worse than its traditional analog counterpart.

Useful features

On the plus side, one particularly useful operational feature for journalists is described as "timeshift recording." By pressing the record button for more than one second, an interview can be started but nothing is recorded to disk.

Instead, the Easycorder stores 20 seconds of audio in RAM. Once the interview gets properly under way, the journalist pushes record a second time and this 20 seconds and all subsequent audio are stored to the internal hard disk or flash memory card.

Another advantage of Easycorder is its ability to add markers during an interview or during subsequent playback to aid later editing.

Playback mode is essentially the same as with a traditional cassette recorder. It is in the edit mode that the digital nature of the design really comes into its own.

As a digital audio work station, the Easycorder includes features such as slow-speed playback, cut, copy, insert/paste, redo and undo.

In the edit mode, the front-panel display provides a simple graphical display of the recorded material. Although, being an LCD display, it lacks the resolution of a desktop sound editor, this is perfectly usable for most applications in the field.

All editing on the Easycorder is non-destructive, using an edit decision list (EDL). When an edit is made, the original recording is simply "marked" to indicate what should and what should not be played in a given recording, together with the order of playback.

In general, the Easycorder is just as its name suggests — easy to use. It manages to combine this ease of use with considerable flexibility and high-quality audio performance.

Interfacing with external systems has been carefully thought out, be it via a wired connection or simply by transferring via a PCMCIA flash memory card.

The ABS and metal case, combined with external carry case, looks as if it would stand up to less-than-ideal operating conditions, and six hours of battery life is adequate for normal work.

■ ■ ■

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Tech Director's Log: July 4, 1999

Rich Rarey

When walking the halls at NPR, we found an old sheaf of papers on the coffee-stained floor. They appeared dog-eared, stained with sweat and tears — which made them very interesting to us.

When we realized that it was a sort of diary about a summer gig, we knew we had to publish. This, then, is the raw, uncut narrative of NPR Technical Director Michael Schweppe, and his experiences working on the July 4 broadcast on the National Mall in Washington, D.C.

10:00 hours It was one of those really hot Independence Days. I mean it was really hot. It was already in the 90s at 10:00 when I arrived at our Nation's Mall. I started sweating moments after I arrived. It was supposed to reach 102 degrees.

All along, I felt an underlying

Everything seems to be running smoothly. I am still uneasy.

uneasiness about this year's Independence Day Concert from the foot of the Washington Monument. Everything was going too well. The ISDN lines were installed by my second visit to the Mall. (It usually takes three or four visits, looking for the telephone guy each time; asking questions, calling HQ, complaining to Ma Bell, etc.)

Then the phone installation guy actually called me to tell me the installation was complete, just like he said he would. To my amazement, the lines worked on the very first test.

This made me anxious! I told everyone I wasn't feeling comfortable about this good luck.

16:00 The lawn in front of the Sylvan Theater wasn't very full at show time. At this time last year, a much larger audience arrived for the afternoon show. It was too hot! People were waiting for the heat to subside. (Ed. Note: The Sylvan is an outdoor stage near the base of the Washington Monument.)

The afternoon show went just fine all the same, except that the music mix was really mono. I had several conversations with the music mix engineer. He normally did stage monitor mixes and his work sounded like it. He refused to "hard pan" instruments. We talked several times and the mix finally showed improvement during the evening show.

18:00 The show starts off fine.

18:03 NPR Master Control calls:

Much confusion about which ISDN unit is connected to which source. There is much more confusion about our backup ISDN line. Meaning: They missed taping the first three minutes for the rollover.

On-site recording

Fortunately America doesn't suspect and we are recording on site.

Many cellphone conversations ensue. We need to get our tape to NPR HQ. After no runner from our site can be found, the Master Control tech offers to brave the horrific traffic around the Mall on his motorcycle and come pick up the first hour tape. What

a guy!

I don't even want to know how he plans to fix the tape. He says he'll take care of it.

19:30 The tape is picked up and everything is running smoothly. I am still uneasy.

20:20 (Approximate time) I slip into the men's room, and the lights go off. This is not a good sign.

I then get an urgent call on my wireless com from the director, Marika Partridge. She calls out "Michael, emergency. Come back to the truck immediately!"



I zip up and try to call her back. My Com is dead. I run back to the truck. The truck is dim and already getting warm. Marika tells me the electricity went dead.

Ron Freeland, ENC for the Big Mo remote truck, is at the breaker box with his Volt Ohmmeter. He says we lost one leg and we are down to 67 volts. Of course I know the truck needs 240 volts to work!

See PUBLIC DOMAIN, page 80

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Meeks Was PAMS Leader

► MEEKS, continued from page 75 that allowed the "singer" to articulate sounds played by various musical instruments.

With someone playing a flute or trombone into a microphone, the sonovox user put a couple of hand-held speakers up to his throat and

with oldies stations today.

More hits more often

Meeks used various techniques to achieve his sounds, including all-male and all-female vocal groups. One singer recalls a group being asked to "sing into a paper cup against a glass

PAMS. "Bill had a lot of unique ideas and he was a great salesman, too."

For years, Meeks held an annual company picnic at Lake Texoma on the Red River near Oklahoma.

"He was fair with his employees, and we all had a lot of fun," Piper said.

Two of the most influential top 40 stations in the 1960s and early 1970s were WABC(AM) in New York and WLS(AM) in Chicago. PAMS produced their hottest jingles. These call letters were used on demo tapes that were widely distributed. Many medium- and small-market stations heard them and wanted to pattern themselves after WABC and WLS.

Overseas

PAMS picked up clients in other countries including BBC Radio One and Radio Two in England and several stations in Australia and Canada.

"Bill Meeks and the PAMS sound were vital to Radio One," said Tim Arnold, a British radio consultant and lecturer at London's University of Westminster and owner of his own archive of PAMS jingles.

PAMS also produced jingles for several U.K. "pirate" stations of the 1960s including Swingin' Radio England and Britain Radio.

"These added American slickness

Meeks founded PAMS, which stood for Production, Advertising, Merchandising Service.

"whispered" the words into a separate microphone. The net result: it sounded like the instrument was singing.

Meeks used it on jingles. PAMS Series 18 ("Sonosational") was the first package to use this concept. Piloted for KFWB(AM) Los Angeles and WIBG(AM) Philadelphia, Series 18 started a national trend.

These catchy jingles immediately were syndicated to hundreds of radio stations in 1961 and are still popular

window" to achieve a unique sound. Through the 1960s and early 1970s, PAMS created the jingles everyone talked about.

Carol Piper was a PAMS singer for 10 years. She believed the secret to Bill Meeks' success was his ability to hire the best people.

"He also was able to create a family atmosphere, which is possibly missing from the industry today," said Piper, whose husband Bob was a writer for



A PAMS Package From 1965

and excitement to popular radio here," Arnold said.

Company rebirth

PAMS closed in September of 1978.

As related by the company Web site, "In the late '70s PAMS experienced financial problems, which ultimately forced the company to suspend operations. But the corporation was never dissolved or in bankruptcy."

In 1990 its stock was purchased by former employee Jonathan Wolfert, the president of JAM Creative Productions.

The company once again is producing jingles under the PAMS name.

According to the firm, copyrights for the PAMS jingles are held by the original corporation.

"But during the years that the company was inactive, several other parties offered re-sings of classic PAMS jingles under the PAMS name," the Web site states. "In order to avoid any future confusion, it became necessary to use the legal system to resolve various conflicting claims. Happily, a settlement was reached in this regard in February, 1997."

For more about Bill Meeks, visit the company Web site at www.PAMS.com

Meeks is survived by his wife Marge, two children and six grandchildren.

■ ■ ■

Ken R. is owner of Ken R. Inc., a PAMS licensee and producer of PAMS re-sings. He is a regular contributor to RW.

A Power Scramble on the Fourth

► PUBLIC DOMAIN, continued from page 79

Ron reconfigures the truck to run on single phase, 110 volts. Somehow we manage to stay on the air. Later, I am told only a slight digital glitch is heard. The mixing console is still operating but not much else. We lose Com with the stage. Luckily, I have a great crew. Engineer Flawn Williams keeps a cool head, as does the director.

Shut up!

The music mix truck goes down, the band plays on. Flawn immediately turns on Nick's (the on-stage host) mic to get something — anything. Marika tells Nick to shut up. We are now using his mic to hear the gospel group.

I run back to the stage and point the closest two of my six audience mics toward the stage. At least you can hear the gospel group. It's a fuzzy wall of

The producer, sitting on the stage at our broadcast table, is confused. She knows the score but she still thinks the time is 20:20. (Note to self: Make sure all clocks are battery powered!!)

20:45ish The music mix truck comes back online. I run back to the stage and reposition the audience mics.

We still don't have any tape machines working to play the prerecorded close credits. We will just have to do them live. Meanwhile the gospel group gets louder and louder. I run to the Big MO truck and grab two of our heavy packing blankets. I use them to build a tent, shielding

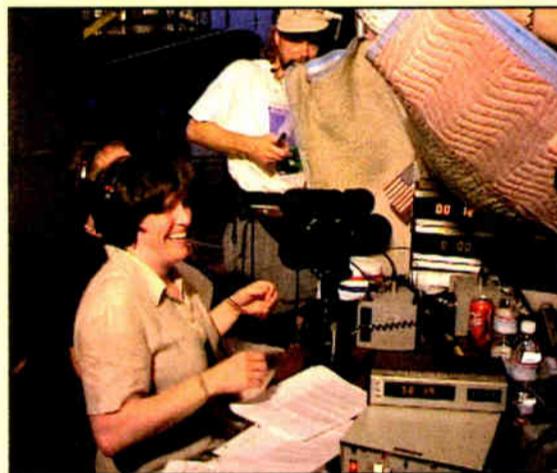


Photo by Mark Greenhouse

Co-host Fiona Ritchie is amused by the extent to which Technical Director Michael Schweppe (rear, biting a moving blanket, with flashlight in hand) tries to shield her and co-host Nick Spitzer from the stage performance.

moving blanket, freeing my right hand to find my trusty flashlight in my tummy bag. I hear Nick read my name to America.

The show ends on time. I am happy.

Days later I am told that the listeners had no idea that anything was wrong. This is good, very good.

I was very lucky that night. The audio gods gave us just enough juice to stay on the air. However, it was not luck, but the talent and cool heads of my great crew that knew how to maximize those 67 volts to keep us alive.

■ ■ ■

Rich Rarey is an SBE-certified Audio Engineer with National Public Radio. He can be reached at rrarey@npr.org

The hosts have little light. I bite the dirty moving blanket, freeing my hand to find my trusty flashlight in my tummy bag.

sound and it ain't pretty.

In the meantime, the stage monitors have gone down. Luckily, the house PA is still booming away. Shirley Caesar keeps asking for more volume on her mic.

the hosts from the on-stage audio assault. Mark Greenhouse holds one end of the blanket while I hold the other end.

I quickly realize the hosts have little light as they are reading the closing credits. So I bite the corner of the dirty

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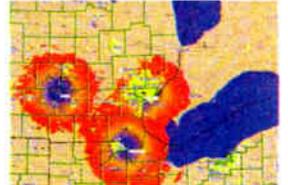
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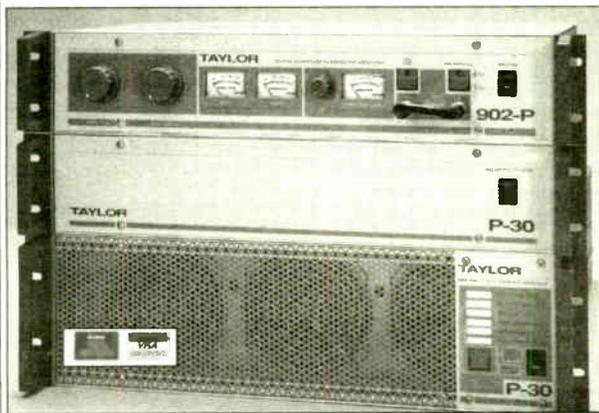
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1KWatt	\$9,064	40 Watt	\$5,823
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Business Opportunities	Receivers	Equipment
Cart Machines	& Transceivers	Test Equipment
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ACTION-GRAM

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 - A. Commercial AM station
 - K. Syndicators Service Providers
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 - B. Commercial FM station
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 - C. Educational FM station
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 - N. Delivery Service (Internet/Cable/Satellite)

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 - B. General management
 - E. News operations
 - C. Engineering
 - F. Other (specify)
 - J. Promotion
 - K. Production Mgt or Staff
 - H. Programming/production

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*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by lister.

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◆ READERS FORUM ◆

'A red herring'

Dear RW.

In reference to Bruce Bartlett's article "CD Players Distort CD-R Sound?" (RW, Sept. 15), I think the CD-R issue may be a red herring.

When I find a CD (silver or home-burned) that sounds good on the stereo but badly distorted on the air, most of the time the problem is excessive difference signal. Marty Elliot should play his CD into an oscilloscope set in XY mode — left channel to the horizontal input, right channel to the vertical. If a lot of trace shows up in the upper left-hand and lower right-hand corner, that means there's a lot of out-of-phase material, which is overloading the difference signal portion of the composite signal.

This phenomenon doesn't necessarily have to come from out-of-phase material — a disc with excessive separation can do this, even if the material's in phase — but it often does, which is why the scope check is useful. Alternatively, he should try subtracting one channel from the other; if the result is large, there's the problem.

This has nothing to do with the format; the same problem crops up in recordings on tape, commercial CD and even on LPs (although usually material with this much difference signal won't cut properly on LPs anyway!)

Paul J. Stamler
Techie, Folk-Music Programmer
KDHX(FM)
St. Louis

Here's your license

Dear RW.

You ask what would programming be on an LPFM and are we ready? As a member of a community group that has been in an MX with numerous Christian groups for two different frequencies for several years we are ready.

We currently are broadcasting on a very limited basis on the Internet and are working toward cable broadcasting. We have a studio, music library, production capabilities, experienced radio personalities and a tremendous need for a community-based station in the Ft Collins, Colo., area. Could we have it ready in a month? YES! All we need is a license from the FCC.

What would we program? Local music, live music, interviews with local and touring bands, folk music, bluegrass,

jazz, blues, world music, classical, local news and public affairs, news and features produced by schools, open debates on local and regional issues and political races, support for the arts and other non-profit groups, and we would provide access for anyone who wishes to have a voice on the airwaves.

None of these services or music are currently available on the corporate-owned stations in town or on the mass-market NPR affiliates that reach Ft Collins.

We won't please everyone, but we can be a true community-builder in the increasingly corporate-dominated world.

Greg Krush
Board of Directors
Public Radio for the Front Range
Ft. Collins, Colo.

Dear RW.

In reference to your editorial "Here's Your License" (RW, Sept. 15), if I were given a license today for an LPFM I know exactly how I would program it.

I live in a community that has about 15,000 Afro-Americans and there is no programming for Afro-Americans 35 and up. The format would be geared toward these adults with personality radio — something that you don't find on radio stations today.

Also, my station will be entertaining and informative to the community. There is a need for LPFM stations so that people can hear something other than what the powerhouse stations play and say. Did anyone ever stop and think that maybe the reason why broadcasters are so upset is they're afraid of the competition?

Gary Belt
President
BOO Communications
Danville, Ill.

Oopsie

Dear RW.

In your Sept. 1 issue, page 14, you quote from a letter from ABC Inc., which should have been proofed by one of the older engineers on their staff.

While being an archivable technician myself, FM stations, low power or not, need not use linear amplifiers ... the audio signal is not reproduced in the RF wave form. Also, in my humble beginnings in college radio at WMUA(FM), we learned that ERP is measured after

How About Multichannel?

Ready for multichannel radio? As we reported in the Sept. 16 issue, the folks who represent consumer electronics makers are out with a proposal called Mobile Multimedia Broadcast Service.

The MMBS proposal may never become reality. Yet it is another piece of evidence that radio/audio services could look much different someday. Radio must monitor these trends if we are to make informed decisions about technical matters like IBOC radio.

The proposal by the Consumer Electronics Manufacturers Association would use bandwidth now occupied by certain UHF TV channels. Broadcasters on those channels are supposed to surrender them in 2006 in the transition to digital TV.

CEMA would like the FCC to use this 36 MHz of aggregate spectrum for a new, local service of multichannel audio and high-capacity data, with robust mobile reception — in other words, a strong competitor to radio as we know it.

The proposal raises many questions about technology, regulation and programming. Not the least is whether TV stations will go along quietly and turn in that spectrum, on time. Another issue is whether the FCC will auction that space much sooner, as may happen in coming months, before the MMBS proposal gets any further.

But one important underlying question is this: In an age when consumers will become accustomed to multichannel digital services, to entertainment sources such as satellite radio, DTV, DVD-Audio, Super Audio CD and perhaps MMBS, will radio be able to compete?

If in-band, on-channel digital radio finally comes to pass, can it support more than the existing radio services and modest data services? Should it? Will consumers expect multichannel performance from their new digital IBOC radio receivers? Will digital radio that delivers "CD quality on FM, and FM quality on AM" be competitive? Will it satisfy tomorrow's consumers?

Important questions.

We still believe in the promise of IBOC in a digital world, and we're skeptical that MMBS can come to pass given the existing political landscape.

But now more than ever, IBOC proponents must deliver service that is better than what we have now, and do it quickly.

— RW

factoring in the gain of the antenna, not at the output of the final amplifier.

Brad Rohrer
Owner
Wireless Works
Annapolis, Md.

LPFM ideas

Dear RW.

I was one of the thousands who filed formal comments to the FCC about the proposed LPFM service. Your article in the Sept. 1 RW ("Interference Wars Dominate LPFM") was well-done and it was interesting to read additional opinions on the issue.

In the published analyses of the LPFM comments to date, I have not yet seen mention of an alternative solution that I brought up in person at the FCC session at NAB99, and which I also heard from other engineers at those sessions.

There are two possible mechanisms for adding additional spectrum to the existing FM band. When DTV totally replaces analog, a portion of the current Channel 6 TV allotment could be used for a variety of communications services,

including LPFM. Also a portion of aeronautical navigation band above 108 MHz could be made available to LPFM as GPS replaces the current VHF navigation service in that spectrum.

As mentioned in the article, "Chairman Kennard has made it clear ... that LPFM is a priority for the commission." I question just how much of a priority LPFM is when it comes to considering spectrum that could be auctioned off to fill FCC coffers.

Lewis Downey
Engineer
KUER(FM)
Salt Lake City

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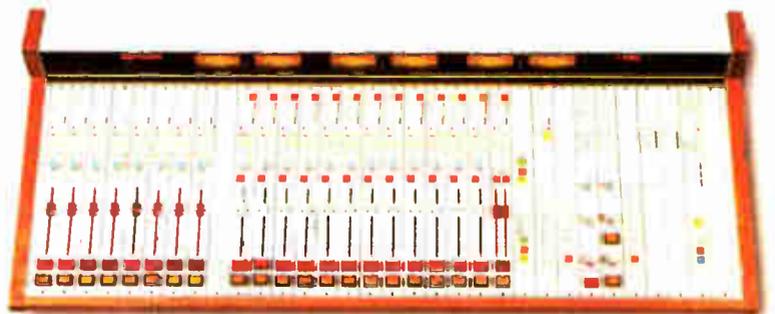


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