

Viral Protection

Shield yourself from e-mail viruses with these tips from Barry Mishkind.

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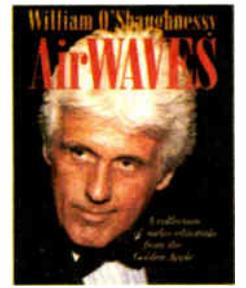
The Squire Speaks

Broadcaster and free speech advocate William O'Shaughnessy is out with a new book of tasty radio editorials.

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Radio World

The Newspaper for Radio Managers and Engineers



September 29, 1999

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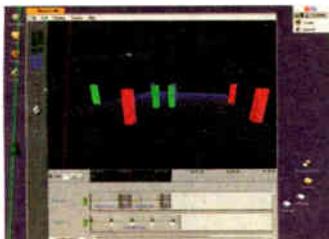
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In Orlando, Radio Ponders LPFM, Net

Attendance Dropoff Joins Issues of Low-Power Radio, Internet and DAB as Buzz at NAB Radio Show

by Leslie Stimson

ORLANDO, Fla. The triple threats to radio from possible new low-power stations, the Internet and satellite-delivered digital audio programming services were

blamed the timing of the show and the effects of ownership consolidation.

Projected attendance was approximately 6,000, according to NAB, compared to 6,800 for last year's show in Seattle and 7,246 in New Orleans the



Orange County, Fla., Convention Center

on the panels and in the minds of attendees at numerous sessions at The NAB Radio Show in Orlando.

Attendance at the show was down from last year. Organizers and exhibitors

year before.

Some exhibitors thought the figure much lower, and pointed to unused exhibit space in the back of the hall to

See SHOW, page 6 ▶

NAB Seeks Attendance Boost in Fall

by Paul J. McLane

ORLANDO, Fla. The NAB will encourage group members to hold their management meetings during the annual fall Radio Show, in an effort to increase attendance.

Executive Vice President of Operations Jack Knebel made the commitment after meeting with representatives of exhibitors during the 1999 show in Orlando. Many suppliers expressed strong disappointment with attendance this year.

Total attendance

The NAB estimated total attendance at around 6,000, although it did not release a final official count immediately after the show. Last year's figure was 6,800.

Knebel estimated there were approximately 1,650 full paid conference registrants. The rest were exhibitor guests, board members, media and other participants.

Organizers blamed the drop in attendance on the timing of the

See FLOOR, page 7 ▶

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◆ NEWSWATCH ◆

Pirate Conviction Stands

TAMPA, Fla. The United States Court of Appeals for the Middle District of Florida upheld the 1998 conviction of Arthur Kobres on 14 counts of engaging in unlicensed radio broadcasting.

Kobres, 54, was convicted after the government said he continued to illegally broadcast shortwave programming on 96.7 MHz from November 1995 through September 1997.

The FCC warned Kobres that his actions were illegal and that he needed to obtain a license to air the broadcasts. The

government twice seized his equipment. Kobres was sentenced to six months of home detention and 36 months on probation, and ordered to pay a \$7,500 fine.

Kennard Submits Restructure Plan

WASHINGTON FCC Chairman Bill Kennard has delivered a draft of his plan for a re-do of the FCC to Congress. The plan envisions that in five years, the country's communications markets will have so much competition that the need

for direct regulation will be reduced.

The restructuring of the FCC was anticipated by Congress when it passed the 1996 Telecommunications Act. As announced this spring in Congress' FCC reauthorization hearings, one of the first changes to affect broadcasters would be the organization of licensing application and enforcement functions into their own bureaus, rather than by industry. The test agent would be the enforcement bureau, set to open this fall.

The FCC already has mandated electronic filing of applications and other forms. The plan proposes to trim the processing time for uncontested applications to 60 days.

Rep. Billy Tauzin (R-La.), chairman of the House Telecom Subcommittee, said reorganizing the agency is not enough. He plans to introduce comprehensive FCC reform legislation this fall to restructure the commission and limit its authority in such areas as low-power and telecom merger review.

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DIGITAL NEWS

FCC Speaks Out on IBOC, Sort Of

Commission Targets Fall for IBOC Proceeding While NRSC Wrestles With Its Next Step

by Leslie Stimson

Later this fall, the FCC plans to launch a proceeding for in-band, on-channel digital audio broadcasting in this country.

Depending on how detailed the next step is and how much direction the document gives, the proceeding may make life clearer for the National Radio Systems Committee, the standards-setting body that is grappling with IBOC now.

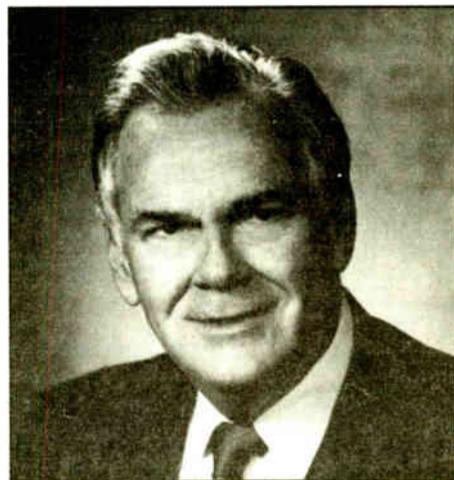
Earlier this year, in a statement about the possible creation of a new low-power service, FCC Chairman Bill Kennard said the commission would begin an IBOC DAB proceeding this summer.

During The NAB Radio Show at the beginning of September, Keith Larson, associate bureau chief for engineering at the Mass Media Bureau, said it was more likely the DAB document would be out this fall.

He said it was premature to speculate on whether the commission would issue a Notice of Inquiry, or proceed to a Notice of Proposed Rule Making. He spoke during a session titled "DAB Update Panel: How Close Is The Future of Radio?"

Larson said the proceeding could give some guidance as to how the process for selecting a standard would unfold, but he could not be specific.

He said the FCC has been monitoring the developments at the NRSC in



Charles Morgan

which the companies developing IBOC technology, plus equipment manufacturers, have been participating in a voluntary process that may lead to the selection of a standard.

The NRSC, which is a joint body

representing broadcasters and electronics manufacturers, met during the Radio Show. Committee Chairman Charles Morgan and DAB Subcommittee Chairman Milford Smith said participants discussed further testing, after the current rounds of lab and field testing are completed and submitted for evaluation.

'Common testing'

Among the issues on the table is so-called "common-testing," in which each system would be tested in the same lab and on the same station, for system-to-system comparisons (RW, Aug. 4). Morgan, Smith and other committee members told RW that no decision has been made about common testing. However, the committee is developing criteria to be used in case that is the direction the committee wants to take later.

Among the decisions on which participants would have to agree for common testing to take place are the lab and stations to use, how to pay for tests, and the test criteria to be used.

Last spring, all three IBOC proponents agreed to submit complete AM and FM lab and field test data to the NRSC for evaluation by Dec. 15. Later, Lucent Digital Radio said it had been pushing for common testing for months, and had not yet decided whether to sub-

NEWSWATCH

Stearns, Oxley Lobby on LPFM

WASHINGTON House Commerce Committee members Reps. Cliff Stearns (R-Fla.) and Michael Oxley (R-Ohio) believe the results of NAB's receiver interference studies on low-power are "compelling."

In a letter to the FCC, Stearns and Oxley stated, "Such a low-power service would cause significant pockets of interference in large and medium markets. We cannot see how the commission — given that finding — could proceed with this new service absent its own data that dispute that finding unequivocally."

Both urged the FCC to report back to Congress before taking action on low-power.

mit data by the Dec. 15 date.

LDR President and Chief Executive Officer Suren Pai told Radio World that was still the case. He said someone, preferably the FCC, should be providing leadership on the objectives for IBOC and then the test criteria would come out of those objectives. So far, he said, the process has not been clear on these points.

"What we're trying to do is expedite the

See NRSC, page 16 ▶

DIGITAL NEWS

LDR Makes First DAB Receiver Deals

by Leslie Stimson

According to a survey released by Lucent Digital Radio Inc. during The NAB Radio Show, 56 percent of radio listeners want digital radio.

Lucent also announced its first deals

radio consumers want more stations and 46 percent strongly favor the delivery of new types of information from an enhanced display.

"The survey confirms that consumers are eager for the next generation of radio," said LDR President



Photo by Paul J. McLane

LDR President and CEO Suren Pai, left, poses with EVP and GM of Recoton Accessories Terry O'Flynn.

with receiver manufacturers, Harman Kardon and Recoton Corp., as it works toward commercialization of its in-band, on-channel digital audio broadcasting system.

The survey of 900 consumers, conducted by Stratford Research, found that 34 percent of potential digital

Suren Pai. "When they consider the potential benefits of digital radio, a very clear wish list emerges."

Lucent envisions new in-band, on-channel digital receivers that will be equipped with display panels that show streams of digital information, such as

See LUCENT, page 5 ▶

WHAT COMES AFTER DIGITAL?

In the beginning, there were stone axes. Then came fire, the wheel, and the steam engine. Then came analog audio and then digital audio. What comes next?

Certainly the stone wheel must have looked to the caveman to be the greatest discovery that ever could be. And to the simple farmer of the 1800's, the steam engine was the most modern contrivance that his mind could imagine. But neither was a terminal technology. Both have been replaced as time marches on.

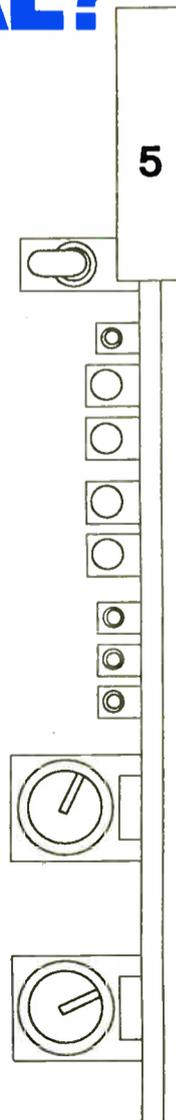
Digital audio is also not a terminal technology. It is simply where we are now.

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5



Deals, Spiels and Soccer Stars

Tidbits, flotsam and jetsam from The NAB Radio Show ...

IBOC digital radio is a lot closer to reality, if we can judge by the number of manufacturers now working publicly with the proponents.

USA Digital Radio and Lucent Digital Radio in particular have issued flurries of press releases in recent months about various partnerships and alliances with the folks who make transmitters, antennas, combiners, processors and other enabling technology.

★ ★ ★

Another broadcast owner has purchased one of its prime suppliers.

Cumulus Media announced at the show it will buy audio software developer Broadcast Software International. You might have seen it coming: just a few weeks earlier, Cumulus announced it would standardize its stations on BSI software (RW, Sept. 1).

At that time, the executive chairman of Cumulus said BSI products were "most

buying their supply lines, to better control costs and protect sources.

The BSI deal fits that mold. But wait — at the same show in Orlando, Prophet's Kevin Lockhart said he wants to buy his company *back* from AMFM.

The Capstar deal helped Prophet grow, he said, but AMFM wants to focus on radio, and Prophet wants to expand into other markets like entertainment venues.

I asked Lockhart if customers owned by other broadcast groups had complained about trusting their computer systems to a company owned by a competitor. He said existing clients had not complained, but he admitted that some potential clients had expressed concerns about it.

Watch closely to see what Cumulus does with BSI, and whether the BSI success story will continue under the new ownership.

★ ★ ★

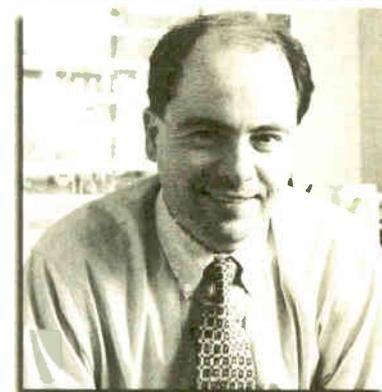
A few more of my favorite moments of the show:

Wally Amos in his watermelon shirt, watermelon shoes and watermelon kazoo, drawing from his experiences as founder of Famous Amos Chocolate Chip Cookies.

Bill Stakelin of Regent Communications, winner of the National Radio Award, strongly criticizing the concept of LPFM and demanding proper respect for radio as a business. "Profit is a good word. We don't need to apologize to anybody."

The on-air announcement on Cox station WMMO-FM, as that station began to air a live IBOC hybrid signal, all timed to a press

From the Editor



Paul J. McLane

event in the USA Digital Radio booth.

The look on the faces of visitors to the NAB/OnRadio party at Universal Studios Escape theme park, as they got on and off The Hulk roller coaster. What a ride. Nice party, guys: I hope you covered your costs on *that* one.

And the visit by World Cup heroine Michelle Akers of the U.S. Women's Soccer Team. Her show tour included a stop in the convention pressroom, where I caught her on film, clowning with John Cullen of AMFM.

Next issue, we'll tell you about the most interesting new products and services introduced in Orlando.

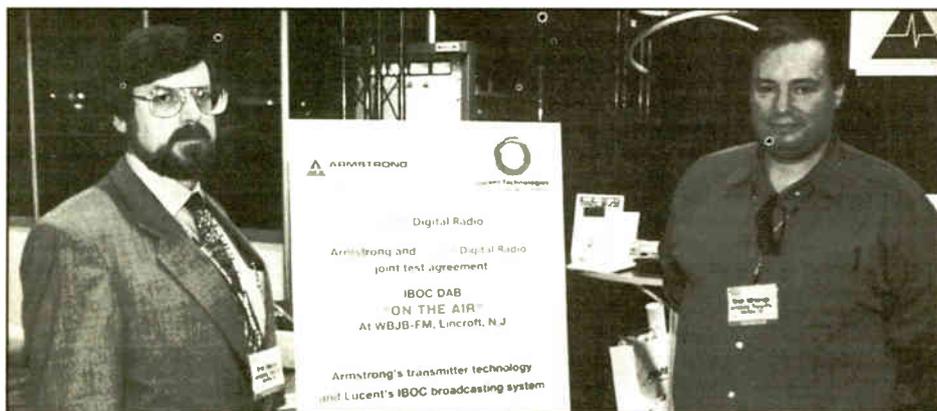
★ ★ ★

And I'm pleased to welcome Paul Cogan to the staff of **Radio World** as editor of the *Studio Sessions* section.

Cogan has experience in broadcasting as well as live and studio sound. Among his numerous professional credits, he has worked as head sound engineer for Ashkenaz in Berkeley, Calif.; as an engineer at Bay Records; and as a broadcast announcer for radio stations on the West Coast.

His free-lance work includes live performance sound work at the Smithsonian Folklife Festival, Arlo Guthrie and other events. He brings recording, mixing, editing and bench skills to the job.

If you have a product you'd like to see reviewed or a suggestion for *Studio Sessions*, send e-mail to pcogan@imaspub.com



Ernie Belanger and Sinan Mimaroglu promote Armstrong Transmitter's test agreement with Lucent Digital Radio and IBOC tests in New Jersey.

On-air tests and high-profile press conferences are good things to help generate excitement over the promise of IBOC. But I sense a healthy dose of skepticism among many radio people who have been listening to digital promises for many years.

The time is now, they say, and may be passing as we wait.

With the NRSC industry standards group pushing for test results at the end of the year; with the FCC watching keenly; with the NAB citing DAB in its efforts to fight low-power; with digital satellite radio now months away; and with television trying to figure out whether digital will deliver on its promises, the window of opportunity for IBOC is here.

It's time for all the proponents to do whatever is necessary, including cooperate more, to make IBOC a reality.

compatible with our plans." I'll say!

Just last year, we watched with interest as another computer-based company, Prophet Systems Innovations, was bought up by Capstar Broadcasting Group (now AMFM Inc.). We wondered if this signaled a trend in broadcasters



Soccer star Michelle Akers gets fashion advice from radio mogul John Cullen.



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DIGITAL NEWS

USADR Airs Live IBOC Signal

by Leslie Stimson

ORLANDO, Fla. USA Digital Radio aired a live, over-the-air, in-band, on-channel digital signal at The NAB Radio Show and added several companies to its coalition of manufacturers developing IBOC equipment.

Cox Radio station WMMO-FM in Orlando provided the live signal during the show. Live, over-the-air WMMO-FM

broadcasts were used for exhibit hall demonstrations and field test activities using one of USADR's test vans.

"The demonstration of our new IBOC DAB system at this year's NAB Radio Show culminates nearly a decade of research, development and test efforts aimed at delivering digital radio services to broadcasters and their listeners," said

IBOC DAB system.

USADR welcomed Continental Electronics Corp. to its coalition with the announcement that the companies have an agreement to develop and market transmission equipment.

"CEC already uses the same chip platform and advanced FM modulation techniques in its FM exciter that USADR

take CEC about six months to develop a kit that would allow stations to upgrade their newer, existing exciters to ones that would be able to handle the hybrid IBOC/analog signals.

CEC had an in-hall demonstration of the USADR IBOC system originating from its booth using its PowerStar F2, a 2.5 kW transmitter and a mobile station rack that included a USADR test exciter to transmit an analog/IBOC signal to a dual-mode test receiver in USADR's booth.

USADR announced development and marketing agreements with several other equipment manufacturers including Energy-Onix Broadcast Equipment Co. (transmitters), Orban (audio processors), Telos/Cutting Edge (audio processors) and Andrew Corp.'s Passive Power Division (high-performance filters, combiners).

USADR and Shively Labs have broadened their previous combiner developer agreement. They will work together to develop and market advanced filter and RF technologies.

Attendees were able to see other examples of USADR's development efforts with manufacturers in the exhibit hall, including the USADR IBOC waveform being passed through AM transmitters at the booths of Nautel Limited and Harris Corp.

USADR's development efforts with several outside parties include Xetron Corp., Fraunhofer Institut, BittWare Research Systems, Nautel Limited, QEI Corp., Broadcast Electronics, Kenwood Corp. and Texas Instruments. © 1999 NAB

LDR: 56% Of Listeners Want Digital

► LUCENT, continued from page 3 local severe weather alerts through the Emergency Alert System, traffic reports and stock information.

Many of the respondents said they would immediately upgrade to a digital radio once it becomes available, rather than wait to replace their radio. Interest was strongest in the 16-24 age group, where almost 70 percent said they would be interested in a digital home receiver and another 62 percent said they would be interested in a digital car receiver.

LDR has announced it will develop prototype receivers compatible with its IBOC system for both car and home with Harman and Recoton. Recoton and LDR will also market the receivers.

"The consumer retail channel has a very strong relationship with Recoton, and we believe that their efforts in helping to develop IBOC receivers will help prepare the industry for this critical transition from analog to digital," Pai said.

Tom McLoughlin, president of Harman Consumer Products, said, "We combine our experience in the consumer marketplace with Lucent's IBOC and Perceptual Audio Coder technology."

LDR also recently announced a testing agreement with Continental Electronics Corp. for transmission equipment. LDR is also developing prototype IBOC transmitters with Armstrong Transmitter Corp., Broadcast Electronics, Nautel Ltd. and QEI Corp. It is developing prototype IBOC audio processors with Orban and Telos Systems and combiners with Electronics Research Inc.

At its booth, James Loupas of James Loupas Consultants in Coppell, Texas, gave end-to-end demonstrations of its IBOC system, showing the air chain from the studio-to-transmitter link, to the transmitter, to the combiner and to the listener.

LDR is a new venture owned by Lucent Technologies and Pequot Capital Management Inc. © 1999 NAB



WMMO's Debbie Morel (left) and Fleetwood Gruver

USADR President and Chief Executive Officer Robert Struble.

Sterling Davis, vice president, engineering, Cox Radio, said, "As an owner of USA Digital Radio, Cox Radio looks to a digital future with tremendous enthusiasm."

WMMO-AM-FM Operations Manager Fleetwood Gruver said the station is building a new transmitter site for its AM (Music of Your Life) and FM (Rock/AC) stations.

"The FM transmitter facility is completed," Gruver said. "For the AM, the building is done, but we still need to build the tower arrays."

He said the AM transmitter facility is being rebuilt, and the FM has been moved from its offices a couple of miles west of downtown Orlando. Gruver said the people at his station are excited about IBOC digital technology.

"If you can't do that, I don't see anybody buying new radios," Gruver said. "IBOC is where it's at in this country."

Cox Radio is one of 14 owners of USADR. Investors include all of the top 10 radio groups.

For the WMMO-FM tests, USADR aired a hybrid analog/IBOC signal and claimed no interference to the host analog signal by the digital signal.

Glynn Walden, USADR vice president of engineering, said there were no problems with multipath interference.

There was no change to WMMO's equipment for the analog signal. For the IBOC signal, he said the full USADR FM waveform was being passed through a studio-to-transmitter link, a USADR test IBOC exciter and an Orban audio processor. WMMO-FM is using a 5 kW QEI transmitter.

The IBOC and analog signals were combined using an Andrew Passive Power combiner before going up WMMO-FM's single antenna at 44 kW of analog power and an ERP of less than 400 W digital on 98.9 MHz.

Attendees heard the IBOC signal in the exhibit hall at USADR's booth using a USADR prototype receiver.

USADR has extended several agreements with equipment manufacturers to continue development of gear that will be compatible with the USADR

uses in its IBOC system," said Dan Dickey, CEC vice president, engineering.

Dickey estimated that once a single IBOC DAB standard is chosen, it would

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Radio Show Attendance Was Down

► *SHOW*, continued from page 1
back up their claims.

"Some exhibitors just bought space this year to hold their place in line for next year," said one exhibitor.

NAB President and Chief Executive Officer Eddie Fritts said exhibitors "showed increasing enthusiasm" as the show progressed.

Fritts said NAB recognized that timing the show so close to the Labor Day weekend holiday could be "problematic." He also said the fact that Hurricane Dennis was hovering off the Atlantic Coast throughout the show may have convinced some not to drive to Orlando. Fritts also said some stations may have sent fewer people than last year.

Fritts was optimistic about next year, when the show returns to San Francisco in late September.

Even with price increases for exhibit space next year, he said he was confident that NAB could sell more exhibit space in San Francisco than it did in Orlando. Exhibitors this year numbered at 220, spread out over 58,900 square feet at the Orange County Convention Center. The NAB said 61 exhibitors took part for the first time.

The dominant buzz in the hallways and in sessions was the FCC's proposal to create a new class of low-power FM

stations. Commission Chairman Bill Kennard said he had not seen such interest generated in any other topic in his tenure as chairman.

He reiterated what he said a year ago in Seattle. "The FCC is committed to preserving the technical integrity of FM radio and is committed to a digital future for radio," he said.



FCC Commissioners Harold Furchtgott-Roth and Gloria Tristani

He does not believe the twin goals of LPFM and radio's digital transition are inconsistent.

In an FCC study of how different types of receivers could reject potential LPFM interference, Kennard said all of

the radios tested exceeded the current interference protections for third-adjacent channels and all but two receivers exceeded current interference protection standards for second-adjacent channels.

Kennard also repeated his call for the return of the minority tax certificate program, which allowed owners to defer capital gains tax on the sale if they sell

their broadcast properties to minorities. Kennard said, "We all know the tax certificate works. It's a win-win. We need to bring it back."

He commended CBS Chairman Mel Karmazin and Clear Channel CEO Lowry Mays for their efforts to open up the business to minorities.

Low-power radio was one topic addressed by FCC Commissioner Gloria Tristani in her first appearance at a Radio Show.

Tristani said competition among broadcasters has lessened somewhat since passage of the 1996 Telecommunications Act, noting there are 12 percent fewer owners. She said the FCC proposal to create a new class of low-power stations could be the way to get more owners back into the business.

"I don't know if low-power is the answer, but I sympathize with these people," she said.

Tristani said receiver studies are not clear on whether new low-power stations would cause interference on the FM band. But she surprised some in the audience when she said that she does not see the issue as a battle over interference.

Commissioner Harold Furchtgott-Roth disagreed. "Interference is the central issue," he said, referring to low-power.

Several broadcasters told Tristani the interference issue is a real concern; one said the interference from the new LPFM stations would be "irreversible" and "destroy the industry."

In general, he said, broadcasters face more FCC regulation than licensees in other industries.

"You are part of a shotgun marriage, and regulators are the ones with the shotgun," Furchtgott-Roth said.

He commented on recent relaxation of broadcast ownership rules by the FCC saying he is disappointed in the outcome, which he thinks resulted in a more complicated set of rules that could lead to litigation. One of the changes that would affect radio would allow one owner to have two TV stations and up to six radio stations in one market.

Kennard said the rules should bring more certainty to the marketplace.

Future competition from the Internet was widely discussed at the show.

In his annual State of the Industry address, RAB President Gary Fries warned attendees about "blowing" the Internet advertising boom.

"We're giving away our Web pages. We're giving away our streaming audio," he said. Fries urged radio to find ways of cashing in on new media.

Fritts of NAB said radio should look to the opportunities of the Net. "With our ability to drive consumers to our Web sites, and as more of radio implements streaming technology and ancillary business activities, we are limited only by our imagination."

"From Wall Street to the Internet — all eyes and ears are on radio."

One of the flurry of announcements concerning radio/Internet alliances concerned mp3radio.com, a joint venture between Cox Interactive Media and MP3.com. Set to launch this fall, the new Atlanta-based company will provide radio stations with Web site enhancements to extend local reach.

"mp3radio.com will solve a key problem that radio stations have on the Internet, and, in fact, all local sites have on the Internet — they have no reach," said Gregg Lindahl, president and COO of mp3radio.com. "This venture aims to solve that problem by creating a product that attracts high-volume, high-frequency audiences."

Through an exclusive relationship with MP3.com, the new venture will bring affiliates exclusive access to free music downloads of format-appropriate artists. Affiliates also will have access to e-commerce, and music and content programming aligned with a station's music format.

Cumulus buys BSI

Also announced at the show, Cumulus Media Inc., the nation's third-largest owner/operator by station count, agreed to acquire digital audio software developer Broadcast Software International.

"BSI is a dynamic young company with a track record of positive revenues, cash flow and consistent growth," said Richard Weening, Executive Chairman of Cumulus.

BSI President Ron Burley said, "Our new relationship with Cumulus will provide this company with the resources needed to implement many projects that were previously beyond our reach."

BSI will operate as a subsidiary of Cumulus with operations remaining in its Eugene, Ore., headquarters.

Moving in the opposite direction is Prophet Systems Innovations, an audio management system supplier. President and General Manager Kevin Lockhart told a press conference during the show that he had "started conversations" with AMFM Inc. to buy back the company.

Capstar Broadcasting Group purchased Prophet Systems in 1998 in a widely noted deal that brought the supplier under the ownership of one of its broadcast clients. 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.

He said his main purpose for wanting to buy the company back was that he is "very excited about the future of Prophet Systems" and the future of digital audio. He said PSI is looking beyond the broadcast market to opportunities for digital audio products in the entertainment field, such as theme parks and venues.

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Suppliers Seek Better Turnout

► FLOOR, continued from page 1 show, in the week before Labor Day. Knebel said the time and venue were set four years ago, while NAB was working with three other associations under the old World Media Expo format.

"Any of the four partners could veto the jurisdiction," he said. At that time, NAB wanted to hold the 1999 show in San Diego in mid-September, he said, but one of the other partners vetoed that.

Knebel said the 1999 event is the last to fall under WME contracts. He said NAB expects better results in San Francisco in 2000 and New Orleans in 2001, both of which are scheduled for "well past" Labor Day.

"This is still the baby we're trying to take back from the World Media Expo experience," he said.

'Make or break'

During the show, Knebel and other NAB officials met with the five-member Exhibitor Advisory Committee, including its new chairman, Dave Burns, studio product manager for Harris Corp.

Burns said he was encouraged by the attitude of NAB officials at that meeting. But he said next year's show would be "make or break."

"If the radio industry wants the show to survive, they'll have to get behind it, and make it part of their budget," he said.

Teresa Zieminski-Myers, marketing manager of Orban and a member of the committee, described the show as "negative" from an exhibitor perspective.

She said both NAB and the exhibitors have responsibility for improving the attraction of the show.

"Jawboning with top groups is important," she said, to entice them to send their managers.

Knebel also promised exhibitors that the 2000 convention will include more "exclusive" exhibit hours, during which no sessions or events would compete with the floor.

Aside from turnout, Knebel described the Orlando show as an "excellent production," with "incredible" facilities. The 1999 Radio Show, he said, was "right up there with the best conferences we've done."

"We knew the calendar would be tough," Knebel said. "We think those who missed it will be there in San Francisco."

A spokesman for NAB said more than 90 percent of Orlando exhibitors had signed up for next year's show already. Knebel said none took a smaller booth.

Numbers

Burns acknowledged the NAB's attendance estimates. But many exhibitors expressed skepticism of those numbers.

"The consensus among everyone I talked to was that attendance was down more than that," Burns said.

Exhibitors complained about the timing, but disagreed on its impact on business.

Management Data Software Engineering AG, based in Germany, used this show to introduce itself to the U.S. market. Owner Holger Antz was disappointed. "We spent a lot of money to

come over and have a booth."

Antz said the company collected about 150 customer leads, but had expected thousands based on promises by NAB.

David Scott, broadcast sales manager for Gentner, said the show was slow, and

blamed it on the Labor Day weekend and the Orlando heat.

If the radio industry wants the show to survive, they'll have to get behind it, and make it part of their budget.

— Dave Burns

"There's a reason (the rest of) this building is vacant," he said. "I think San Francisco next year will be outstanding."

Fraser Jones, president of Independent Audio, met qualified buyers, but called it a "terrible" week.

Attendance factors

Another factor blamed for drooping attendance is consolidation.

"Big groups are sending fewer and fewer people," said Sinan Mimaroglu, general manager of Armstrong Transmitter Corp., "but these guys buy for hundreds of stations."

Jim Withers, vice president of sales for Olympia Management Inc. and a partner in four FM stations, said, "Unfortunately, NAB is fighting a trend

See FLOOR, page 16 ►

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...with a Vector.

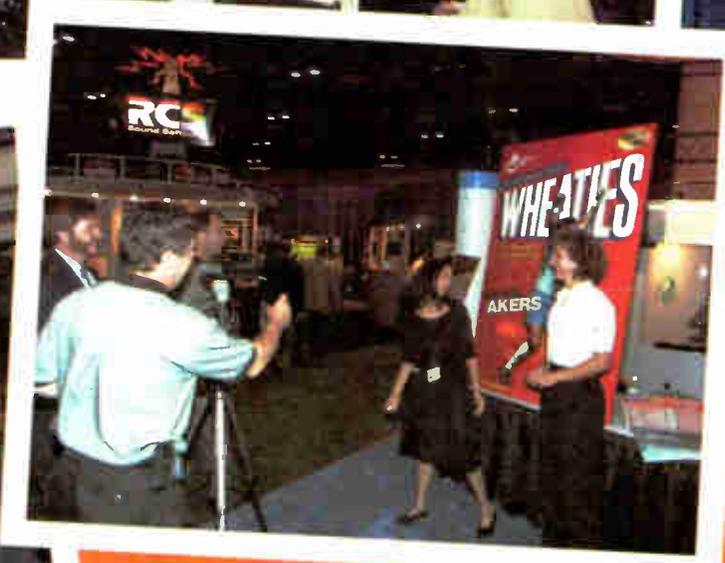
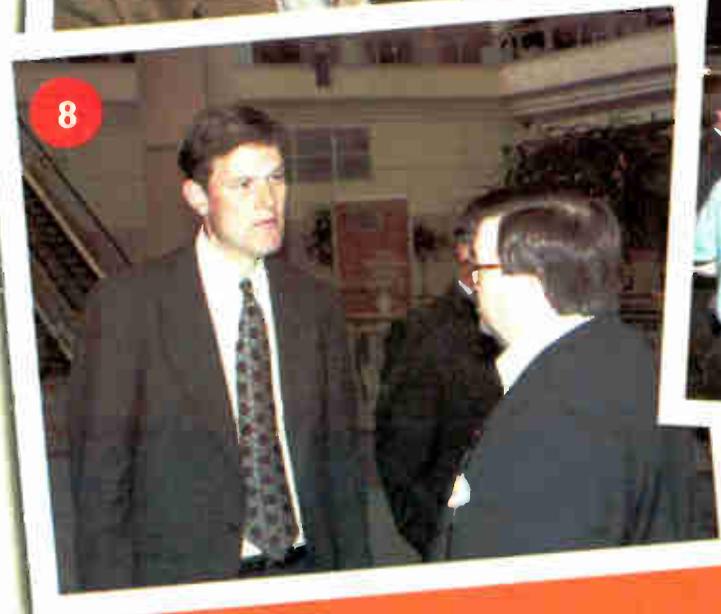
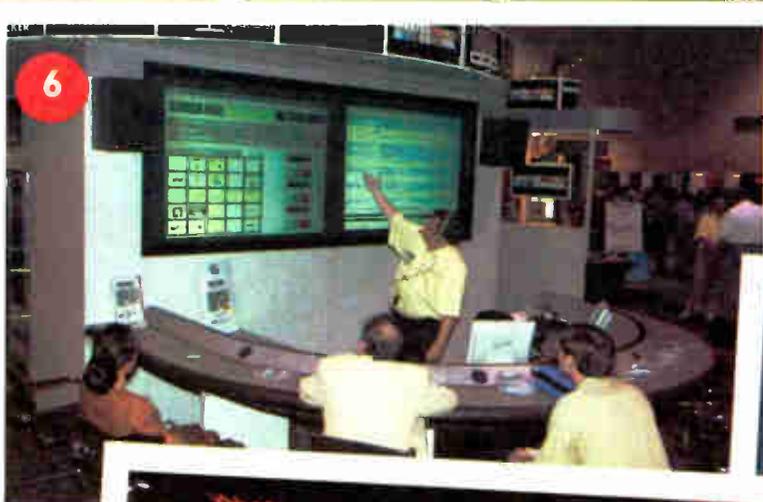
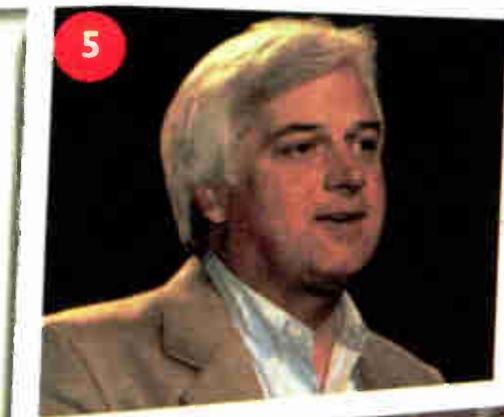
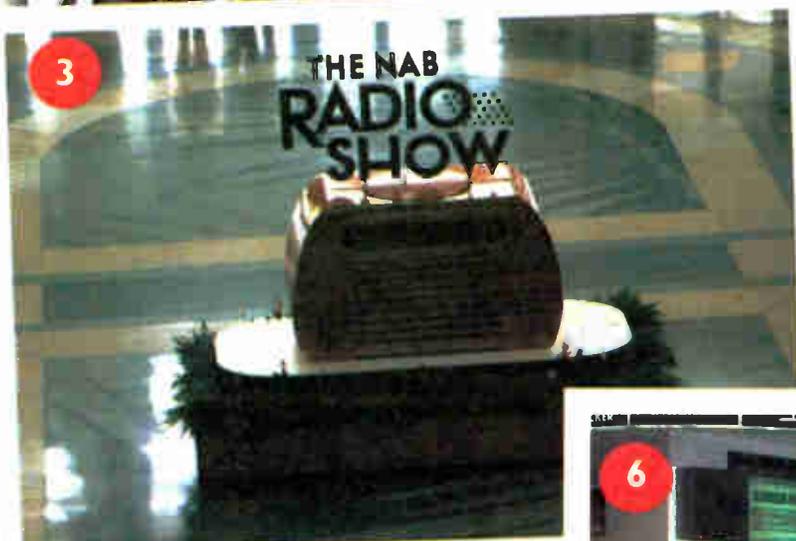
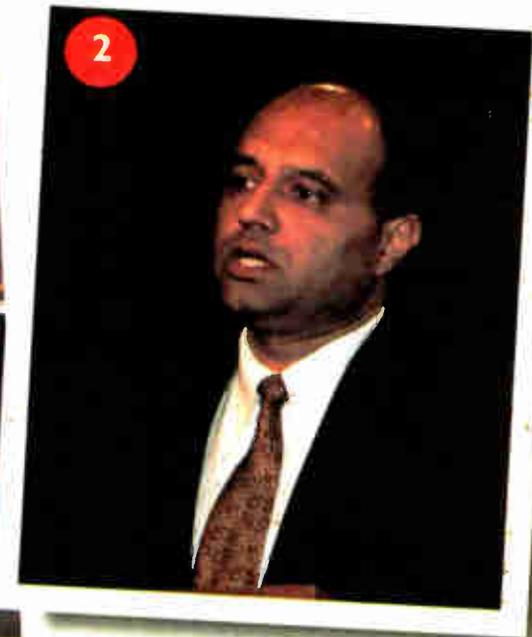
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Radio Show Roundup



1) WebRadio.com was among the new media companies on the exhibit floor.
 2) Suren Pai speaks about IBOC research at Lucent Digital Radio.
 3) Welcome to the show.

4) Bill Stakelin of Regent Communications, center, receives the NAB National Radio Award from Bill Poole, left, and Eddie Fritts.
 5) NAB Radio Board Chair Bill McElveen of Bloomington Broadcasting Corp.
 6) Tom Zarecki of Radio Computing Services works the crowd.
 7) Ben Dawson conducts the AM Directional Antenna Workshop.
 8) FCC Commissioner Harold Furchtgott-Roth, left, and Eddie Fritts confer before the CEA Financial Breakfast.
 9) Soccer star Michelle Akers of the U.S. Women's National Team poses with visitors to the General Mills Radio Productions booth.

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Circle 24 on Reader Service Card
World Radio History

Saga: U.S. Radio Comes to Iceland

by Viktor Ólason

REYKJAVÍK, Iceland The birth of new stations and the arrival of radio models from abroad have led Icelandic broadcasters to thoroughly re-appraise their approach to radio.

In April 1998, Grosse Pointe, Mich.-based Saga Communications entered the Icelandic radio market by acquiring a half interest in Finn Midill ehf, a radio firm that operates six Reykjavík-area radio stations — hit music FM 957, classical station Klassík, youth-oriented Skratz, oldies station Gull 90,9, hit music Útvarp X and adult contemporary (AC) music station Létt FM.

Considerable impact

Since then, Saga has had a considerable impact on the Icelandic marketplace.

Fifteen years ago, a single radio network — the state-funded public broadcaster, Ríkisútvarpid (RÚV) — served the North Atlantic island. Now there are 14 stations and networks, 12 of which are privately owned.

This growth has presented a challenge to Icelandic broadcasters, who must now fight harder for the ears of a radio market of 275,000 listeners.

The advent of the American way of

doing radio has forced station operators to focus their programming and streamline their playlists. Previously, most of the stations were programmed as a general-interest mix of music, news, drama and talk shows.



"The programming of stations and their playlists have changed since the entrance of Saga into the market," said Pálmi Gudmundsson, programming director for Mono, a station in the Íslenska Útvarpsfélagid HF (IÚ) group. IÚ competes directly with Finn Midill for younger listeners.

"Their technical and sound work is professional and excellent," he said.

Many radio sector professionals share the view that the presence of Saga is having a long-lasting impact on

Icelandic radio.

Sigurjón Fridjónsson is general manager of the radio division of IÚ, which, in addition to hit music station Mono, operates two other stations in Iceland — AC-oriented Bylgjan and classic rock station Stjarnan.

Fridjónsson said he has no doubt that stations must seek out smaller audiences and they must deliver excellent service to



these audiences to survive.

"Their (Saga's) focus on music has caused a new way of thinking and it is tough to change," he said.

The model for radio broadcasting has changed from "every station trying to please everyone" to a business model that is based on extensive marketing. But not all Icelanders are convinced that stations are marketing themselves differently.

"We all are basically doing marketing with events, promos and so on the same way as before; there is no change there linked to Saga," Gudmundsson said.

For years now, Icelandic broadcasters have been active with concerts, tours, movie premieres and other events. The only noticeable change is that the marketing and events are now targeted toward more specific audiences.

In a highly competitive market, creativity is key, and most of the stations have very creative people. In this regard, the stations are equally matched, and Finn Midill has not done any better than the other stations in terms of self-promotion.

The market segmentation created by niche programming, however, has led to a need for advertising buyers and station sales departments to rethink the way they approach radio.

For example, radio station sales staff now must shift the emphasis from "talking to everyone toward talking to target audiences," said Finn Midill Sales Manager Valgeir Vilhjálmsson.

"Before we entered the market, buyers only bought seconds and looked at discounts instead of looking at their target market and at the message being delivered," he said.

Same hustling

Arndís Bergsdóttir is a media planner at advertising agency Gott Fólk ehf.

According to her, "Programming is now more professional at Finn Midill, but sales have not changed at all; the same people are doing the same hustling."

Finn Midill is engaged in a long-term project to change the way of thinking, said Vilhjálmsson. And "the Americans do have the patience."

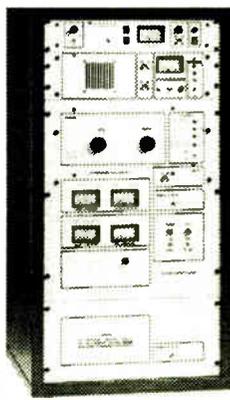
According to both Fridjónsson and Gudmundsson, Finn Midill is focusing

See ICELAND, page 14 ▶

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Harman Sells Off D.A.V.I.D. GmbH

by Randy J. Stine

WASHINGTON Audio and recording equipment manufacturer Harman International Industries Inc. has sold a division of its professional group,



Digital Audio & Video Integration and Development GmbH, to Management Data AG, based in Germany.

D.A.V.I.D. sells computer-based audio products and software to the European broadcasting market. It has tapped Broadcast Information Technology Services Inc. (b-i-t-s) as its systems integrator and exclusive distributor for North America, and as a non-exclusive distributor for Asia.

Harman's professional group also includes Orban, AKG Acoustics, Lexicon and Studer Professional Audio.

Philip Hart, pro group international president, declined to comment on the company's long-term goals or whether it plans to sell off other parts of the division.

Harman's consumer group makes Infinity and JBL receivers and speakers. Its OEM group provides car audio components to BMW, DaimlerChrysler and Mercedes.

Founder and Chairman Sidney Harman's actions generally are closely watched as a gauge to the strength or weakness of the worldwide audio market.

The 79-year-old executive sold 2 million shares of the company's common stock as part of his estate planning in 1996. Harman still owns 7 percent of the company. Harman International is perhaps best known to radio users for its Orban and AKG lines.

Founded: 1953

World HQ: Potters Bar, U.K.

Employees: 10,010 in 1998

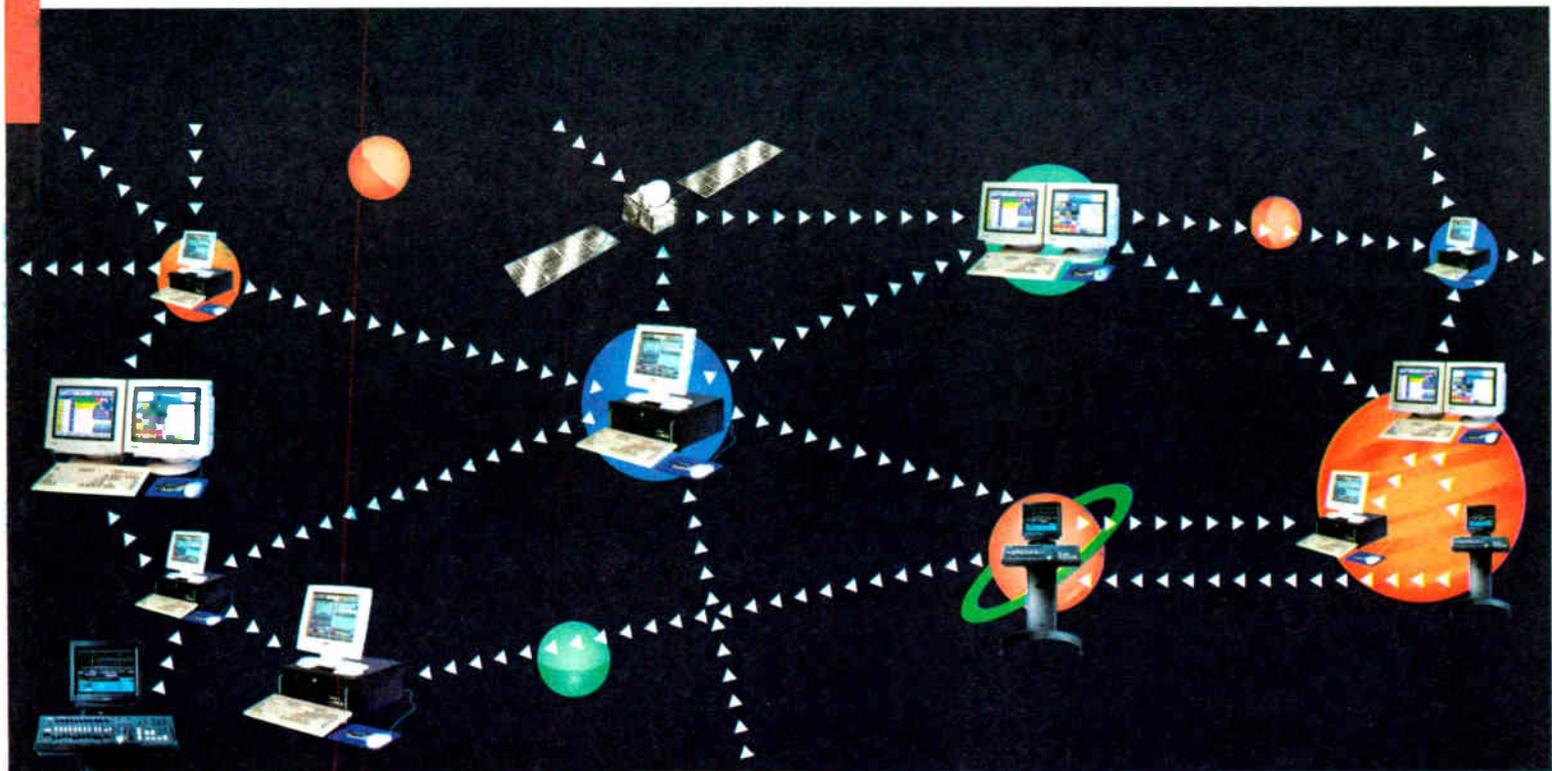
Major Production Plants: Southern California, Indiana, Britain, Germany.

Professional Brands: Orban, AKG, Lexicon, Studer, JBL Pro

1998 Sales: \$1.5 billion

1998 Net Income: \$50.2 million

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Michigan Broadcasters Laud 50th

by Randy J. Stine

LANSING, Mich. Some of Michigan's most historical radio moments and equipment were on display through July at the Michigan Historical Museum in Lansing.

Michigan radio from 1920 to 2000.

"On the Air" was presented by the Michigan Association of Broadcasters, celebrating its 50th anniversary, and the Michigan Historical Society.

The project was in the works for a

called the 4,600-square-foot project a walking history of radio.

"The support we received from broadcasters in the state was phenomenal," she said.

White said the goal of the exhibit was to "show where broadcasting came from and where it's going in Michigan."

The exhibit demonstrates what an integral part radio has played in everyday life throughout history.

"It's very hard to separate broadcasting from what was going on in the world during a specific time period," White said.

White said the historians at the museum believe broadcasting and the media "have done more to define who we are as individuals than any other invention known to man."

All of the exhibit material was loaned or donated to the museum. That included a 1918 Grebe CR7 long-wave receiver used by ship-to-shore radio transmitter WLC in Rogers City (about 300 miles north of Detroit) to broadcast weather and shipping information. Very few were built.

WWJ(AM) in Detroit was Michigan's first radio station. The station, originally using the calls 8MK, signed on in August 1920. The gallery featured the original broadcasting equipment used in the station. A De Forest T10 Radio Phone and



Karole White

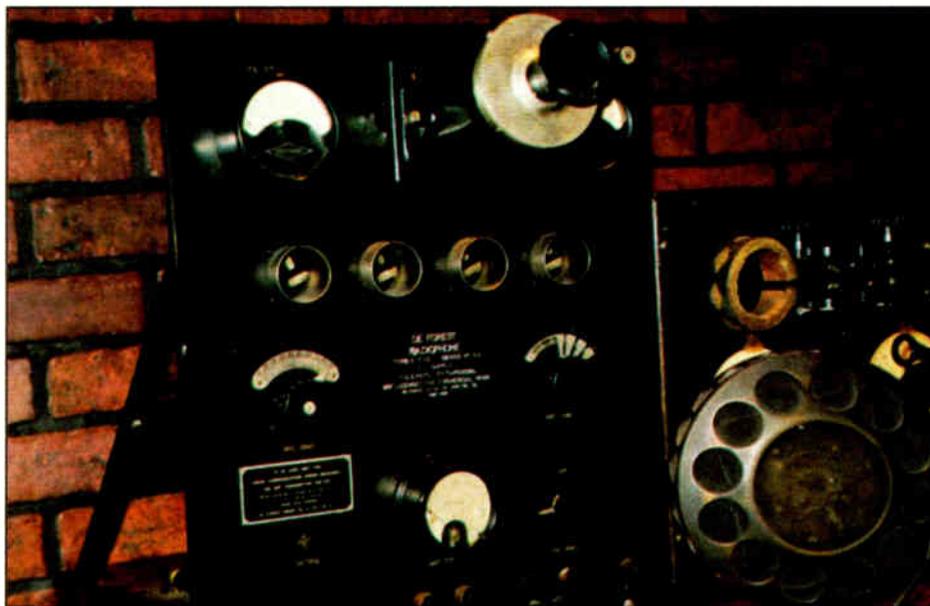
De Forest R-800 Combination Audion-Ultraudion Detector and One Step Amplifier served as console and amplifier.

Another exhibit is made up of 1940s RCA equipment. An RCA 4045-D mic dangled from an overhead drop cord. RCA turntables, Magnecorder PT63J tape decks and a RCA BTF 1 D transmitter rounded out the recreated studio.

Famous Michigan radio alumni include Paul Harvey, Phil Donahue, Jack Paar, Douglas Edwards and Mike Wallace. All started their broadcasting careers at rural Michigan radio stations.

White said the MAB was formed in 1949 by a group of radio pioneers who were worried about business tax issues

See MAB, page 14 ▶



Equipment for WWJ(AM) in Detroit dates to 1920 when the station signed on the air as 8MK. Featured are a De Forest T10 Radio Phone and De Forest R-800 Combination Audion-Ultraudion Detector and One Step Amplifier which served as console and amplifier.

The exhibit, "On the Air," now moves to Detroit. It featured photos and studio recreations of the state's earliest radio stations and was billed as a history of

year before opening in October of 1998. As many as 200,000 visitors viewed the exhibit.

Karole L. White, MAB president,

Engineer Hillis Holt Remembered

by Tom Osenkowsky

Broadcast engineer Hillis W. Holt died May 3 at the age of 95 following a brief illness. For 65 years, Holt provided engineering expertise for dozens of broadcast stations throughout the Northeast through his contract engineering firm, Electric Maintenance Inc. in West Hartford, Conn. Holt was president and sole owner of Electric Maintenance.

Lee Steele, an independent contract engineer based in the northeast, said of Holt, "He was a great friend. If you needed help, he was always there for you."

Early engineering expert

After graduating from the University of Maine in 1924 with a Bachelor of Science degree in mechanical engineering, Holt became one of the earliest experts in the field of radio engineering. He built radio towers in Colombia, South America, and helped design and build AM transmitters for Westinghouse Electric Company in Springfield, Mass. in the 1930s. Holt became Chief Engineer for WOV(AM), New York City, in the late '30s.

Following his tenure in New York City, Holt designed and built stations in the Northeast. He designed and built studios for Hartford, Conn., stations WPOP(AM), WRCH(FM), and WNEZ(AM) and New Haven, Conn., stations WELI(AM) and WKCI(FM).

Holt designed and constructed studios for Connecticut stations WTOR(AM), Torrington, WNTY(AM), Southington, WLIS(AM), Old Saybrook

and WERI(FM), Westerly, R.I.

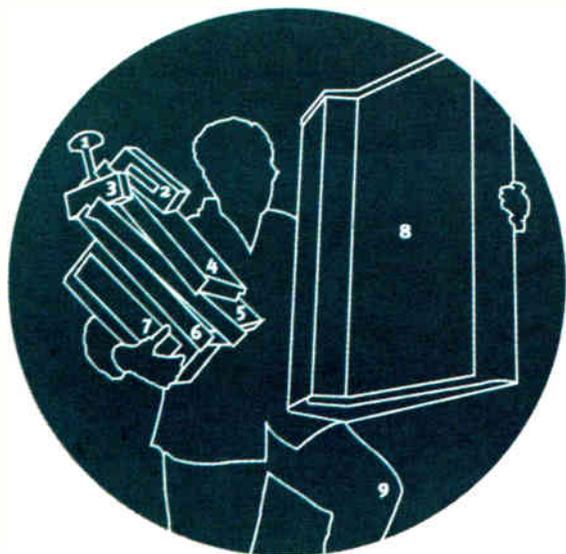
In 1959, Holt built WLCR(AM), Torrington, Conn., where he was owner, licensee and general manager along with his brother, the late Rodgers Holt. He was also part owner of WHAY(AM), New Britain, Conn., in the 1950s and 1960s. Holt built WINF(AM), Manchester, Conn., where he served as chief engineer for many years.

Holt served on the board of directors of the Nutmeg Broadcasting Company, Willimantic, Conn., licensee of WILI-AM-FM for 20 years. Rice said Holt retired from Nutmeg Broadcasting in the late 1980s and that, although he cut his workload in the 1990s, Holt never really retired from broadcasting.

Michael C. Rice, president of Nutmeg Broadcasting, met Hillis in 1966. "He changed my life. He encouraged me (to go into) radio broadcasting," said Rice. "I was born into a broadcasting family, however, it was Hillis who eventually hired me into his broadcast station engineering company and encouraged me to pursue a career in radio." Holt and Rice built several radio stations in New England.

Holt is survived by his wife of 39 years, Dolores Heidel Johnson Holt, six children, 14 grandchildren and two great-grandchildren.

Osenkowsky is a consulting engineer based in Brookfield, Conn. He worked with Hillis Holt in the mid-1980s at New Britain, Conn., stations WRCH(FM), and WRCQ(AM) (now WNEZ(AM)).



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Circle (67) On Reader Service Card
World Radio History

Exhibit Spans 50 Years

► MAB, continued from page 12 in Michigan.

"They figured it would be better to unite and fight than to do it individually," White said. "Broadcasters also recognized the need for networking and public service."

One of the first public service campaigns initiated by the MAB was for a new invention for the automobile in 1950.

"'Seat Belts Save Lives' was the slogan," White said.

The MAB's focus today is on legislative information and monitoring, and education programs for members.

Each year the organization sponsors the Great Lakes Broadcasting Conference and Expo that brings together 1,500 broadcast-

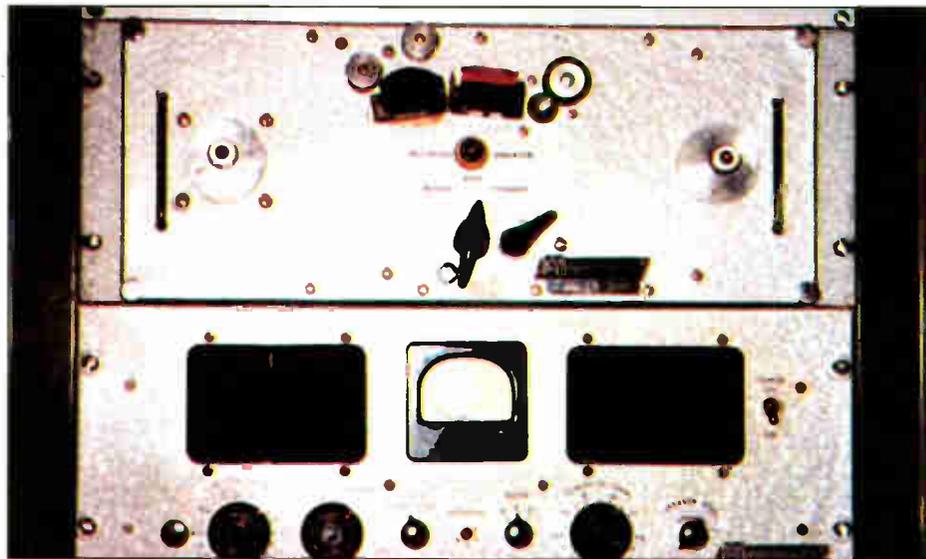
ers and those in associated fields, White said. The conference is held each February in Lansing. Four regional sales seminars are held yearly across the state.

According to White, 89 percent of Michigan's radio stations belong to the MAB.

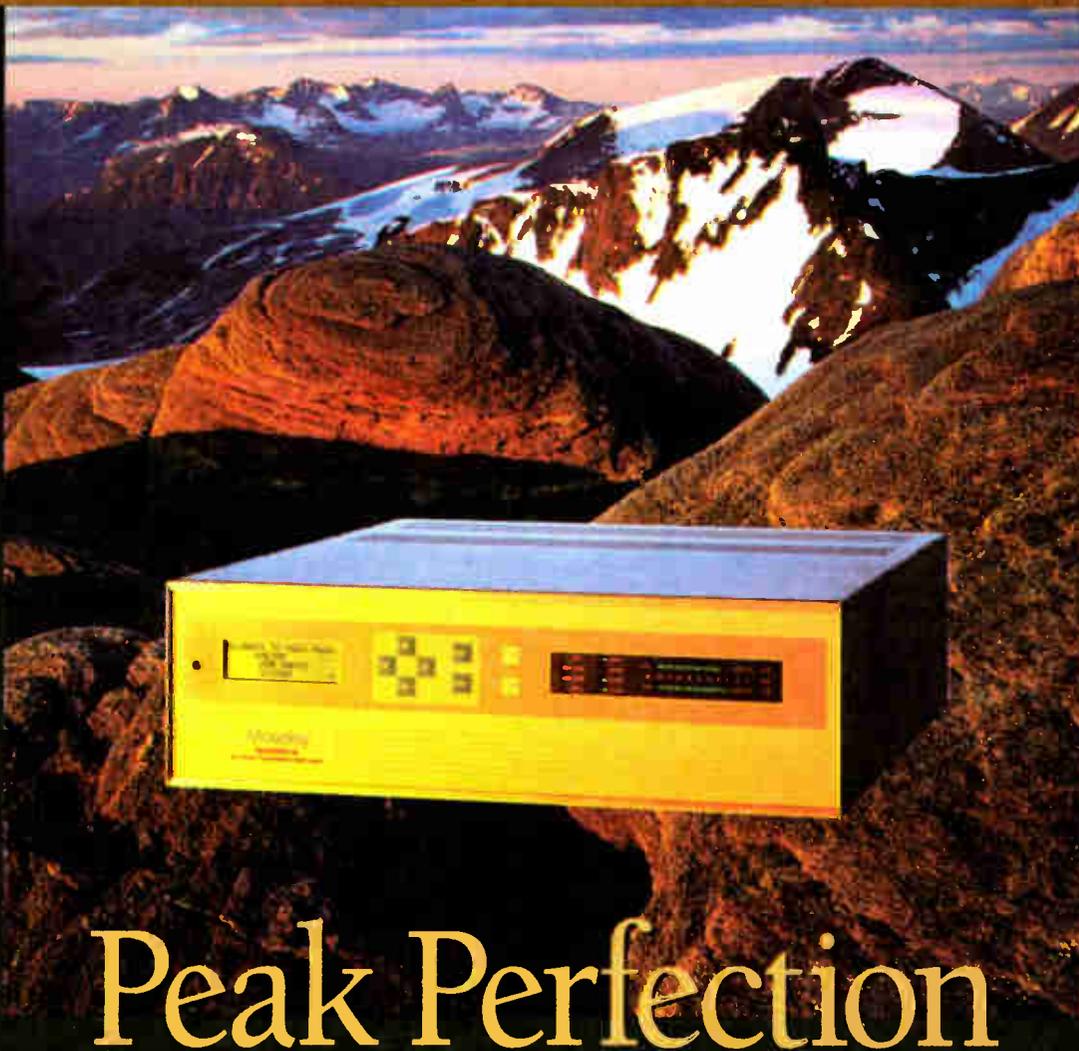
"We have 269 broadcasting and 65 associate members," she said. Dues are based upon advertising revenue.

With a staff of eight, the MAB ranks in the top five state broadcast associations in the United States in terms of membership.

The exhibit reopens at the Detroit Historical Museum Oct. 1. Find out more by visiting the MAB's Web site at www.michmab.com



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Iceland: A New Look At Radio

► ICELAND, continued from page 10 on radio advertising sales — a view confirmed by Vilhjálmsón: "We are emphasizing on radio as a media and trying to build a stronger image of radio as an advertising medium," he said.



Thorsteinn Thorsteinsson, marketing director at RÚV, is not happy with the way the competition is evolving in radio sales. "There is increasing pressure for lower prices and higher discounts following entry of Saga" into the market, he said.

Numbers game

According to Thorsteinsson, while the total number of listeners younger than 20 has increased overall, they are not as big a group of consumers as other age groups. Finn Midill, he said, has confused buyers by placing constant emphasis on youth.

Recently, when Félag Íslensks Markaðsfólks, (ÍMARK), the Icelandic marketing association, held a luncheon addressing the current radio market and its future, Finn Midill General Manager Bruce Law said that some stations in Iceland would disappear in the near future.

There is not enough money around to support all the stations, he said, even though 17 percent of total advertising króna are spent with radio stations.

According to Law, some stations will either vanish or will inherit a fixed format, but, for the most part, it is too early to tell how the media scene will develop.

■ ■ ■

Viktor Ólason reports on the industry for *Radio World* from Reykjavík, Iceland. Contact him via e-mail at viktor.olason@iu.is

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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.

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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.

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Look to the Fall for IBOC DAB

► NRSC, continued from page 3 process." Pai said about common testing. He said he hoped any FCC proceeding would include the questions: Is digital coverage important? How much of the market should a digital signal cover? Should that coverage be the same as under analog service?

Speak now ...

He said the FCC should speak now before the systems are fully designed. Morgan said at least two systems need to qualify for common testing, and that the NRSC would evaluate systems if they are submitted before Dec. 15 or

shortly after. How much after Dec. 15, he did not want to say.

testing to make the submission date and are sticking to the current NRSC

Larson said the proceeding could give some guidance as to how the IBOC process would unfold, but he could not be specific.

USA Digital Radio officials said they are focused on completing their field process. USADR President and Chief Executive Officer Robert Struble told

RW it was "premature" to discuss common testing at this stage, before it is known whether all the systems are worthwhile to implement.

During the panel, Larson said anything the commission does on IBOC "would not preclude the industry from doing what it wants," be that common testing or whatever else would follow the system comparison to analog.

Asked what the FCC thinks about equipment manufacturers advertising "IBOC-ready" equipment, Larson cautioned attendees to use equipment as approved. Whether equipment will have to be recertified after an IBOC standard is selected "may" be in the proceeding, he said.

Good, Better and the Best Digital Systems

It's a fact: *More* U.S. radio stations choose *Scott Studios'* than any other digital system! 2,125 U.S. stations use 4,916 Scott digital workstations. Nine of the ten *top-billing groups have Scott Systems.* They're the *easiest to use!* Scott Systems are 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). Scott Studios' audio quality is the *very best* and plays on laptops or PCs with ordinary sound cards. We 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!

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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!

Good Spot Box

Scott's Spot Box delivers the *simplicity* of a triple-deck "cart" player plus *compact disc quality* digital sound.

Spot Box has only the one screen, so announcers always know what's playing. On the left of the screen, three digital players have legible labels for each spot and VU bars show levels. Buttons show countdown times and flash as each recording ends.

At the right of the screen, "Cart Walls" let you pick and play any recording by name, number or category. Or, number keys at the bottom load spots quickly from your log.

Scott's Spot Box includes a recorder and is *very* inexpensive. Options include log imports from traffic computers and music on hard drive.

Better AXS 2000+

AXS' (pronounced ax'-cess) 2000+ is radio's premier digital audio system for automation and live assist. AXS 2000+ is fully featured, with 99 sets of 28 instant play Hot Keys, log editing in the studio, live copy on-screen, big countdown timers, recording and editing of phone calls, spots and network shows.

You also get auto-fill of network breaks to cover missing spots, a Real Time Scheduler, unattended net recording, timed updates, macros and optional time announce and WAVE file imports.

For stations with large CD music libraries, AXS 2000+ can also control inexpensive consumer CD multi-pack and 300 CD juke box players.

Best Scott' System

The Scott' System (pictured above) is radio's most powerful digital system!

Your log is on the left side of the LCD touchscreen. 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.

Scott' options include *Invincible* seamless redundancy with self-healing fail-safes, newsrooms, 16-track editors, time and temperature announce, and auto-transfer of spots and voice trax to distant stations over WAN or Internet.

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Radio Show Numbers Scrutinized

► FLOOR, continued from page 7 of fewer groups owning more stations. But (we) need to be here. This is a signature show."

Burns told the committee meeting that group attendance is a big part of the problem.

"The typical group has 400 stations, but only 30 people here," he said. "The NAB has to help us drive people who visit the floor, to come to this show."

Quality over quantity

Other exhibitors said they were satisfied with the quality of the people they met.

"I'm surprised and delighted," said Kris Bobo, vice president of sales and marketing for Comrex. "I expected the worst, with Orlando in August, but we've not had time to breathe."

OnRadio sponsored a high-profile party at the Universal Studios Escape resort in Orlando on Wednesday night.

Doug Wyllie, manager of corporate communications, said, "Attendance was lagging, but from our perspective, from a 'buzz' standpoint, we've had a longer and more detailed discussion with people who will go back to their markets and evangelize on our behalf."

Tim Bealor, product manager of RF transmitters, Broadcast Electronics Inc., said, "The people who have come did so for a reason. They have a product or project. People aren't coming just to look."

A benefit to the show, he said, is time with clients. "Customers have said, 'I have time to talk to you, and you have time to talk to me.'" He called The Radio Show a positive experience.

But Burns said, "We had quite a contingent of exhibitors who had no traffic."

Another supplier, who asked not to be named, described traffic as miserable.

"Labor Day in Orlando was a mistake," he said.

BeOS Appeals to Audio Users

Tom Vernon

The recent growth in the popularity of Linux has made many computer users aware that there are operating systems other than Windows and Mac OS that will run on machines with Intel and Motorola chips.

While there may be good reasons for sticking with an established operating system, or OS, for many applications, at other times it might be wise to break from the crowd and try something completely different.

For digital audio, video and multimedia users, the BeOS may become an attractive option to the status quo in operating systems.

Amiga done right

Former Apple executive Jean-Louis Gasee founded BeOS in 1990. While at Apple, he had become fascinated with

gies on developing the Be operating system and making it available for Intel and Power PC machines. Its most recent offering, BeOS Release 4.5, rolled out in June.

assume that device driver and configuration hassles simply come with the territory, and only Mac users are blessed in this regard.

The folks at BeOS think that all of

Of special interest to audio users is the low latency time inherent in BeOS applications.

Many users are unaware of the true capability of their hardware, because the operating system, be it Windows, Mac OS or Linux, has so much surplus baggage that degrades overall performance.

these people should raise their expectations, and respond to their frustrations with a media-optimized OS that makes the most of existing off-the-shelf hardware.

The Be operating system represents the fruit of years of OS research and development driven by two goals: first, to consider the history of desktop computing operating systems, identify their limitations and bottlenecks, and to create a system without built-in restrictions; and second, to consider the needs of the future and build an OS that will take users into the next generation of workstation computing.

Soft-curve degradation

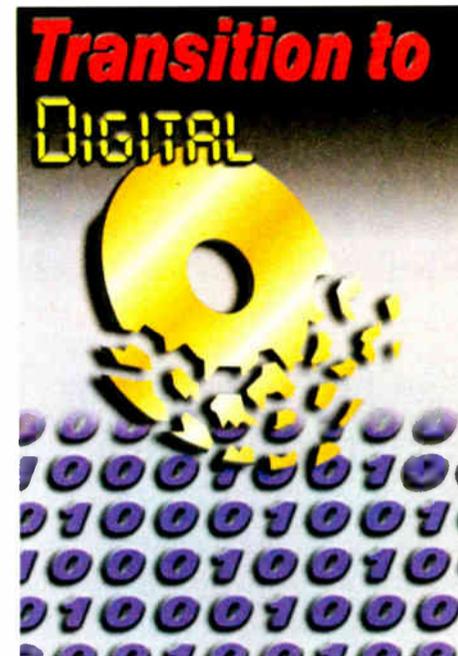
BeOS has a host of features that separate it from the crowd.

While its ability to handle high-bandwidth, resource-intensive applications makes it a natural for multimedia, it similarly enhances less-demanding, general-purpose applications, and many users do all their computer chores while running BeOS.

The Be Operating System and its applications use processor resources with incredible efficiency via a technique known as multithreading. Tasks are broken up into very small pieces that can be handled quickly.

The result: numerous resource-intensive tasks can run simultaneously, with little degradation. In fact, system degradation with BeOS is a soft curve, whereas other operating systems tend to come to an abrupt halt when overloaded.

Each application runs in its own protected memory space, making system crashes less likely. Applications may still crash, but if they do, they won't take the system down with them. By clicking OK



in the crash alert box, you can restart the downed application, while you continue with your work.

The BeOS works well with other file systems. In addition to BFS, the native Be file system, BeOS can read from and write to file systems in other operating systems by means of a single driver.

Release 4.5 is capable of recognizing Windows 95 and 98 partitions, as well as Mac HFS volumes. Read-write capability with Linux files is available via a Linux ext2Fs driver, available for download.

Easy configuration

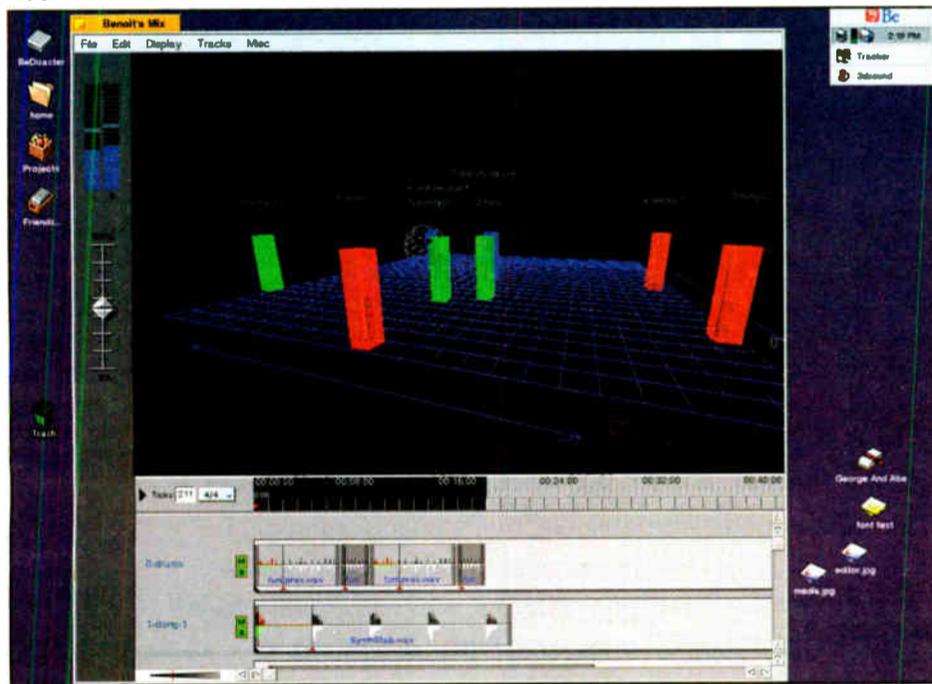
One of the biggest gripes of Windows users is the difficulty in installing new device drivers and getting them configured. The company heard your cries.

All device drivers either created or sanctioned by Be are included with the operating system. Device detection occurs at start up. If you change sound cards or other peripherals, simply reboot and go, no driver installation or configuration routines are necessary.

Updated drivers from third parties are often available for download from the Be Web site, and installation typically is a drag-and-drop operation.

Multiple workspaces add to the flexibility of the BeOS environment. While other operating systems give you a single desktop, Be can have a total of 32 "workspaces," each with its own resolution, bit depth, colors and background bitmaps. Nine workspaces are active by default, others can be added without rebooting.

See BEOS, page 36 ▶



In the 3D mode, individual tracks are represented spatially. Tracks are dragged left and right to control placement, and front to back to control volume.

the Commodore Amiga, a high-stepping multimedia machine with a fiercely loyal group of users.

Gasee eventually started his own company, Be, with the goal of making an inexpensive, multiprocessor, media-optimized computer, "the Amiga done right." After much frustration and several false starts, the BeOS and the BeBox were introduced.

Eventually, the company dropped hardware production to focus its ener-

Much of this excess code is necessary to ensure that the operating system is backward-compatible with older applications. Users simply take for granted that it should take more than a minute for an operating system to boot. OS instability causes many users to stop work and save files regularly.

It's almost a given that having several applications open simultaneously will cause machines to become painfully slow. Owners of x-86 based computers



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Radio World, September 29, 1999

Walk Around to Save Time, Money

John Bisset

Last issue, we focused on a thorough transmitter inspection. Now, let's take a walk in the field.

We needn't go far out the front door of the transmitter shack to check the ice bridge. If you encounter snow and ice, this will be a good investment to protect

tower? A good tower crew can braze ground wires or install several ground rods if they don't exist.

On the sides of the building, check to make sure that siding or paneling is intact. Plug holes leading in to or out of the transmitter building. Check air louvers and ventilation systems, and keep air filters clean.

As you walk up to the tower itself,

for your tower crew. Stations still are required to do quarterly tower inspections. Have you been keeping up?

When I did contract work, we devel-



Figure 1: Begin your inspection with the base of the tower.

your line from falling tower ice. It is relatively inexpensive, and your insurance company may pay for all or part of the device, since it will reduce claims.

While you're looking at the tower base, how are your transmission line grounds? Don't have any? Again, this is an inexpensive fix that will help reduce down time.

check the paint. Look for blisters and rust, an example of which is shown in Figure 2. If the tower is AM, it may be hot, so don't touch it! Look to see how the AM feed is connected to the tower.

Figure 3 shows a bolted connection that has rusted and been covered with paint and forgotten. Moisture is slowly

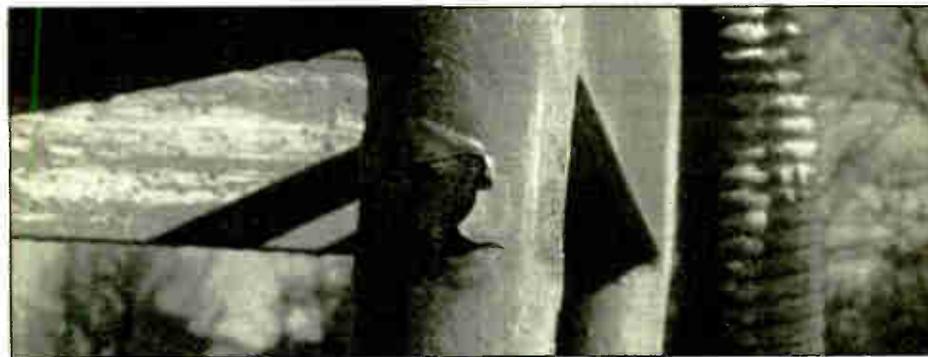


Figure 2: Look for blistered paint and rust on towers.

At the base of the tower on Figure 1, you will see ground wires running along the concrete base. Are they tight? Are they broken? How are they connected to the

destroying the metal, and until it bulges under the paint, no one knows.

A consultant friend of mine told me about a hollow-leg tower that was so rust-



Figure 3: Make sure any physical connections to the tower are clean.

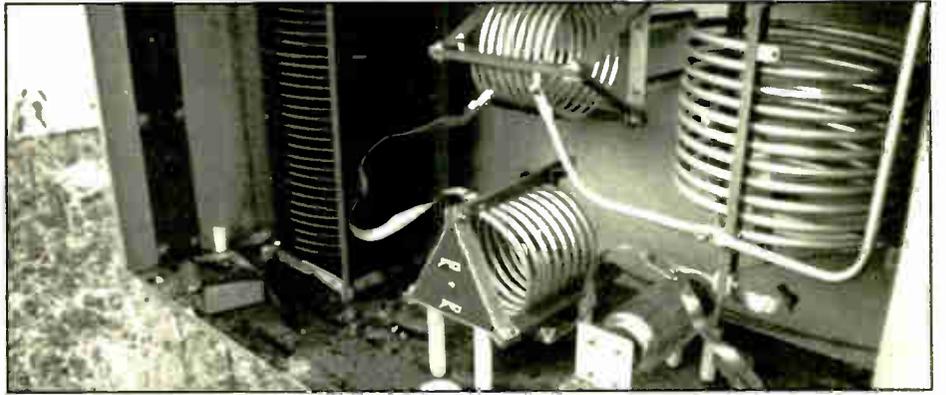


Figure 4: Clean out the inside of the coupling unit.

ed he punctured one of the legs with a pencil point! That got the owner's attention.

Note these problems and develop a list

oped a form that had spaces for visually inspecting the tower paint, the guys and

See WORKBENCH, page 27 ▶

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Branch Circuits in the Station

Charles S. Fitch

This is one in a series of articles about the National Electrical Code. The previous part appeared in the Aug. 18 issue.

Let's continue our discussion of the sort of circuits you will find in the shop end of your building, and how they may be allotted to loading and use.

In the shop maintenance area, an arrangement that I find to be most helpful is to have a minimum of two circuits — one for items that are seldom turned off, such as test gear and walkie chargers, and a second circuit for items under test.

As previously discussed, this "bench" circuit should be protected by a Ground Fault Interrupter (GFI) device. It is during troubleshooting that you have the greatest possibility to come in contact with 120 volts AC.

This device will detect currents as low as 5 milliamperes "faulting" to ground and will shut down the power input nearly instantaneously. That "faulting" could be through you and your heart. At under \$10 a device, this is the cheapest life insurance you will ever buy.

Another very inexpensive addition is a wall switch for each of these circuits near the door, clearly marked for what they control and positioned so as not to be confused with the light switches.

Let everyone know what they do. If, heaven forbid, you ever get caught across a non-GFI line, others can quickly cut off the power.

Locate these so you can safely turn off the power from by the door if something on the bench goes up in flames. This also is convenient in case you have an item "burning in on the bench" and you suddenly realize that you won't be back to the station. You can call in and

ask even a non-technocrat to flip down all the wall switches.

Water and telco

GFI protection is mandated (see NEC 210-8(b)) for outlets in the station bathrooms as well as near any running water such as the bar sink in the coffee area.

GFI also is mandated in areas that can be considered "outside" such as in the

you're plugged into pull out of the splitter it's plugged into, etc., etc.?

If you have a rat's nest of AC wires in the telco closet, call in the electricians and have them install a proper number of COs or plentiful plug strips. We would use the word plugmold here but that's a registered trademark of The Wiremold Company.

Finally, we mentioned the hallway buffer. Large current devices like this around the station that need a big current

Large current devices that need a big current draw to start or run should have their own, appropriately sized circuits.

station garage, outside generally and up on the roof near outdoor air conditioning equipment.

It is not mandated, but generally considered a good idea, to have any plug-in water cooler fountains on a GFI outlet.

Another separate circuit should be run to the telephone "closet." At a minimum this should be 20 amps with a full-sized ground. Most telco gear draws little current, but it seems that each piece of gear has its own AC input. There is no limit to how many outlets you can have on a single circuit, only on the total load, so feel free to have even 10 COs along the walls in the telephone closet for all those AC plugs to keep things neat.

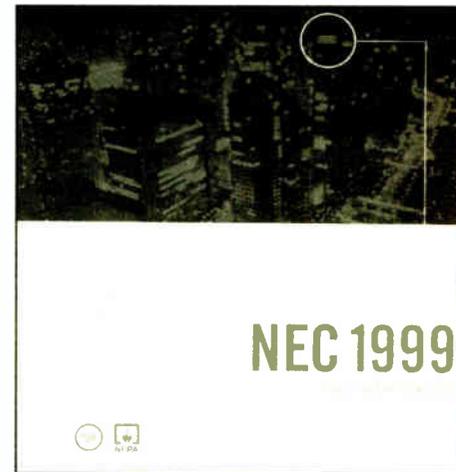
Incidentally, the NEC does not cover accessory devices such as AC splitters. However, there are limits from the UL, *et. al.* covering the use of these accessories, such that generally you cannot plug an AC splitter into an AC splitter.

This is a no-brainer. How often have you pulled out a plug in that sort of arrangement, only to have the splitter

draw to start or run should have their own, appropriately sized circuits.

Your drillpress, the space heater in the station garage, the welder, the lathe, the general manager's Jacuzzi and all that neon in the foyer — each of these should be on separate circuits.

The 80 percent rule that we discussed in our Aug. 18 article is for regular loads and not for short peaks such as starting or magnetizing currents. ("With rare excep-



NEC 1999



tion, no circuit or conductor can be asked regularly to supply more than 80 percent of its ampacity to a single appliance.")

However, there are many devices that draw high current measured in minutes, and that high current is considered as part of the 80 percent.

A prime example of this is the uninterruptible power supply, or UPS. These protect many items in the typical broadcast plant, such as STLs, RCSs, operation computers, etc.

It will take a little after-hours testing or a careful calculation from published data to see if the situation exists where a circuit not only powers the equipment that's on but the fast recharge of the UPS supplies batteries and this brings the current up to a point that exceeds 80 percent.

See NEC, page 32 ▶

FEED LINE

Learn How Radio 'Classes' Work

W.C. Alexander

Over the past three articles in *Feed Line*, we have looked at some of the basics of radio — how it works, how it is regulated and generally why things are the way they are. We have taken a step away from the usual engineering

levels of service.

Class A stations were instituted to provide service for small communities. Stations in this class operated with a maximum nominal effective radiated power, or ERP, of 3 kW and a maximum nominal antenna height of 300 feet above average terrain. A 15-mile

I encourage general-interest readers to use this series as a basis for a discussion with your engineer.

focus of this column and invited the non-technical in our industry to join us.

I hope I have answered some of the questions that a station manager, account executive or programmer may have had for a long time.

In this final installment of our back-to-basics series, we will wrap up with a look at the way the FCC regulates FM stations.

Station classes

When the FM service was instituted in its current frequency band some 40 years ago, three classes of stations were established to provide different

coverage radius was produced by a maximum-facility Class A station in relatively flat terrain.

Class B stations were established in the urbanized areas of the densely-populated Midwest, Northeast and Southern California. These stations operated with a maximum nominal ERP of 50 kilowatts and a maximum nominal height of 500 feet above average terrain. A 40-mile coverage radius was produced by a maximum-facility Class B station in relatively flat terrain.

Class C stations were established for urban areas in all other parts of the

See CLASSES, page 26 ▶



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KEYBOARD CONNECTION

Don't Let a Virus Get You Down

Barry Mishkind

It does seem like they come in alternate waves. As in a diabolical plot, first come the hoax warnings about viruses that never existed. Then, just about the time everyone is burned out on the warnings, comes Melissa or Explore.zip.

Melissa was relatively benign, merely taking the "address book" from Outlook Express and sending copies of itself to others, without you knowing it. Explore.zip was vicious. Not only did it send itself out to others, but it also corrupted and deleted files on each computer on which it managed to become active.

A number of major corporations, including at least one broadcasting company, woke up one day to find Explore.zip virus attacking their systems. In fact, this virus had the ability to attach internally and affect all users on a server where the virus had invaded. Users reported that even as they were checking out the problem, files were disappearing.

For those without current backups, it was a horror story come true.

A computer virus just is not a nice thing to have happen. Some are merely inconvenient. But, as noted, others are downright destructive. Perhaps the worst part is when they come in an e-mail that came from someone you trusted.

As this is being written, new viruses are being announced for the end of the year.

Virus sleuths report monopoly.vbs and Win32.Kriz, both highly destructive viruses, are set to act at the end of this year. Just as we don't leave our keys in the car, we are no longer living in a time when we can give others "free access" to our computers.

Perhaps the line that might come to

nervous. Worse, some practices virtually send out a message "please sent a virus to me, and destroy my computer files."

How do they do this? One is by "clicking" on virtually any file attached to their e-mail. Just because you can do it does not make it wise!

The very ease of using e-mail has led to many abuses that practically invite virus infections.

your mind goes something like "I don't think we're in Kansas anymore."

We are not.

Some might over-react and just refuse to deal with e-mail any longer. But the reality is just as in other parts of life, there is danger if we get careless. E-mail has proven to be a superb way to communicate. It is quick and it is inexpensive. And you *cannot get a virus* from a text message.

Yet, the very ease of using e-mail has led to many abuses that practically invite virus infections. Also, confusion over "formatted" e-mail makes some people

Any files with extensions including .exe, .com, .doc, .xls, or .vbs can contain a virus or macros that can damage your computer as fast as you can click.

And here is the important point, made very clear by Melissa and Explore.zip: Don't open *any* file that you are not expecting, even from people you trust.

This is not merely a paranoid statement. Think about it.

If someone you e-mail frequently has your address in their "address book" and they get infected, many of these programs will secretly send e-mail masquerading as a personal message ... and

include a virus.

Even if you expected the file, and you trust your correspondent, it is now highly important to use a virus scanner that is up-to-date. Again, many of these viruses are "hidden" and can be transferred before you realize it. Just imagine your friend's chagrin if your system were to be attacked and lose files before he even realizes *he* is infected!

For more suggestions on how to keep your e-mail clean and not get infected, see the accompanying checklist.

The word in the computer trades on the monopoly.vbs virus is that in addition to sending surreptitiously sending the virus on to names in your "address book," the virus sends information from your computer to some e-mail addresses controlled by the virus writer.

Far more dangerous would be infection from the Win32.Kriz virus. This one, according to Symantec and Central Command, will attack your CMOS settings (your computer's basic configuration settings), and on Dec. 25 will attempt to destroy the flash BIOS.

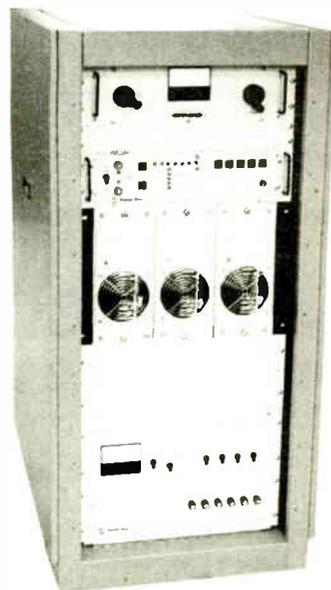
If you do not have a good virus scanner, now would be a good time to install one. In fact, let me recommend a package that will give you not only a virus scanner, but many super utilities for a very modest package price. I refer to the Norton SystemWorks, Version 2.0 from Symantec.

In addition to Norton AntiVirus, SystemWorks includes: Norton Utilities to protect and recover from hard drive and memory problems; Norton CrashGuard to reduce or prevent system crashes; Norton

See VIRUS, page 22 ►

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Antidotes for Computer Viruses

► VIRUS, continued from page 21

CleanSweep to safely remove old or unneeded programs; additional programs to check for Y2K problems; and more.

Using programs like SystemWorks prevents most virus hazards. In effect, you will be practicing what some have called "safe computing" to indicate they

be no quick end to viruses.

Let's conclude this edition of *Keyboard Connection* with a couple of "picks" from the books available to help you get the most out of your computer investment. I've seen some interesting titles that ought to be on your bookshelf.

First, for those who do a lot in Excel,

At least two handy Web sites can tell you whether the virus you fear is for real.

know the what and why of every file that is added to their system.

And don't forget to train new people to be careful in their computer usage. This is critical. It takes only one person making one mistake to drown a whole facility in worms and viruses.

If you are wondering if you really need such utilities, recall our earlier statement about being in a different "world." Sadly, there are a lot of hackers out there seeking perverse pleasure from ruining other's work. Whether it is an attack on Microsoft, or just a way to gain attention from other hackers, there will

but don't have a lot of experience with macros. "Writing Excel Macros" from O'Reilly will help you to make sense of this powerful but complex capability. Steven Roman's book makes the basics understandable to help you learn how to write effective macros.

With this year's Linux explosion, many are taking a look at this operating system. However, in order to navigate the sometimes esoteric and idiosyncratic structure and commands, a guide is helpful. QUE books has just released "Using Caldera Open Linux." Complete with a CD containing Linux, graphical

interface. WordPerfect 8. Netscape and more, this is the perfect way to "stick your toe" into Linux.

One of the best reasons for running UNIX/Linux is the solid platform for Web sites that this software provides. The next question is "what does the webmaster have to know?"

O'Reilly's "Webmaster In A Nutshell" brings everything a webmaster needs to know about working in a UNIX/Linux based environment.

Worried about missing something in the quest to be Y2K ready? SAMS Teach Yourself series now includes "Year 2000

Crisis Survival in 10 Minutes." A series of quick, 10-minute sections, this book provides checklists and information on what to look for and what to do with the information you find.

Finally, if you are considering upgrading to Office 2000, Alpha Books' "Complete Idiot's Guide to Office 2000" not only identifies the new features built into this office suite, but give tips and advice to quickly accomplish many of the things you want to do, but don't think you have time to learn.

■■■

Barry Mishkind is happy to be virus-free, but that doesn't mean he wants you to send him files. On the other hand, he's happy to hear from you at (520) 296-3797, or e-mail to barry@broadcast.net

E-Mail: Playing It Safe

Are you practicing "safe computing" with your e-mail account?

With all the virus warnings being spread around the Internet, you might think that it is impossible. Fortunately, though, reality is not so bad. Most of the warnings are hoaxes.

For example, these are *not* real viruses: Buddylst.zip, Budwiser Frog, Bugglst.zip, Good Times Virus, Join the Crew, Pen Pals Virus, Say No To Jesus. If you want to check on a warning, to see if it is true, or to check out if it is a hoax, try <http://ciac.llnl.gov/ciac/CIACHoaxes.html> and/or <http://www.symantec.com/avcenter/index.html>

Now, here are some tips and suggestions to make your e-mail activity more effective and reduce the threat of malicious viruses.

- Usually, viruses are contained in file attachments, most often with extensions such as .exe, .com, .doc, .xls, .eml, or .vbs.

- On the other hand, if you *do not* open any attachments, you *cannot* be infected. Text files cannot transmit viruses. This is true for all viruses. *If you do not open attachments, you are safe.*

Unfortunately, some folks seem to prefer sending content by using attached files. Often these are MS Word (identified by the .doc on the file name) or .eml files (usually from Outlook/Outlook Express). Others send "formatted" or "styled" text, that changes the color or font from the "normal" that the reader would see, if the file were sent in "plain text" or "ascii text."

This makes some folks nervous. They hear the advice over and over again, *do not* open these files, and here a friend has sent one to you. What should you do?

You need to know:

1. In the case of the Melissa virus, the infected person may *not* know they were infected. So you may get a.doc file that will infect you, even though you have previously "trusted" the person.

2. While .dat, .vcf, or .eml files will not infect you, many e-mail readers do not understand .eml files. Still, some recipients just get real nervous when they see tiny, or blue, or red, or huge fonts on the screen.

Therefore, it really is a courtesy to ensure your e-mailer is set to "plain text." It removes the worry for many; it *assures* them they won't get infected.

3. If you receive a .doc file, and pass it on, you could infect someone who is trusting you, and has trusted you in the past. They could infect others before you are even aware you were infected. This can easily happen on a company network, or a diskette that has "been to school."

What are some solutions?

1. *Avoid attachments* of .doc, .xls, .exe, etc, files whenever possible. It takes just a moment to "cut and paste" the text from one window to another, and it will save the recipient from worry.

2. I do *not* open .doc files from anyone I don't know. You should have the same practice. Most such files are immediately deleted without my opening them. They may be great war stories or interesting reports, but I will not see them. And so far, I can tell you that being careful works. I've not had my machine infected.

3. Again, even .doc files from people known to you can be risky. The Melissa type virus sends a subject line like: "An important message from _____" and includes the name of a friend. The friend may not even know this was sent! *Open any .doc file at your own risk.* If you see the subject as mentioned, don't click on it.

4. Generally, I'm now requesting (even from most friends, as I've known many who had viruses on their machines) that any who must send me a file, send it as an .rtf file. (This means "rich text format.") This contains formatting information, but generally does not transfer macro viruses as found in .doc files. Again, cutting and pasting doesn't take that long.

5. Send e-mail as "plain text" unless you and your recipient both agree to "styled" messages. It just removes one more "anxiety," and we sure don't need unnecessary anxiety, do we? <g>

By the way, styled/formatted text can cause severe problems on mailing lists, especially digests. In fact, when I'm out of town, often the only access to e-mail I have is via telnet, and it so happens that I am unable to read any e-mail with attachments. I know I'm not the only one in this situation.

These suggestions will go a long way to making your e-mail safer and more effective.

— Barry Mishkind

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GUEST COMMENTARY

Broadcast Museum Opens Near D.C.

Charles Rhodes

The national capital area now has a museum celebrating the history of radio and television.

From an 1898 Spark Transmitter to an HDTV receiver, The Radio-Television Museum in Bowie, Md., portrays the development of broadcasting.

The setting is a 1905 farmhouse fully restored, with its original exterior appearance respected and, inside, air conditioning and all the other modern necessities. Wheelchair access and handicapped parking are provided. The building is situated on an acre of land in a residential neighborhood.

The farmhouse was purchased, fully restored, and then leased to the Radio History Society by the City of Bowie to maintain the corner's rural heritage and prevent further development. The museum is but minutes from Interstate 95. Bowie is on U.S. 50 between the nation's capital and Annapolis, Md.

Non-profit preservation

This museum was created by the Radio History Society (RHS), a non-profit corporation with the purpose of preservation of the history of radio and television. This is done through public exhibition and interpretation of radios of the past and present in the United States. Radio developed very differently in all

other parts of the world as those broadcasters were government entities.

"This setting is ideal for our purpose. We want to serve not only the residents of this immediate area, but the traveling public," said Ken Mellgren, vice president of RHS. "With its convenient location near two Interstate highways, ade-



The new Radio-Television Museum in Bowie, Md., is in a restored farmhouse.

quate parking and restaurants nearby, it is ideal for our needs."

Exhibits go back to 1874, with the story of the first Atlantic Telegraph Cable. That was the start of instant communication between North America and England in the form of Morse code — dots and dashes.

Guglielmo Marconi captured the world's attention when in 1901 he spanned the Atlantic without wires or cables, with his "wireless" spark transmitter. At that time, the only practical use foreseen for wireless was to communicate to ships at sea. The Transatlantic Telegraph Cable soon gave way to wireless.

The sinking of the steamship "Republic" in 1909 might have been a major disaster but for the fact that it carried a wireless Spark Transmitter and a dedicated Marconi Operator, Jack Binns, who saved 1,500 lives. A similar Marconi Spark Transmitter and a shore-based receiver of that period are on display at

the museum.

The loss of 1,500 aboard the Titanic in 1912 showed that wireless was essential to safety-at-sea and forced the first Radio Regulations to be enacted internationally.

In the beginning

Radio broadcasting was envisioned by David Sarnoff in 1916. In 1920, Westinghouse began broadcasting as we know it and thus created an instant demand for radio receivers. Westinghouse obliged with a line of receivers, all of which are on display — from crystal sets to four-tube radios for loudspeaker listening by the whole family.

Radios made by General Electric and Westinghouse were marketed by RCA throughout the '20s. Nearly every model is on exhibit. An exhibited 1922 three-tube radio with needed accessories like tubes, batteries and loudspeaker cost \$261.75, while at that time Henry Ford sold his Model T for \$400. Some deluxe models also on view cost more than a Model T. Nevertheless both sold.

In 1931, RCA started making RCA Victor Radios. The world famous "Nipper" listening to His Master's Voice came at this time to RCA-Victor's radios. "Nipper dogs" are well represented here.

The Great Depression ruined most radio manufacturers. Those who survived did so by lowering their costs through the introduction of small table model radios, so called AC/DC chassis without a power transformer. AC/DC sets could be used anywhere in the United States including New York City, which had 110 volt DC

See MUSEUM, page 34 ▶

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Understand FM Radio Classes

► CLASSES, continued from page 20
country with a maximum ERP of 100 kW and a maximum height above average terrain of 2,000 feet. This maximum combination would produce a 57-mile coverage radius.

In the early 1980s, the FCC converted to the metric system and the nominal heights for FM stations were specified in meters, as they are to this day.

The Class A maximum is 100 meters, or 328 feet. For Class B it is 150 meters, or 492 feet, and for Class C it is 600 meters, or 1,968 feet. By comparing the older English-unit maximums to the new metric maximums, we can see that Class A stations came out ahead while Class B

and C stations lost a little.

In the mid-1980s, the FCC instituted several intermediate classes of FM stations.

Class B1 has nominal maximums of 25 kW at 100 meters with a 24-mile coverage radius.

For Class C1 the nominal maximums are 100 kW at 299 meters, producing a 45-mile coverage radius. For Class C2, they are 50 kW at 150 meters (the same as Class B), and for Class C3 the nominal maximums are 25 kW at 100 meters (the same as class B1).

If all this is not confusing enough, keep in mind that Class B and B1 only apply in specified areas of the Midwest, Northeast and Southern California. All

the C classes apply wherever the B classes do not apply. Class A stations can exist in either territory.

Over the years, FCC policy changed from a rather strict allocations policy, to one of "if it fits, do it." As it stands, any class allocation can be assigned to any community of license as long as it meets the mileage separation requirements and community of license coverage requirements, and is in the proper zone for the allocation class.

Theoretically speaking, you can have a full-service Class C station licensed to an incorporated community of 10 people in the middle of the Mojave Desert.

The FCC has established minimum

spacings that stations on the same and adjacent channels must maintain from one another. For the most part, this determines what class a particular station is.

For example, two Class C stations on the same frequency must be no closer than 180 miles to one another. Adjacent-channel stations, out to the third-adjacent channel, have less restrictive spacing requirements (65 miles for Class C stations to second- and third-adjacent Class C stations).

The FCC rules contain a table that specifies the minimum spacings for the classes of FM stations to the other classes for co-channel and first- and second/third-adjacent channels.

There is also a special case for Intermediate Frequency spacings that sometimes comes into play. An IF is a frequency that is used within typical receivers as part of the reception process. Stations that are separated in frequency by a value that equals a receiver's IF frequency can produce interference within the receiver.

Protected and service contours

All classes of FM stations have protected contours, just as AM stations do. Remember that signal levels are measured in millivolts, or thousandths of volts, per meter (mV/m). In FM and TV work, engineers often refer to signal strengths in decibels (dB) above one microvolt, or one millionth of a volt, per meter (dBu).

For all classes except Class B, the protected contour is 1 mV/m, sometimes referred to as the 60 dBu contour. For Class B stations, the protected contour is 0.5 mV/m, sometimes referred to as the 54 dBu contour.

For all classes of stations, the "city-grade" contour is 3.16 mV/m. This may seem like an arbitrary value, but in fact it is 10 dB higher than 1 mV/m (70 dBu). All stations must place a 70 dBu contour over most of the community of license.

In the real world, FM stations may be listenable well beyond the protected contour. In the absence of interference, a signal of 0.1 mV/m or 100 microvolts per meter may be listenable.

In situations where there are closely-spaced co- and/or adjacent-channel stations, the protected contour may well represent the limit of effective coverage. In areas where unusual propagation conditions or rugged terrain exist, there may be interference within the predicted protected contour.

'Grandfathered' stations

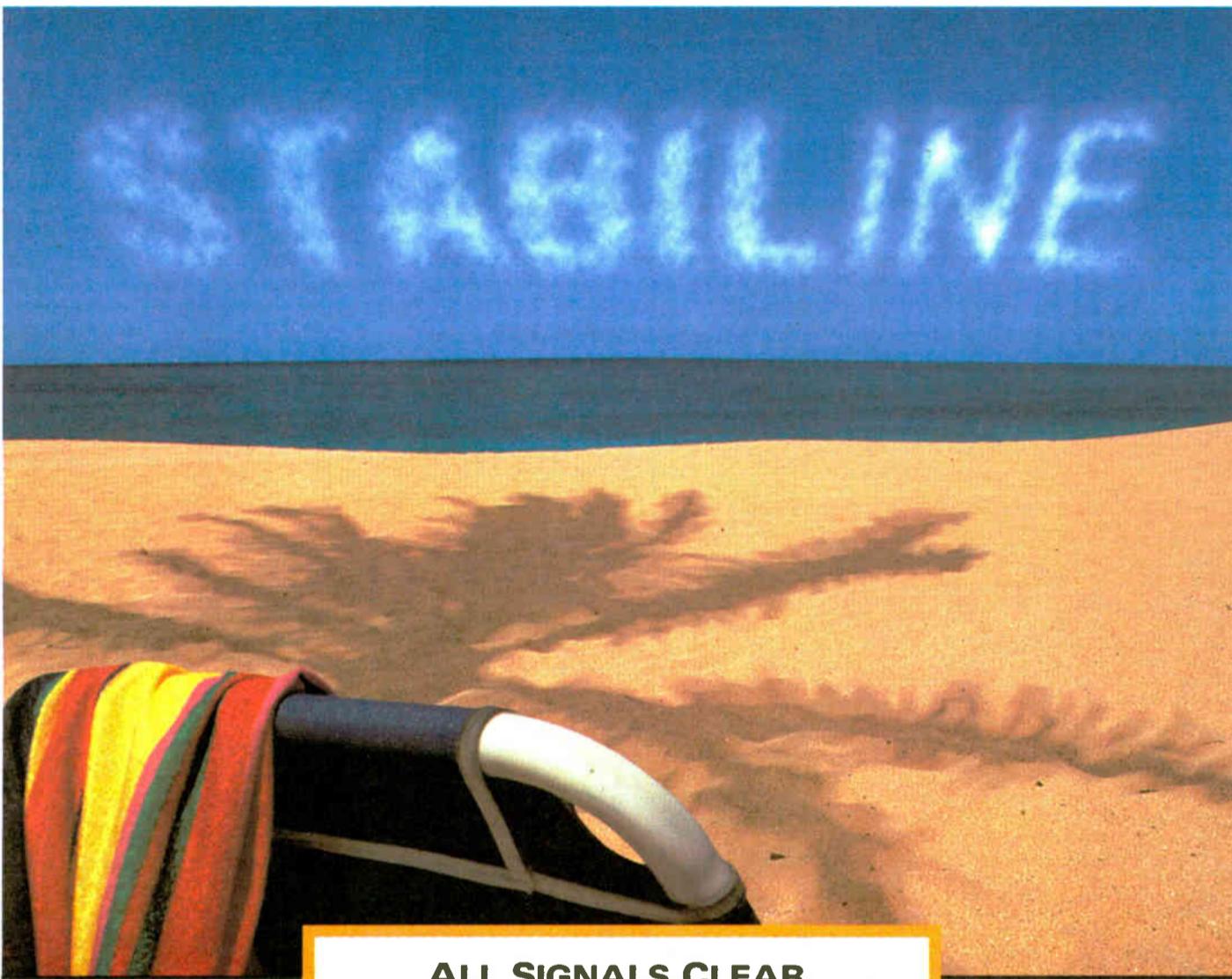
In the early days of FM, the FCC allowed much higher ERP levels for a given class of station than they do now. When lower limits were instituted sometime later, those stations were "grandfathered" at their current ERP and height.

It is not unusual to see old Class B stations operating with well over 100 kW ERP. This may not seem fair to the rest of us, and to some degree, it is not.

The hook for these stations, however, is that they are protected from interference only to where their predicted 0.5 mV/m contours would be if they were regular maximum-facility Class B stations. In other words, interference is allowed to exist well within the predicted protected contour for the grandfathered operation.

In recent years, the FCC began allowing all stations to deviate somewhat from a strict station-to-station spacing and simply protect the contours of co- and adjacent-channel stations from interference, just as AM stations do. There are significant limits

See CLASSES, page 27 ►



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Take a Walk in the Field

► **WORKBENCH**, continued from page 19 anchors, the lighting system, and the general condition of the tower for each station. This included weeds inside the fence, and properly functioning locks, gates and RFR signs. You can now add to that list a Tower Registration Sign, listing the registration number.

If the client had a five-tower direction-



Figure 5: This toroid was damaged by lightning.

al, there were five forms filled out each quarter. It's not a lot of work, and it's impressive to the FCC. In addition, any memoranda to the station ownership about corrective measures were attached. This way, if the tower should fall, there

ter is off, open the antenna tuning unit/antenna coupling unit and inspect. Bring a spare light bulb and lay it next to the light socket. This way, should the interior bulb burn out, you've got a spare ready to screw in.

Figure 4 shows what lightning can do. The burnt toroid in the lower left corner is shown in a close-up in Figure 5.

Check the connections on each coil and capacitor — J-plug jacks too. Use a Sharpie marker pen to mark the location of coil clips.

Should a coil clip fall off, the mark will permit quick restoration. Otherwise,



Figure 6: Ground radials are shown attached to the copper ground screen at the base of the tower.

was no finger pointing in our direction! Whether your AM consists of a single tower or five or more, when the transmit-

it's a long night with a bridge and perhaps your consultant. Check the operation of contactors, and

► **CLASSES**, continued from page 26

on contour protection, so it is not universally applicable. This policy was begun to give FM station licensees more latitude (no pun intended) in site selection.

Directional antennas often are used to limit radiation toward co- and adjacent-channel protected stations and protect their contours from interference while maximizing signal elsewhere. Quite often, terrain shielding accomplishes the same thing without the use of a directional antenna.

Twists and turns

The FCC rules and policy regarding FM allocation contain a great number of twists and turns. All this is well beyond the scope of this discussion. For the sake of simplicity, I have made some generalizations in this series with which the more technically-inclined among us may take issue. Please understand my purpose, and grant me this license so that those not well versed in such matters can grasp the basic concepts.

I hope you have been able to get a handle on the basic principles of FM allocations, and how they relate to your

station. If you have questions regarding a particular allocation, I will do my best to answer them if you will e-mail me at the address at the end of the article.

Station managers, account executives and the programming/air staff should have a basic grasp of the whys and wherefores of their product, radio. Clients and listeners often ask questions or have reception problems, and the non-technical station staff are on the front line in these cases. Engineers can get involved if necessary, but that usually happens only in cases of interference.

Educate yourself in the basics. You will not only be ready to give intelligent answers to the questions when they occur, but you will know so much more about your product.

I encourage you to use this series as a basis for a discussion with your engineer. He or she can enlighten you on the specifics of your station's situation.

■■■
Cris Alexander is director of engineering for Crawford Broadcasting Company in Denver. Contact him via e-mail at cbceng@compuserve.com

look at the contacts. Replace pitted or burned contacts, as well as spring contacts that have deformed and aren't making good connections.

Lubricate the mechanical mechanism if it doesn't switch smoothly. Do not oil or lubricate the solenoid plunger assembly.

Finally, check your ground radials. Are they intact where they connect to the

Broken radials should be silver-soldered together, assuming both ends can be found.

You've probably heard the term "management by wandering around." This is engineering by wandering around. Although this is by no means a comprehensive list of inspection items, keep your eyes open. You'll be surprised what you will find.



Figure 7: These ground radials, indicated by arrows, are exposed.

ground screen? Is the ground screen intact? It's OK if the radials are green; it is normal for copper to oxidize. See Figures 6 and 7.

What's not OK is for radials to be exposed. The FCC will cite you for this, so they must be covered.

Walk your transmitter field and look for depressions in the ground, erosion or digging that may have exposed radials. Animals or vehicles can break exposed radials, and there goes your signal. Cover them as soon as they are discovered.

Tell us your own ideas for engineering by wandering around.

■■■

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 send e-mail to jbis-set@harris.com

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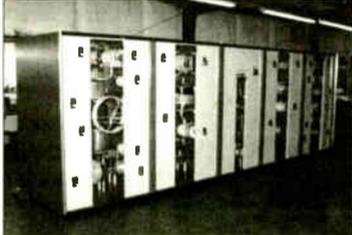


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◆ MARKETPLACE ◆

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This precast concrete building installs quickly and is secure, durable and watertight. The company says it creates a virtually bullet-proof unit for sensitive electronic controls, maintenance gear, storage and communications equipment.

EASI-SET buildings meet UL752 level 4 bullet resistance. They withstand Zone 4 seismic and minimum wind load of 130 mph.

Available clear roof spans are 12, 20, 24, 30 and 40 feet. The units are transportable, and do not require foundations or footings.

For information, contact the company in Virginia at (540) 439-8911, send e-mail to easiset@mnsinc.com or circle Reader Service 92.

'Breakthrough' Tower Foundation Analysis

Lawrence Behr Associates Inc. has launched Foundation Wizard services to the communications tower industry. LBA says this is a revolutionary technology in determining the effective depth of tower concrete bases.

Using "dispersive wave technology" created by partner FDH Inc., concrete bases used in self-support, guyed and monopole communications towers can be field tested to determine their actual effective depth underground, either to the bottom of the poured concrete column or to a shallower point that represents a structural flaw (e.g., break or structural discontinuity) in the concrete column.

The company says this is effective in evaluating the guy wire "deadmen" used in guyed towers.

The Foundation Wizard field test service is non-destructive because the analyst does not have to disturb surrounding supporting earth materials in order to determine the depth of a sup-

porting tower base.

For information, contact LBA in North Carolina at (800) 522-4464, e-mail to lbatech@lbagroup.com, visit www.lbagroup.com or circle Reader Service 130.

Applied Wireless Announces Partnerships

Applied Wireless has entered into partnership agreements with ATDI and

Audemat Inc.

The company is a provider of communication site development, leasing and management services to the wireless and broadcast industries.

President Kevin McNamara said, "We 'build to suit' tower communications requirements. The partnerships that we are establishing offer our customers cutting-edge technology and problem-solving capability."

ATDI develops and distributes software and services for radio planning activities. ATDI software is used in applications that include radio and TV network planning, spectrum management and monitoring, electronic warfare and digital cartography.

Audemat provides the broadcast industry with mobile radio measurement products and RBDS and DARC

See MARKETPLACE, page 30 ▶



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RWD799 ©1999 Marti Electronics

Circle (40) On Reader Service Card

World Radio History

► MARKETPLACE, continued from page 29 encoders.

For information, contact Applied Wireless at (301) 865-1011 or (978) 392-2128; visit the Web site at www.appliedwireless.com or circle Reader Service 121.

Xytech Rolls Out Business Software

Xytech Systems Corp. has unveiled two products that allow broadcast and entertainment facilities to better track and monitor activities, sessions, billings and profits via studio management software.

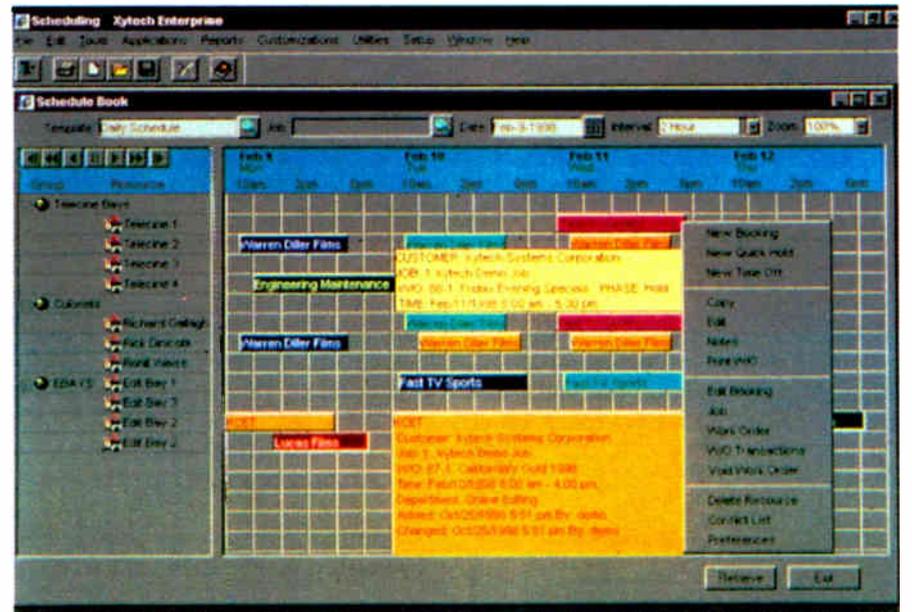
Xytech FMS is a facility management application designed for broadcast facilities that need a computerized scheduling and billing system. FMS is

networkable to allow users simultaneous access to a shared calendar scheduling system for monitoring the use of equipment, rooms and people 24 hours a day, 7 days a week.

Managers can generate standard paper work orders, or go paperless by tracking the use of resources from the screen. Invoices can be generated within minutes of the session ending. Additional financial, statistical and usage reports come with the system, allowing operation managers to access the status of a facility.

FMS runs on SQL databases such as Microsoft Access and SQL Server, Sybase, SQL Anywhere and Oracle.

Enterprise is a broader, more robust management system for larger broadcast facilities. Modules are sold *a la carte* to meet the needs of each facility.



When you need to nail the sound



COURIER, the portable recorder from Sonifex, is the breakthrough in portable digital audio recording that journalists and sound recordists have been waiting for. The Courier records to and plays back from a PCMCIA hard-disk or flashcard. It records standard mpeg compressed, linear .wav, or broadcast .wav files. With the use of a scrub-wheel, graphical LCD waveform and undo actions, non-destructive editing is the easiest in the business with the Courier. The Courier uses standard camcorder batteries or AA cells, and comes with a power supply/charger that can be used in any country. It's light weight 1.5kg (3lb), so it's not going to be a burden in daily use, and has professional XLR connectors.

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COURIER

SONIFEX

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Enterprise has additional modules such as Rental, Job Management, Tape Tracking, Timecard, Duplication and Data Warehousing, and supports an SQL accounting system among other applications that run all aspects of a facility or cluster. Xytech supports a large number of Project Managers to help with customizations and integration of Xytech projects into a broadcast facility's environment.

Enterprise runs on SQL databases such as Microsoft SQL Server, Sybase, SQL Anywhere and Oracle.

For information, contact the company at (818) 767-7400, fax to (818) 768-7430, visit www.xytech.com or circle Reader Service 101.

Courier Is Compatible With Enco

The Sonifex Courier portable hard disk recorder now is compatible with the Enco DAD_{PRO32} audio management system.

Recordings made on the Courier in the field can be edited and inserted into a DAD_{PRO32} machine for playback.

The Courier records linear or MPEG compressed audio files to PCMCIA card disk or flash-card. Recorded clips can be edited on the unit and sent back to the studio as data, or as live audio. Or the PCMCIA card can be removed from the Courier and inserted into a PC or Apple Mac for editing.

Inserting into an Enco PC provides direct compatibility with the Enco system.

The DAD_{PRO32} machine must be fitted with a simple PCMCIA slot to accept the hard disk from the Courier and the additional DropBox utility from Enco so that the audio file can be accepted into the DAD library.

The manufacturer said Courier can integrate seamlessly with most audio editing and playback automation systems including SADiE, Soundforge, Newsboss, Dalet and any other systems using Digigram or Antex audio cards in the linear or Broadcast WAV format modes.

Adding EncoDAD compatibility, the company said, means its recordings are compatible with more than 80 percent of systems on the market.

For information, contact Sonifex dealer Independent Audio in Maine at (207) 773-2424, send e-mail to info@independentaudio.com or circle Reader Service 111.



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World Radio History
Circle (113) On Reader Service Card

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MARKETPLACE

Richardson Catalog
Highlights 80 Suppliers

Here's one for your reference shelf.

Component distributor Richardson Electronics offers a hefty, 180-page catalog that contains key product characteristics on thousands of items including RF power amplifiers, power tetrodes, triodes and pentodes, capacitors, computer displays and RF transistors. The company also



sells full studio products like MiniDisc recorders, audio mixers and mics.

Among the 80 brands you'll find here are products from Gentner, Amperex, Shure, Sony, beyerdynamic, Henry, HHB, Ampex, Denon, Eimac, Fostex, Siemens and NEC.

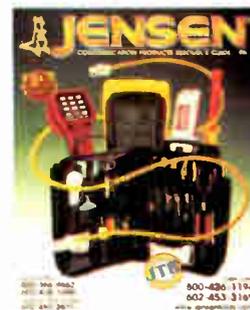
For information, contact the company in Illinois at (800) 348-5580, e-mail to info@rell.com or circle Reader Service 141.

Jensen Tools
Resource Guide

Another publication that will find a home at your station is the updated Communication Products Resource Guide from Jensen Tools, a division of The Stanley Works.

The 100-pager has a range of tool

kits, speciality tools, diagnostics and service aids. It's handy for anyone



working with telecom, data, wireless and A/V systems.

Jensen is a distributor to the electronics and telecommunications industries, also specializing in the design and development of custom tool kits and cases.

Jensen offers an online catalog as well at www.jensentools.com

For information, contact the company at (800) 426-1194, e-mail to jensen@stanleyworks.com or circle Reader Service 131.

More on
Branch
Circuits

► NEC, continued from page 20

An amprobe is the proper tool for this and most other current evaluation situations. It is the best way to measure the current flow.

On the network

Computers and local-area networks (LANs) that provide access to central file servers are becoming so prevalent in broadcasting that it seems more radio station engineers have Microsoft certification than an FCC license.

To attenuate if not eliminate erratic operation to these devices from noise on the AC ground, many stations power these with isolated ground circuits. In this instance the panel breaker feeds an isolation transformer that is viewed by the NEC as a generator or a "derived system." For this reason, a new and ultra-quiet ground can be re-established on the secondary side. The neutral quite often is not connected to this ground and "floats."

A derivative of this arrangement sometimes is used to power terminal gear where the secondary is center-tapped such that a balanced transformer is created. Through common mode rejection, line noise and harmonics are nulled out. At present, these are considered unique installations, so if you put one in, mark it!!

Safety first

To reiterate a point made many times in this series, the purpose of the NEC is to ensure that minimum levels of materials are installed in such a way that these will provide an intrinsically safe installation.

Apparently this effort appears to be paying off. The National Safety Council says 32 percent fewer people were accidentally electrocuted in 1995 than in 1985. The actual number of electrocutions declined from 340 to 230.

A considerable number of those deaths, 10 percent in 1995, were attributed to mistakes in installing or servicing rooftop antennas. We'll get to antennas and the like later in the series.

The minimum safe installation that the NEC dictates is not necessarily an efficient or well-organized one. That is left up to you.

With that in mind, next time we will glide off the NEC path for a moment and shed more light on the efficient use of lighting in your station.

■ ■ ■

Charles S. Fitch, W2IPI, is a registered professional consultant engineer, a member of the AFCCE, a senior member of the SBE, lifetime CPBE, licensed electrical contractor, station owner and former director of engineering of WTIC-TV in Hartford, Conn., and WSHS-TV in Marlborough, Mass.

Reach him via e-mail to FitchPE@compuserve.com

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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 nicely with analog in the same framework.

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Want your voice talent to jump off the dial with an amazing sound? A sound that really captures and enhances the power and subtlety of the human voice? We hear you.

The new ToolVox from Omnia is the first full-featured digital mic

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World Radio History
Circle 147 on Reader Service Card

Radio, TV History on Display

► MUSEUM, continued from page 25

electric power (before World War II).

Small radios were sold on credit, 25 cents per week till paid off.

As war clouds gathered in Europe and in the Orient, there was a great interest in shortwave broadcasting so all-band radios were developed. At the same time, and led by Philco, high-fidelity receivers were developed. These incorporated shortwave bands and the standard broadcast band in the impressive Console Radios of the mid-to late '30s. These became the center of family listening especially during prime time hours.

Portable radios and automobile radios were very popular in the late 1930s. You

could listen to the radio no matter where you were. Zenith even built portable radios with shortwave bands. A 1942 model is on exhibit. RCA capitalized on this by developing a line of very low-battery drain tubes for personal portables, which were much smaller and lighter than ordinary portables.

Millions of Americans living on farms did not have electricity before World War II. Farm radios, using special low-drain tubes were powered by a wide variety of batteries and provided much-needed news, weather, and entertainment to those far from our cities. Such radios were of course also popular at summer homes remote from electricity.

David Sarnoff hired Vladamir Zworokin away from Westinghouse to develop all-electronic television. Two great technical pioneers, Zworokin and Philo Farnsworth, one well-educated in Europe, and the other a poor farm boy from Utah working independently, devised television technology.

Zworokin's iconoscope TV camera tube is exhibited at the museum. This is the type of image pickup device (camera tube) used to televise President Franklin D. Roosevelt at the 1939-40 World's Fair in New York. That was the start of commercial television broadcasting in the United States.

A 1940-model RCA television console with radio is on exhibit at the museum.

The TV screen is only 9 inches in diameter. A 12-inch-screen model was also available that year.

Television got off to a slow start just before our entry into World War II. It was used to entertain our wounded during the war and served as an important consumer



A Zenith portable from 1942, top, shares space with RCA and Zenith table models in the new museum.

entertainment source after the war.

The early adopters then were bars in New York and other major cities such as Los Angeles and Chicago. Baseball games proved popular program material. RCA developed a 7-inch table model TV in 1946 out of a pre-World War II design to sell below \$300. This is on exhibit.

A 10-inch receiver, the famous RCA 630TS, a 30-tube receiver sold for about \$429. It is worth noting that a new Ford automobile sold for about \$1,250 at that time. So great was the demand for TV sets, that in only six weeks, RCA shut down their 7-inch TV production line to increase production to meet demand of the bigger and more expensive model, the 630TS. That model lasted through three model years. The last version of the 630 TS (an 830TS) is on exhibit. Both run very nicely after more than 50 years.

RCA deliberately chose to help other manufacturers to enter the TV receiver manufacturing business so that public confidence in television would be increased. Most early post-World War II receivers used the same circuit and parts as the RCA 630TS no matter whose name was on the product being marketed.

After the color standards war was over in 1954, with the NTSC standard adopted by the FCC, RCA produced a color TV console with a 12-inch screen, model CT-100 that is also displayed at the museum. RCA helped their competition to make NTSC color television sets and through its network, NBC, began offering programming in color. At about \$1,200, these first color sets didn't sell very well. Soon RCA introduced a 21-inch screen table model at about \$400. Popular new cars sold at about \$4,500 in 1955.

Nearly 50 years have passed since NTSC color television was introduced.

See MUSEUM, page 35 ►

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Get Inside These 12 Great Mics

Fans of classic radio microphones won't be able to pass up this new video from Highland Laboratories.

The 43-minute tape is hosted by Bob Morrison, whose career dates to 1943. He is familiar to San Francisco radio listeners, and to radio engineers thanks to his work as the voice of Ampex and Standard Tape Laboratory tapes.

On the video, Morrison introduces a

630, 633 and 639, and RCA's 50A, 88A, BK-1A, 44BX, 74B, KB-2C, BK-5A, and the 77C, D and DX models.

This is for the hard-core fan of classic mics. For instance, you may have seen photos of Franklin Delano Roosevelt with a forest of 50As and 618s in front of him. They might look alike, but the video explains the differences.

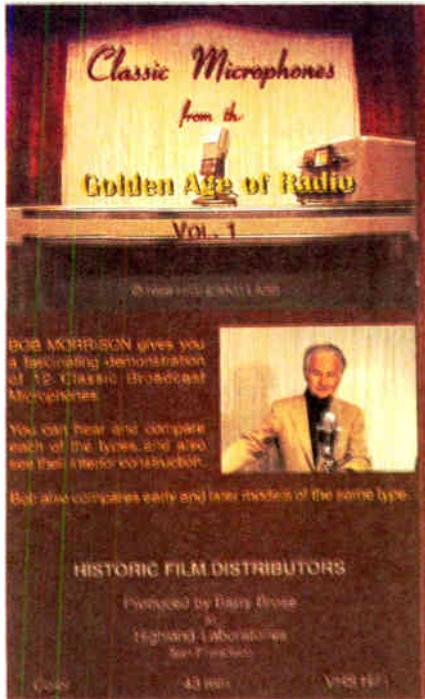
"You see the construction, that's the interesting thing to me," said Barry Brose, president of Highland Laboratories. "We show the inside of these mics."

Brose said work is almost complete on video Vol. 2, expected to be ready by the end of the year.

RIGHT OUT OF THE CATALOGUE

STUDIO WARNING LIGHTS!

This is not an imitation. Not a generic REPLICAs with interchangeable parts that can replace the original, right down to the aluminum casting, stainless steel chassis, I.E. approved fuseless wiring, sandblasted glass lettering, and an improved universal mounting plate. These glasses will replace the glass on existing units.



dozen ribbon, dynamic and inductor models that were used in the 1930s, '40s and '50s. He shows how they were put together, and actually lets us hear them work.

They include Western Electric's 618,

► MUSEUM, continued from page 34

The Museum of Radio-Television displayed a digital television receiver at its grand opening. This Panasonic HDTV receiver with a 56-inch projection screen showed all four Washington, D.C., DTV channels in operation on June 12 and 13.

It may be of interest that we used a Radio Shack double bow tie UHF antenna, an indoor antenna, which was placed in front of a window facing toward Washington, D.C. A spectrum analyzer confirmed that all four DTV signals were of good quality well above the noise and not ridden by ghosts. That is how we entertained nearly 200 residents of the community. This audience had never seen HDTV and when they did, they were quite impressed. Perhaps they won't buy next month, but it is now on their horizon of major purchases and much less expensive than a new car (any new car).

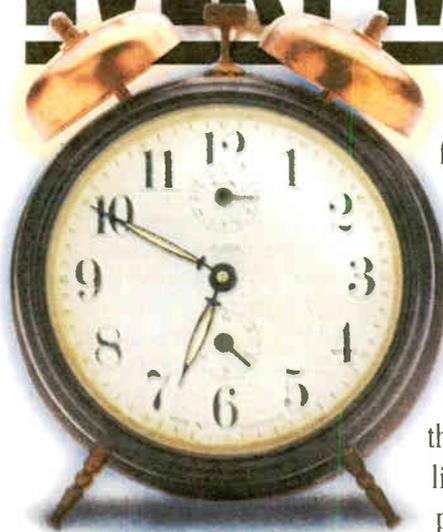
The Radio-Television Museum is listed on the Internet at www.radiohistory.org and pictures of the grand opening can be found under "What's New/Events."

■ ■ ■

Charles Rhodes is director of museum operations for The Radio-Television Museum and, a member of the board of the Radio History Society. For information about the museum, call (301) 390-1020.

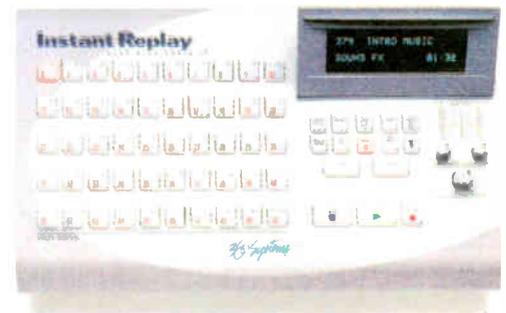
This is one in a series of occasional articles about museums devoted to broadcasting.

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The BeOS: An Attractive Option

► BEOS, continued from page 17

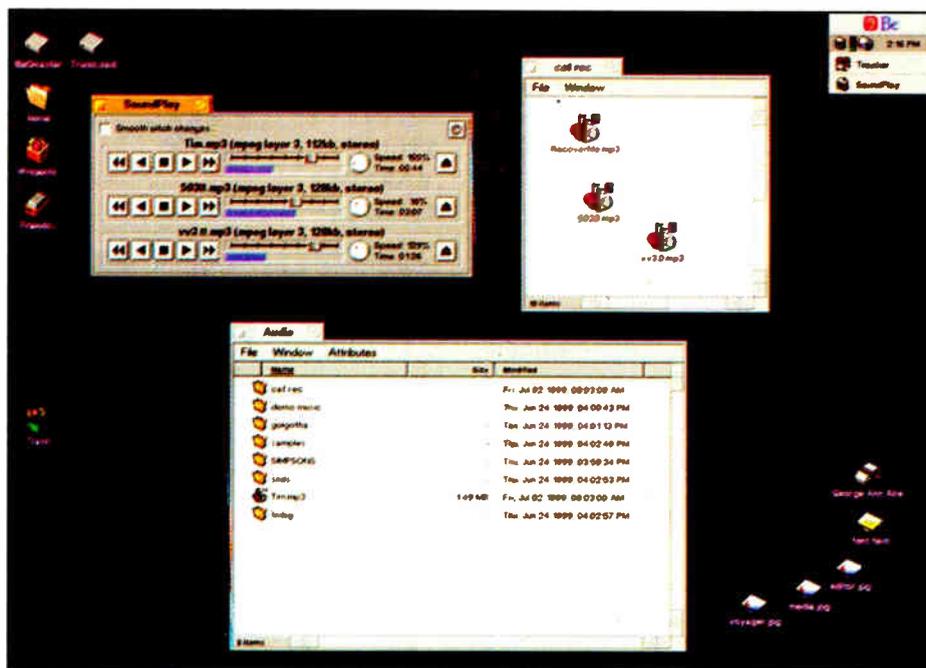
Of special interest to audio users is the low latency time inherent in BeOS applications. An audio signal can be sent from an application, through the audio subsystem, and out to the sound card in 6 milliseconds or less. The same sound card in the same system can have latencies of 25-30 milliseconds under Windows.

Included with BeOS is a media player application that can play a variety of audio and video formats, including MPEG, QuickTime, AVI, WAV, AIFF, and AU. Control is via VCR-style buttons and intuitive scrubbing and looping controls. Of course, multiple copies of MediaPlayer can be open and running simultaneously.

Bundled with BeOS is the 3D mixer application. It's really a multi-track mixer/sound editor that can handle 16 or more tracks of digital audio.

How many more tracks? As many as you have the memory for. Unlike the garden-variety mixer to which you're probably accustomed, 3D mixer has both a linear and spatial interface.

The linear interface looks familiar, displaying all tracks in a standard timeline format. Here you can add, delete and edit tracks, as well as apply special effects. Pretty standard stuff.



Third-party application SoundPlay can play multiple audio files simultaneously, backwards and forwards at speeds of +/- 400 percent.

With one keystroke, however, you can toggle from the linear mode to the spatial mode, and view your mix in an entirely new way. Now each of the tracks are displayed as a column perched atop a grid in free space. Dragging the columns (tracks) backwards or forwards across the grid

controls the level relative to other tracks in the same space.

Similarly, dragging them left or right has the same effect as a pan pot in a conventional mixer. Completed mixes can be saved as multi-track files for further editing, or exported to WAV files for distribution.

Record and edit

BeOS also comes with SoundRecorder, a tool for recording and editing your own clips.

It can capture any audio signal moving through the system to disk, in any format for which a codec is installed. Format translation can be performed "on the fly" by holding down the left Ctrl key while dragging files to the desktop.

In addition to these audio utilities, Release 4.5 also ships with a Web

browser, an e-mail client, TV viewer, utilities, translators and integrated development environment with a source-level debugger.

Installation of BeOS release 4.5 is straightforward. Most users will want to install it on the same hard drive as Windows or Mac. A limited version of Power Quest's PartitionMagic is included on the Be system CD. It will non-destructively resize Windows partitions, leaving blank space for a BeOS partition.

BeOS installation is quick and painless. "Bootman," a multi-boot manager, can be installed optionally, allowing users to choose operating systems on start-up.

A typical Intel installation, including partition time, takes about 15 minutes.

A growing number of audio hardware and software manufacturers are bringing products to market for the BeOS. Among them: Aardvark, with its line of audio cards, including the Aark 20/20 and Aark TDIF; Lucid Technology, a digital audio hardware manufacturer; Yamaha, whose DS1 and DS1L chips are used on many PC motherboards and sound cards; and Arboretum Systems, creators of Hyperprism and Ray-Gun.

BeOS Release 4.5 sells for \$69.95, and is available ordered directly from BeDepot.com. For more information, point your Web browser to www.be.com.

Next time, a look at sound applications for the BeOS.

■ ■ ■

Tom Vernon is a multimedia consultant in Philadelphia. E-mail him at tvernon@blazenet.net, or call (717) 367-5595.



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The BeOS Bible

A sure sign that new computer stuff has "arrived" is when someone writes a book about it.

BeOS is heralded by the BeOS Bible, published by Peachpit Press and carrying a suggested retail price of \$34.99.

Written for novices and rocket scientists alike, this 916-page reference is loaded with text and graphics that will help consumers squeeze every ounce of juice from the BeOS. It was written by Scott Hacker with Harry Bortman and Chris Herborth, high technology journalists who have been covering the operating system beat for several years.

Included are chapters on installation, getting set up, networking, productivity and media applications, and troubleshooting. In addition to the detailed descriptions of all things related to the OS, the book is sprinkled with interviews with key BeOS movers and shakers, including founder and President Jean-Louis Gasse.

Useful appendices include a listing of keyboard equivalencies and shortcuts, day/time formats recognized by the query engine, information about the IDE (integrated development environment) included with the OS, and sources for additional information.

Any computer book is really a work in progress, and the BeOS Bible is future-proofed by the Web page www.beosbible.com, where readers can view ongoing updates about BeOS scripting, games, emulation, hardware, and speculation about Release 5.



Radio Monopoly: Who Got Game?

Flip Michaels

"I'll trade you my two stations in Hartford for your AC in Tampa," said one major player. "Only if you give me an AM as well," said the other. Welcome to the game of Radio Monopoly, where there have been a variety of property exchanges since the passing of the Telecommunications Act in February of 1996.

Changing landscape

As the medium's landscape continues to change, who is taking notes on

what new trends seem to be taking place? Are there any formats that are in trouble? Who's leading the pack? Thanks to a recent Interep study on the format shares owned by broadcast groups, some of these answers are coming to light.

Interep's analysis focuses on the share of listening attributed to each corporation, within 11 major formats and the 25 Arbitron metros (excluding embedded metros and Puerto Rico). These numbers reflect a recent snapshot of group ownership as of late summer 1999.

One of the most interesting statistics deals with the low number of station ownership in the all-news format.

"You have to take into account that this is one of the most expensive formats to run," said Mark O'Brien, vice president of BIA Consulting. "This is not a format that's easy to recreate from scratch."

Media giant Infinity/CBS clearly owns almost 90 percent of all-news listening (12+, AQH Share, Mon-Sun 6a-12m) in the top 25 metros, with only six other group owners existing

See **FORMAT SHARE**, page 43 ▶

Public Radio Takes Its Turn To Profit

Carl Lindemann

Is the structure of today's public broadcasting system right for the online future? For Tom Lix, president of Public Interactive, the rise of the Internet necessitates a new service for the New Media.



"We chose the name 'Public Interactive' very carefully. There is public television, public radio, and now Public Interactive," he said.

Recently, it announced that the venture has the backing of Public Radio International and some flagship stations in the public radio and television system. These include WNYC-AM-FM, New York; WXPB(FM), Philadelphia; KERA(FM)/TV, Dallas; WBUR-FM, Boston; WGBH(FM)/TV, Boston; WETA(FM)/TV, Washington; KPLU-FM, Seattle/Tacoma; KPBS-FM/TV,

See **PUBLIC**, page 53 ▶

Adult Contemporary	
	Share of Listening
1. AMFM	29.7%
2. Infinity	12.4%
3. Clear Channel	11.4%
4. ABC	8.9%
5. Cox	6.7%
6. Bonneville	6.0%
7. Other	24.9%

Modern Rock	
	Share of Listening
1. Infinity	40.6%
2. Clear Channel	11.2%
3. Susquehanna	8.3%
4. AM/FM	8.0%
5. Emmis	6.8%
6. Entercom	5.7%
7. Other	19.4%

Hispanic	
	Share of Listening
1. Hispanic Broadcasting	47.6%
2. Spanish Broadcasting	28.4%
3. Liberman	6.6%
4. EXCL	5.4%
4. Other	12.0%

Classic Rock	
	Share of Listening
1. Infinity	25.3%
2. Clear Channel	17.1%
3. AMFM	15.6%
4. ABC	9.3%
5. Other	32.7%

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The Declaration of Independents

Steve Sullivan

This June, members of the Association of Independents in Radio and the Producers Advocacy Group unveiled the Code of Fair Practices for Working with Free-lance Radio Producers.

While the document title may be a bit unwieldy, the code is an effort to simplify the rules of engagement between public radio's free-lance and independent producers and the organizations that purchase their services.

As stated in its introduction, the code aims to "clarify and standardize rates and practices for working with free-lancers in the radio industry."

While not going so far as to spell out how much acquiring organizations should pay contributors, the code does urge buyers to match prevailing rate scales in their markets. It tackles issues such as how and when payment should

The code urges buyers to match prevailing rate scales in their markets.

be made, expenses, kill fees, indemnity and usage rights.

Tatiana Schreiber, an independent producer who is co-chair of PAG's Fair Practices Committee, said, "The code addresses concerns of free-lancers like myself, people who are always working for somebody different every day. We wanted to deal with all these different practices and try to get it to one level playing field."

Jell-O

Steve Rathe, a founding board member and past chairperson for AIR, said the concept of a unified code has been discussed for years, but nobody had taken the initiative to do anything about it until now.

"It came from a frustration in terms of trying to deal with lots of different kinds of acquiring organizations, each one wanting the other organization to go first in terms of any kind of new precedent. Everyone said 'This is what we do and you want us to do something differently, but what about all those other people?'"

"It was like trying to nail Jell-O to the wall."

Schreiber said that before drafting the code, the two advocacy groups initiated a discussion within the public radio industry, inviting input from producers, acquirers networks, stations and shows.

"We talked about all the issues and about how we could come up with something that would work for everybody. Then we took all those ideas, plus our own issues and concerns, and came up with this code."

AIR and PAG say the intent of the code is not to force acquiring organizations to adopt everything listed in the document, but to use it as a starting point to initiate a dialog between acquirers and

independent producers.

The two groups are in the process of distributing the code and soliciting feedback on it from the public radio industry. And part of the mandate from their own board of directors is to revise the code annually.

Feedback thus far has been largely favorable. Johanna Zorn, an executive producer for Chicago's WBEZ(FM), said, "I think it's a very good thing and it was necessary. When I first started hiring producers for documentaries, I had nothing to go on. If I were starting up today, it would be great to have this to go from. They really are guidelines, they're not telling you exactly how much to pay."

WBEZ is one of the better-paying stations in public radio. Zorn said for the upcoming year producer fees will be \$5,500 per 30-minute program, plus an expense allowance up to \$3,000.

Industry standards

Unfortunately not all stations in the public radio system can afford to be as generous. In fact many have no budget for purchasing independent material. However, even at those cash-strapped stations, managers are finding the code helpful.

Steve Spencer, general manager for WYSO(FM) outside Dayton, Ohio, has no budget to commission the work of independents. And he says even the full-

time workers at his station are underpaid by industry standards.

"But that's not a reason to keep you from setting benchmarks and goals to strive for. Instead of just talking about them in the abstract, the code sets forward guidelines that I can use to frame my conversations with the several constituencies that affect revenue in our shop, whether its our licensee, our audience or our development committee. The document helps me show these groups that our current situation isn't just a shame, it's unacceptable."

Tom Thomas, the co-CEO for the Station Resource Group, a Takoma Park, Md., group that represents 60 large-market public radio stations, expressed guarded enthusiasm for the code.

"What this document is very good at is

See FAIR CODE, page 52 ▶

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* June 10, 1999 M Street Journal:
"Prophet supplies digital software—and its name is now a catchword (they're gonna go Prophet with it overnights)."

ONLINE RADIO

Do-It-Yourself Webcasting

Kim Komando

Let me start by saying that unless you're ready, willing and able to spend an exorbitant amount of money on equipment and direct-to-the-backbone Internet access, there really is no such thing as do-it-yourself.

To make Webcasting somewhat cost-effective, you need to partner with some sort of Internet provider. And while there are service bureau-like companies (e.g., Broadcast.com) that specialize in this sort of thing, you may want to enjoy the independence that comes with contracting with a local company and calling your own shots.

Getting started with Webcasting boils down to two important questions: What do you need at your end, and what does your Internet partner need at his end? Luckily, neither answer is extremely complicated.

At your end, all you'll really need is a personal computer into which you can feed your signal. Of course, this computer needs to be connected to a phone line, which in turn is connected at the other end to your Internet partner. The phone line used to be one of the most expensive recurring costs in the whole setup — if you wanted maximum quality. You see, as line capacity (a.k.a., bandwidth) goes up, so does the quality of the broadcast.

But as bandwidth goes up, so does the cost of the line — or at least that's how it used to be.

Bandwidth at its best

Not long ago, the minimum needed for a decent connection was an ISDN line. These were relatively affordable compared to T1 (industrial bandwidth) lines, but not really a bargain.

Frame relay came along and pushed prices down a little, but not much. Now, a type of service called Digital Subscriber Line is pushing high-speed,

high-bandwidth business connections way down.

DSL works its magic by running over the same copper wire as standard telephone signals; it just uses a different frequency. The result is that DSL signals and voice calls can exist on the same line. That translates into lower costs — possibly in the sub-\$200 range for monthly DSL charges.

The only downside to DSL is that its viability depends on your geographic location in relation to the nearest phone company switching station. If you're too far away, it may not work. However, if you're located in a major metropolitan area, this most likely won't be an issue.

Once you've become an expert on phone lines, you'll need to learn a little about the differences between unicasting and multicasting.

Unicasting is the simplest way of putting your program out over the Internet. In a unicasting environment, each person must connect directly to your site to receive the programming. The advantage here is that you can easily monitor how many people are "tuned in" and have more control in that respect.

The down side to unicasting is that your site (i.e., your Internet provider's equipment) must be able to support every listener who tunes in.

If your online programming is extremely popular, there's a chance that some listeners could get turned away at the cyber-gate when the system is maxed out. And the last thing you need is a Webcast that people can't listen to.

Multicasting takes advantage of the fact that most Internet signals must bounce through several computers to move from Point A to Point B. The signals are routed through each computer by a device conveniently known as a router.

For multicasting to work, various Internet junctions around the country must be using multicast-enabled routers, which are becoming more common.

How it works

Say your show originates in Los Angeles, and a listener tunes in from Phoenix, and another listener tunes in from Tucson. And finally, say that that somewhere along the way, the signals to both Phoenix and Tucson must pass through the same multicast-enabled router.

In this case, the listener from Tucson would pick the broadcast up from that router instead of having to pull it directly from your server. In other words, your system would only need to support one user for both of these people to tune in. This is a simplified example, but you get the idea.

The down side to multicasting is that it makes you more reliant on computer systems over which you have no control. For example, you have no sure-fire way of monitoring how many people are tuning in at any given moment. You can track listeners by having them connect through your site. That way, you know how many people tried to tune in. But once they're getting the signal from the router, you have no real way to know if they're still there or not.

Overall, though, multicasting is still a more efficient, cost-effective way of doing Webcasting.

Finally, your Internet partner will need to be running some sort of special server software designed specifically for Webcasting. The de facto standard soft-



Real Networks

ware for Webcasting comes from Real Networks. Your Webcast is sent out on the Internet using server software from Real Networks. At the other end, listeners tune in to the Webcast using either the free or the for-pay, enhanced versions of the RealPlayer browser plug-in.

One of the main reasons to stick with Real Networks products is because they are so common. While there are other competing products, most Internet users in this country already have RealPlayer installed. That makes tuning in to your Webcast almost effortless.

As for up-front and recurring costs, you'll need to do some shopping. This is such a narrow niche that there is no industry-standard pricing akin to the \$20 a month for consumer dial-up access. You may find that prices from Internet partners in your area vary widely for the same services. The key is finding a partner that has the tools and skills to make the whole thing work — and work right.

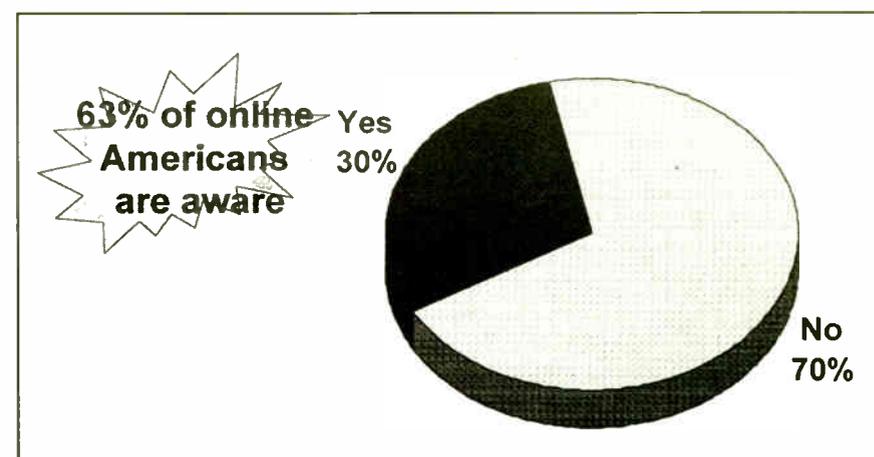
Kim Komando hosts the weekend and daily feature computer talk radio show syndicated by WestStar TalkRadio Network. For more information, call (602) 381-8200 ext. 201 or send e-mail to affiliaterelations@weststar.com

Study: Web Users Who Listen Are Active Buyers

Internet users who tune into radio stations while on the Web are far more likely to engage in e-commerce activity than are Web users who do not tune in an online station. That's the finding of the latest

Web site compared to non-listeners.

The study notes that, although Internet listening is up to 30 percent of all Web users, compared to 18 percent last year, Web listening is not yet habitual. While nearly one



30% of Americans and 63% of online users know about Net radio.

Arbitron/New Media Internet study. According to the study, released during The NAB Radio Show this month, 43 percent of online listeners are likely to have made Web-based purchases vs. just 30 percent of non-listening Web users. And online listeners are three times as likely to visit and bookmark a radio station

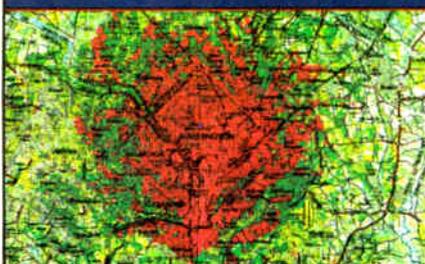
out of three Web users say that they have ever listened to an online streamer, according to the study only 10 percent said that they listened in the past month.

"Dot com" advertisers have been using traditional radio aggressively to promote their brands and build

See ARBITRON NET, page 43 ▶

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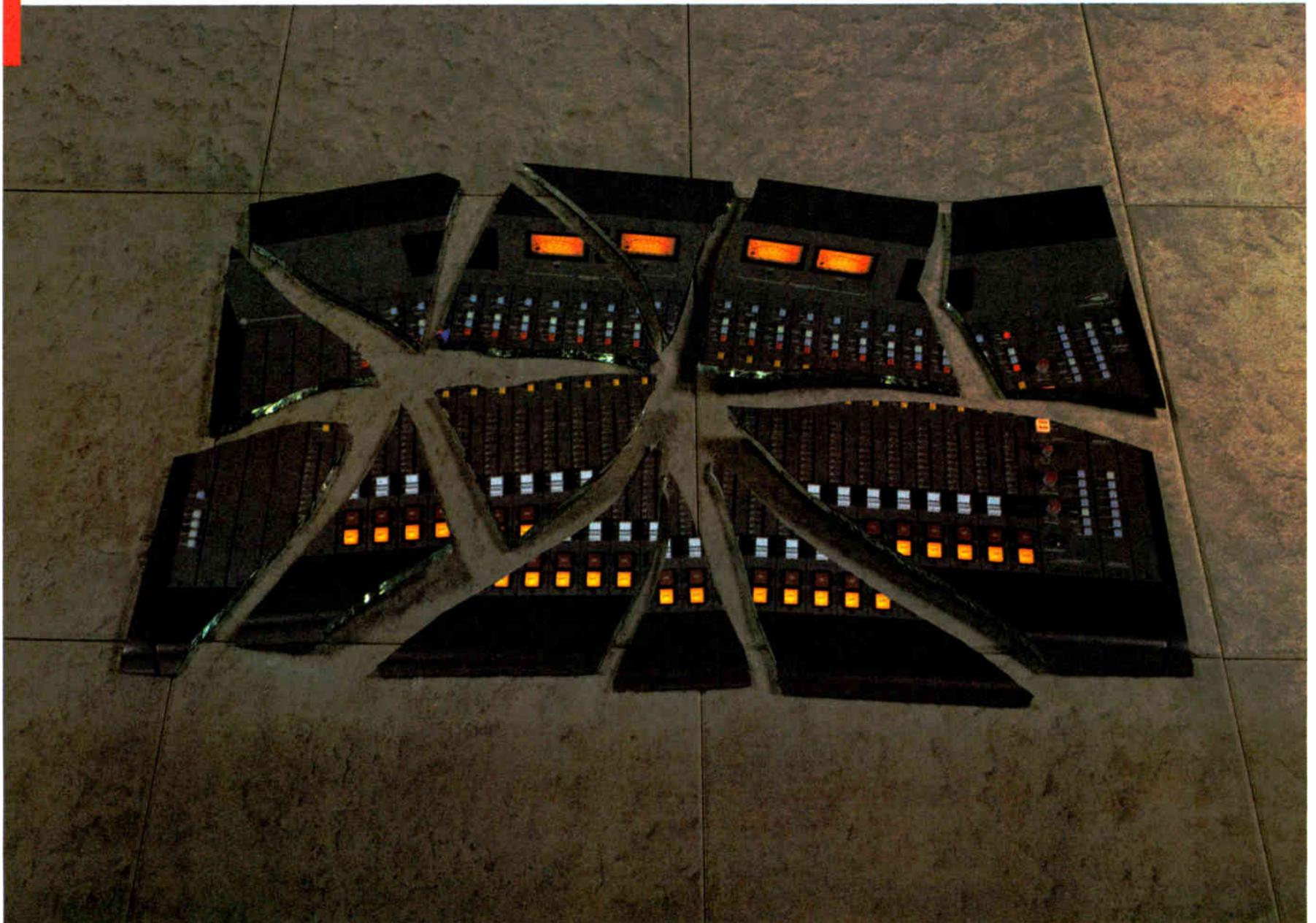
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HARRIS

Who Owns Which Formats Where

▶ **FORMATS SHARE**, continued from page 37 in these markets.

"One of the keys to dominating the all-news format in ownership is operation efficiency, the ability to share resources within a market," said O'Brien. "From the sales side, there may be some benefit as well. Perhaps approaching advertisers offering them an all-news network buy of, say, the top 10 markets," said O'Brien.

From all-news to news/talk, the numbers change greatly. More than 35 group owners program news/talk stations in the top 25. Infinity, ABC and Clear Channel represent the leaders in percentage of listening in the format, with AM/FM, Cox and Entercom averaging between 5 and 6 percent shares.

"There's a real synergy in the news/talk format," O'Brien said, "but I don't think it really has been any one

company's strategy to be the largest format owner at this time. These numbers are definitely interesting, but they have also been pretty readily available

comes from the pop arena primarily," said Dan Vallie, founder and CEO of Vallie Richards consulting with offices in Atlanta, Chicago, Charlotte, N.C.,

Welcome to Radio Monopoly, where there have been a variety of property exchanges since the passing of the TC Act in February of 1996.

(to the industry) for some time."

Interop's research also shows that the majority of group owners in the top 25 markets are programming adult contemporary (38), followed by news/talk (35) and country (33).

"One of the things that is relevant inside the AC format, since it includes modern AC, is that the modern AC format is not a typical AC format since a lot of the music comes from the rock arena while the other variations of AC

and Blowing Rock, N.C. "Also, modern AC usually has a better balance of men and women vs. being as female-

heavy as the traditional pop ACs."

So how important are these findings? Are they just anecdotal figures? "I'd be really cautious with these numbers," said O'Brien. "Other than relationships with record companies, I'm not sure it matters to be the largest group owner in a particular format."

Vallie agreed. "The report is pretty much black and white. As to whether these trends will continue this way will be affected by the usual ratings changes from sweep to sweep, but will most likely only be dramatically changed in this kind of report with the selling of these properties to other companies as we just saw with the Cox/AM/FM deal in Los Angeles. A deal like that changes these numbers pretty quickly."

And so we wait for the next big player to roll the dice, pass Go and continue the game of radio monopoly.

The Interop study is available online at www.researchstore.com (click on "What's New.")

CHR/Top 40/ Dance CHR	
	Share of Listening
1. AMFM	34.1%
2. Infinity	16.8%
3. Clear Channel	15.3%
4. Emmis	14.4%
5. Other	19.4%

Country	
	Share of Listening
1. Infinity	30.4%
2. AMFM	17.7%
3. ABC	9.0%
4. Clear Channel	6.0%
5. Jefferson Pilot	5.7%
6. Beasley	5.1%
7. Other	26.1%

Oldies	
	Share of Listening
1. Infinity	56.3%
2. AMFM	24.8%
3. Clear Channel	5.9%
4. Entercom	4.2%
5. Jefferson Pilot	3.7%
6. Other	5.2%

All News	
	Share of Listening
1. Infinity	87.4%
2. Bonneville	5.1%
3. Bloomberg	4.0%
4. Other	3.5%

Urban	
	Share of Listening
1. AM/FM	34.0%
2. Radio One	14.8%
3. Clear Channel	9.5%
4. Inner City	7.1%
5. Emmis	6.5%
6. Other	22.9%

News/Talk	
	Share of Listening
1. Infinity	23.4%
2. ABC	19.4%
3. Clear Channel	12.4%
4. Other	44.8%

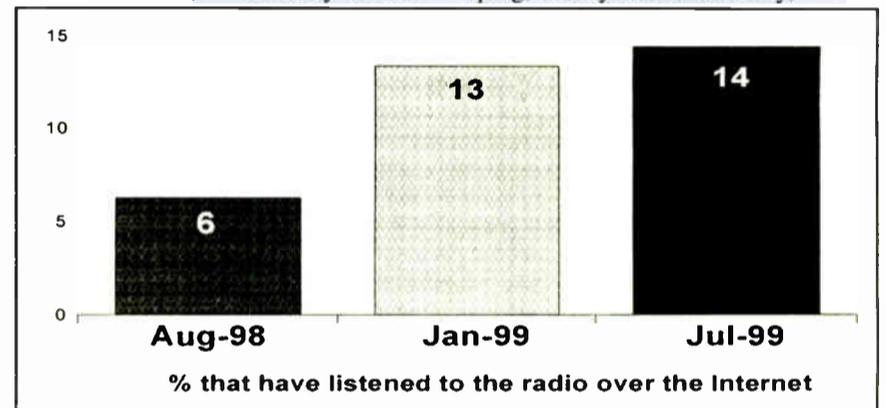
Rock	
	Share of Listening
1. Clear Channel	27.8%
2. AMFM	14.4%
3. Infinity	14.0%
4. Greater Media	11.2%
5. ABC	8.7%
6. Entercom	7.3%
7. Other	16.6%

E-Commerce to Benefit, According to Arbitron

▶ **ARBITRON NET**, continued from page 40 site traffic, the study confirmed. And here's something your sales department can take to hesitant advertisers: Twenty-nine percent of people with Internet access (that's nearly 31 mil-

and driving Web site traffic," said Greg Verdino, vice president/general manager Internet information services at Arbitron.

"Radio stations should begin developing, if they haven't already, Internet

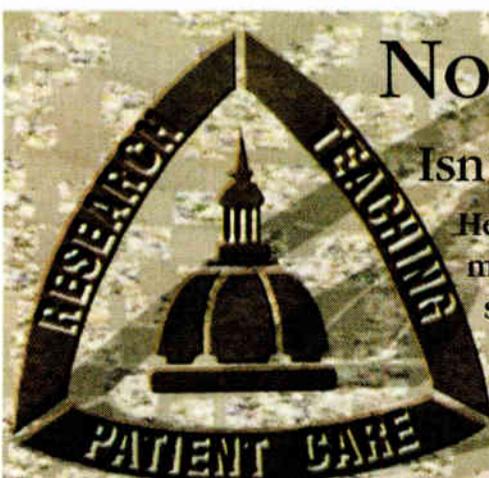


lion people) have visited a Web site as a direct result of an ad that they heard on the radio, according to the study. The study concludes that advertisers are wise to include Web addresses in radio ads.

"Internet and radio advertisers should continue to utilize radio as a primary medium for building brands

niche programming like that of the Internet-only audio providers. Radio stations already have tremendous programming expertise. By creating Internet outlets, radio stations can supplement and enhance existing over-the-air franchises."

— Laura Dely



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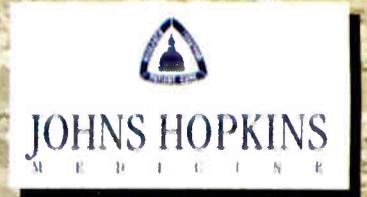
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Insight, Heart and Wit at WVOX

William O'Shaughnessy takes on the broadcast industry, the rich and the callous and honors the unheralded in a new published collection of radio editorials that he has delivered on his stations in New Rochelle, N.Y.

The book is "AirWAVES — A Collection of Radio Editorials from the Golden Apple."

Margaret Noonan, spokeswoman for Fordham University Press, said, "William O'Shaughnessy uses his 'bully pulpit' to defend our most precious freedoms."

O'Shaughnessy, whom Mario Cuomo dubbed the Squire of Westchester, is pres-

ident and editorial director of Whitney Radio stations WVOX(AM) and WRTN(FM) in New Rochelle. His strident defense of First Amendment freedoms on the air, combined with his long-time membership on the NAB board, made him a natural spokesman when that organization sought to defend broadcasters against "Fairness Doctrine" incursions and other First Amendment decisions levied by the FCC in the past decade.

when Clintons chose the Westchester town of Chappaqua as their post-presidential home.

The Wall Street Journal has described WVOX, in O'Shaughnessy's hands, as a small regional radio station transformed into "the quintessential community radio station in America."

"AirWAVES" covers both "Townies" and "Newsmakers" who live within Westchester County borders.

O'Shaughnessy pays tribute to every layer of society in his community.

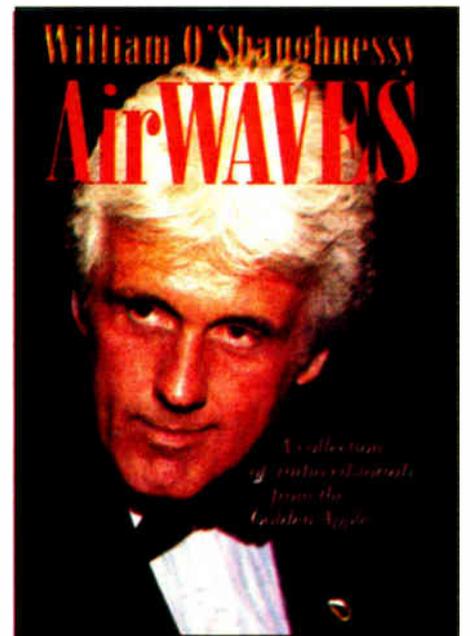
O'Shaughnessy said, "I have been called in (by the NAB) on every First Amendment and 'Fairness Doctrine' fight the broadcast industry has had."

But in his editorial slot at WVOX, he derives the most pleasure out of covering his hometown beat, Westchester County, N.Y., dubbed the "Golden Apple" because of its wealthy, diverse and influential population just north of New York City. Most recently, the area made news

But O'Shaughnessy pays tribute to every layer of society in his community, and so people who will never be covered by the New York Times or Bloomberg Business News also are frequent subjects in these essays. Shipwreck Kelly, Joe Vaccarella, Jenny C. Murdy and Rocco Bellantoni are all featured in his book.

"All consider WVOX their hometown voice," Noonan said.

In addition to presiding at his radio



stations, O'Shaughnessy has his own talk show on New York City-area cable provider Cablevision, titled "Interview with William O'Shaughnessy." He is donating all royalties from "AirWAVES" to the Broadcasters' Foundation in Greenwich, Conn.

"AirWAVES — A Collection of Radio Editorials from the Golden Apple" is available from Fordham University Press, \$25, ISBN: 0-8232-1904-6. To order, call (718) 817-4780.

— Laura Dely

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Free Speech on the Airwaves

Here's a 1987 excerpt from William O'Shaughnessy's book "AirWAVES — A Collection of Radio Editorials from the Golden Apple," published by Fordham University Press.

The author introduces his radio editorial in italics.

Some years ago, in Palm Springs, Calif., the board of the National Association of Broadcasters met in high council to consider a censure motion against Howard Stern. When the debate began, I didn't have the votes to stop it.

Many editorial writers and columnists ... believe that recent actions of the Federal Communication Commission represent an intolerable intrusion into program content. And so do I ...

It is not necessary to mention those specific cases because indeed, the matter affects all of us. I will merely, for purposes of this discussion, call him the "Unmentionable," the "Wisecracking disc jockey Unmentionable" who, thanks to the commission, now has a career on television as well as radio.

At any rate, the broadcasts for which he stands accused may have been indecent or obscene. We now realize, however, that such a judgment should be left to the broadcaster, and thus to the viewer or listener who should be able, in this republic, to exercise the ultimate and only permissible censorship: by tuning out material that may be offensive to his or her eye or ear or sensibilities. Indeed, as I read the transcripts, the only "crime"

of which the "Unmentionable" should perhaps stand accused is grossness or vulgarity. ...

I have acknowledged my belief in the existence of Evil, which is to be fought in every way, on a daily basis, in our own personal lives. But whether we like it or not, as broadcasters, as citizens, and as passionate believers in the Constitution, we have to take our stand with the raucous, the gross, the clumsy,

We have to take our stand with the raucous, the gross, the clumsy, and the sensational.

and the sensational. ...

The issue is monumental and goes far beyond Howard Stern. ...

For many good, decent, and God-fearing people in this republic — and for broadcasters and many others in this room — the connection is a hard one to make. But songwriters, disc jockeys, rock stars, and musicians struggling to communicate in the vernacular and with the currency of the day — in all their grossness and clumsiness ... for all their lack of style — are, whether we like it or not, the bards and poets and minstrels of the day. ...

The whole, damn, difficult ques-

tion should go to the Justice Department and thus to the courts ... the branch of government which provides for due process. ...

The danger and threat to all of us which the commission promises by its stated policy of refusing clear guidelines — and instead threatening "case by case" enforcement of those non-existing guidelines — dictates that we act now and send an unmistakable message that this issue is beyond tactics and strategy. ...

Which words are really obscene? Jerry Gillman of Woodstock, for example, wonders if "f—k" is really worse than "n-gg-r" and "k-ke." Which, indeed, is ultimately more obscene and indecent?

The fundamentalists, who have relentlessly lobbied recent appointees to the FCC, have probably forgotten that Jesus of Nazareth showed great compassion for prostitutes and other sinners against "the flesh," while reserving his greatest disapproval for the self-righteous, the hypocrites, the chief priests, the elders, and the magistrates of the day.

And so we are left with only vulgarity ... and grossness ... and some fragile notions about something called Free Speech ... and the First Amendment to the Constitution we now celebrate, but sometimes forget.

I'm pleased to note that my colleagues bought into my pleadings on the subject. But I also had some powerful and timely help from Mel Karmazin, Howard Stern's boss, who now heads CBS/Infinity.

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Bob Barker's Roots in Radio

Robert Rusk

When Bob Barker was growing up on the prairies of South Dakota, he liked listening to the mystery program "Inner Sanctum" on the radio.

He also tuned in other popular offerings of the early 1940s, including the quiz show "Truth or Consequences," not knowing that one day he would step up to a microphone himself and go on to become one of the most famous voices in the business.

Barker never dreamed of a career in broadcasting. What he really wanted to do was pitch for the St. Louis Cardinals. But quicker than you can say, "Play ball!" he struck out when Uncle Sam called him up to serve in World War II.

Although Barker trained to be a Navy fighter pilot, the war ended before he was assigned to a seagoing squadron. After being discharged, the training came in handy. It helped him land his first job, not in baseball but in radio, at KTTS(AM) in Springfield, Mo.

On golden wings

"I had never even been in a radio station. I knew nothing about radio," Barker, 75, told *RW* in the mellifluous baritone known to millions of Americans. "But I wanted a job and heard about the manager of a radio station who was crazy about airplanes. G. Pearson Ward was his name and I went to see him. I put on my naval officer's uniform and wings of gold. We talked about airplanes for nearly an hour, and I had my first job in radio."

Barker recalled doing "all sorts of things at KTTS," from writing local news and anchoring a sportscast, to serving as a staff announcer and disc jockey. But what really stood out was the audience participation show that he was tapped to host.

"The host who usually did it didn't arrive one day and I was on duty as an announcer," Barker said. "It was a live show and the manager came in and told me to take over. So away I went. I didn't even have time to get nervous."

After Barker's wife heard the broadcast, she told him, "This is what you should do. You do this better than you've ever done anything else."

The quick-witted Barker said, "She didn't say that I was good. She just said I did it better than I'd ever done anything else. So I followed her advice, and I'm still here."

It has proven to be the best advice that Barker ever received. From that beginning more than 50 years ago, he has gone on to become one of the most familiar stars on TV. This year he was presented with the Lifetime Achievement Emmy Award for Daytime Television, giving him an astonishing career total of a "barker's dozen" of Emmys. Barker also has won 10 of the coveted statuettes as host — more than any other performer in the category — and two as executive producer of CBS' "The Price is Right," the most popular game show on daytime TV.

Among other accolades, Barker has been honored by the Hollywood-based Pacific Pioneer Broadcasters for his "important contributions to the history of radio and television."

Barker may never have received any of the recognition, had it not been for his

preference to work in a warm climate.

In 1949, he moved to the Sunshine State and took a job at WWPG(AM), now WPBR(AM), in West Palm Beach, Fla.

"I was the news editor and an announcer at the station," said Barker. "My wife and I enjoyed being in Florida and were there for a year, but I realized that if I was ever going to do anything on a national level, I had to be in either California or New York."

The Barkers decided to head west for the bright lights and warm nights of Hollywood, and set out to make him a national radio star.

"I came out here and was told there were 3,000 radio announcers walking the

streets," Barker said. "I figured that 2,999 of them probably had better voices than mine. I didn't want to be an announcer anyway. I wanted to host audience participation programs. So I went to a station on Sunset Boulevard, KFMV(FM) and applied for a job as a salesman. My thought was that I would sell a show and host it myself." The station is now KTWV(FM).

Barker met the sales manager of the station, who in turn introduced him to the operator of an appliance store — a man who immediately took a liking to Barker.

"He told me that if I could put together a radio show, he could get the Department of Water and Power to let us



Bob Barker

use their North Hollywood auditorium free of charge," said Barker. "He said See BARKER, page 47 ▶

Why is Bob laughing?

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► BARKER, continued from page 46 they would also supply a home economist to do a cooking class, if I could draw a crowd. And he offered to get one of his television suppliers and an appliance company to sponsor the show. I told him that I was his man!"

That night in 1950 Barker and his wife Dorothy Jo put some ideas together, and "The Bob Barker Show" quickly found a home at KWIK(AM) in Burbank.

The show caught the attention of Southern California Edison, an electric company, which took over sponsorship and offered the use of its many auditoriums throughout the region.

"They said that instead of doing the show just once a week, I could do two a day. So that's what I did," Barker said. "My wife and I went all over the area doing the show from their auditoriums, and it was



A Young Bob Barker in the Studio

picked up by a station in each city. We had quite a few stations — eight, maybe 10."

The show, produced by Barker's wife, had him constantly roaming the audience. He was always looking for interesting people to interview, such as the oldest lady in attendance or the one who had

See BARKER, page 48 ►

A KWIK History

KWIK(AM) was home of "The Bob Barker Show" almost 50 years ago. Licensed to the city of Burbank, Calif., it signed on in 1947 at 1490 kHz with 250 W — the maximum power allowed on the frequency at the time. In 1951 the FCC ordered the station off the air, due to repeated technical violations.

The station returned in late 1951 as KBLA(AM), which stood for



Burbank-Los Angeles. More changes occurred in the 1960s, when the station switched to 1500 kHz and boosted power to 10 kW day, 1 kW night. At the time, the format was top 40 and such well-known personalities as "Emperor" Bob Hudson and "Humble" Harve were heard on KBLA.

In 1967, the station switched to a country format and the call letters became KBBQ(AM). Five years later, it became KROQ(AM) and went back to top 40, then heavy metal.

On a downward spiral, the station went silent in 1975, but again returned to the air. In 1984, the frequency went silent again and has been off the air since. However, the FCC has issued a new construction permit for 1500 kHz, licensed to Burbank, with the call letters KRCK(AM).

And, you ask, whatever became of the original KWIK call letters? They were long ago assigned to an AM station in Pocatello, Idaho, which continues to use them today.

■ ■ ■
The following sources provided assistance in piecing together the history of 1490 kHz and 1500 kHz in Los Angeles: Jeremy Burnham, project engineer, Clear Channel Communications in Los Angeles; Jim Hilliker, news director, KOCN(FM), Monterey, Calif.; George Riggins, owner, Riggins' Electronic Sales, Long Beach, Calif.; and Ron Wolf, assistant to the director of acquisitions, Pacific Pioneer Broadcasters, Hollywood, Calif. RW thanks them for the help.

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ANDI GALL, Mondocom GmbH, Germany

GERT SALENLID, Radio Rix, Sweden

BOB LEEMBRUGGEN, KTWV, Los Angeles, USA

► BARKER, continued from page 47

been married the longest.

"What we wanted was conversation, so we had women telling stories about things like their most embarrassing moment or a cooking flop," Barker said. "It was all ad-lib and I always had fun with them."

One of Barker's favorite bits was the music segment, with three audience members chosen to sing commercials written to the tune of a song in the public domain. "I had fun auditioning them as they were going through their scales," Barker said.

In addition to a kiss and an orchid from Barker, show participants received gifts ranging from food items to small appliances.

"The Bob Barker Show" later was picked up by KNX(AM), which blanketed the region with its powerful 50

kW signal. One day in 1956, television producer Ralph Edwards heard the show on his car radio. Edwards had just sold a program to NBC TV and was looking for someone to host the new daytime strip. He found the right person in Barker.

In an ironic twist, the program turned out to be Barker's childhood favorite, "Truth or Consequences" — which Edwards had hosted on radio. When asked what it was about Barker that impressed him, Edwards said, "Bob (sounded) like Jack Benny doing audience participation."

Barker tells of their first meeting. "Ralph called me in December and had me come in for a series of auditions. Then, at about five minutes past noon on Dec. 21, he called to tell me that I had been chosen to host 'Truth or Consequences.'

Every Dec. 21 since then, Ralph and I have met for lunch to have a toast to our long and enduring friendship."

Barker — who continued the "Bob Barker Show" on radio for about another two years — taped his first episode of "Truth or Consequences" for TV on Dec. 31, 1956. He stayed with "T or C" for its entire nine-year daytime run on NBC, then hosted the syndicated nighttime version from 1966 to 1974.

Barker took on additional duties in 1972, when he began hosting "The Price is Right." Today, as he approaches 30 years with the show, Barker has not forgotten the important role that radio has played in his long career. In fact, in his dressing room at CBS Television City, he often listens to the station Edwards heard him on — KNX.

"I owe a lot to radio," he said. "I don't

know where I'd be today without that first job. And I don't know where I'd be if Ralph Edwards hadn't heard my radio show."

■ ■ ■

Bob Rusk is a regular contributor to RW. He operates the entertainment Web site www.CallingHollywood.com

APPRECIATION

FM Pioneer Schulke Remembered

Bruce Mims

James Allen Schulke, one of FM radio's leading proponents and entrepreneurs, died of complications from pneumonia Aug. 6 in Fort Lauderdale, Fla. He was 77.

Schulke is best remembered as the "godfather" of the beautiful music format.



James Schulke

Born in Cleveland in 1922 and reared in suburban Lakewood, Ohio, Jim Schulke served the Marine Corps with distinction during World War II. In the post-war period, Schulke earned an MBA at Harvard, where the institution named him the first director of advertising for the "Harvard Business Review."

Schulke Radio Productions (SRP), which he founded in 1970, emerged as radio's preeminent syndicator of easy-listening mood music. Targeted to the 35+ female audience, SRP's presentation of lush orchestral cover recordings of pop music favorites — intermixed with soft vocals — propelled beautiful music to a dominant position among FM formats during the 1970s.

Format execution

Ratings success was virtually guaranteed to stations that followed Schulke's strict rules for format execution. SRP-programmed stations frequently placed no lower than third in their markets' Arbitron ratings. Philadelphia's WWSH(FM), Boston's WJIB(FM) and others achieved first-place rankings among 12+ listeners by adhering to SRP's carefully calculated approach to music presentation.

One measure of SRP's success was evidenced in the number of competitors the company attracted. During the years of beautiful music's peak popularity, more than a dozen syndicators offered stations variations of the format pioneered by SRP.

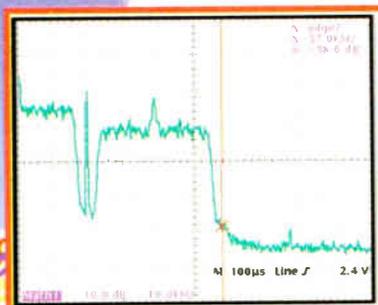
When asked about the decline in popularity of the beautiful music format in the 1990s, Schulke acknowledged that listener preferences shift over time. In a 1997 interview with

See SCHULKE, page 50 ►

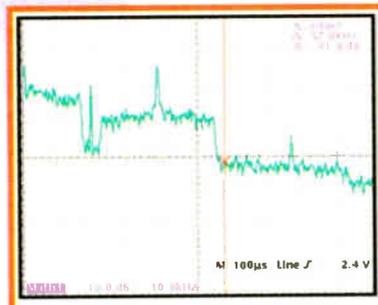
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Make your own comparison and you'll find that the Omnia.fm provides unmatched performance, with or without composite clipping. Only the Omnia.fm gives you a choice. And only the Omnia.fm gives you a free 60-day demo with a money-back guarantee*.

Here's how: The test signals were generated by a Delta Electronics SNG-1 (Stereo Noise Generator); spectrum analysis was performed with a Tektronix TDS-744A Digital Scope in the FFT mode. The top graph shows the spectrum out to 100kHz of the Omnia.fm with its built-in, all-digital composite clipper and composite low-pass filter. The bottom graph shows a different processor combined with an external composite clipper. Both composite clippers were set for 2dB of clipping. Notice in the bottom graph the significant harmonic energy in the SCA region as a result of composite clipping.

For a complete technical report, call us for a copy of our paper entitled "Omnia.fm: An Engineering Study." Or visit our web site at: www.nogrunge.com.



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WABY: Dawn for the Golden Age?

Linda Jay Brandt

Internet radio station WABY.com was launched this year in June from studios in Schenectady, N.Y., averaging 14,000 page views per day. Broadcasting in Real Audio G2 using technology from the RealBroadcast Network, the station has a capacity of 120,000 simultaneous listeners worldwide.

WABY's story provides insight into how a programmer can combine the power of radio with the reach of the Internet.

Internet radio is a new medium that will gain greater exposure as the Internet continues to mature.

— Paul Bendat

Founder Paul Bendat, a 20-year broadcast veteran, has been involved with successful radio franchises in both the United States and Australia, and was instrumental in introducing television to the Australian outback.

"Internet radio is a new medium that will gain greater exposure as the Internet continues to mature — it's the 'rising tide raises all boats' phenomenon," Bendat said.

"People will spend more time online, and so the online experience will get better. The radio — in fact all streaming media — experience will improve greatly when people really start using cable modems or DSL."

WABY.com has a niche format skewed toward adult women, "who make the most important buying decisions and are the fastest-growing population on the Web," said Bendat.

Broadcasting live 24 hours a day, with in-studio announcers, the station offers live programming from playlists with more than 1,500 songs, by artists who hail from radio's golden age.

Listeners can hear Cole Porter, George Gershwin, Patsy Cline, Diana Krall, Ray Charles, and '40s Big Band tunes on WABY broadcasts. Listeners who have specific hankerings can try a specialty programming format at the WABY site, with programs like New Dogs, Old Tricks, where current-day crooners like k.d. lang and Lyle Lovett cover the old standards, or read in-depth biographies of selected artists like Ella Fitzgerald while they listen to her music.

Listeners may choose from live services or specialty programs without the hassle of signing up in advance or having passwords. Bendat said, "The on-demand specialty programming is available to start/stop whenever the user wants."

The station promises its audience a refreshing alternative to the rock music that dominates the Internet airwaves.

"The idea is to bring a new kind of musical environment to the Internet. We could even be the 'soundtrack' for other Web sites," Bendat said.

Listeners also will have access to more than 40 hours of original specialty programs that highlight the lives of musical legends or chronicle musical styles.

Speaking about setting up an online station, Bendat said, "The technical set-up is almost the same as an offline station. The essential difference is that there is no tow-

er or transmitter for signal distribution."

WABY.com formed a relationship with the RealBroadcast Network, a joint venture between MCI/WorldCom and RealNetworks.

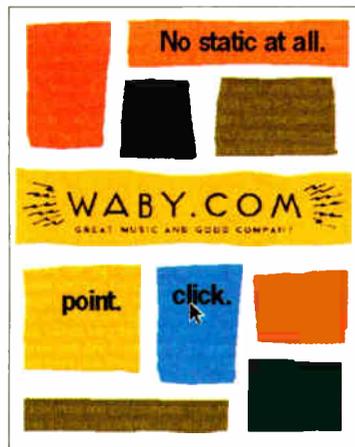
RealNetworks provides the station with the ability to track access to its audio through software that monitors how many visits are made to the site. There is also a product available at RealNetworks which supplies statistics on how the server is used from a company named Lariat.

Bendat said, "This is a dream after the nightmare of Arbitron's system of diary keeping, where the listeners have to turn the thing in every two weeks, and stations have to wait until Arbitron finishes crunching those numbers."

WABY.com has also built a database function to augment its ability to determine the zip code, age and gender of listeners.

Despite all the talk about it, Bendat thinks Internet radio is an opportunity that traditional broadcasters tend to overlook, but is one that could enormously enhance their stations.

"Station GMs can look at Internet



radio as either an opportunity or as a threat. It is a threat to anyone who is not thinking about their relationship with their listeners."

Irrespective of the format, neglected listeners will drift, and will become someone else's cume or AQH number. Bendat said, "The Internet and Internet radio, as a part of the Internet experience, will take a share of all media's existing audience, which includes offline radio. It already has."

How large the audience will be for a particular Internet radio service, or whether there will be a decline in a particular offline station's audience, is up to the quality of stations in a market or up to the manager. "Bad markets and stations will suffer; but they would anyway," Bendat said.

Bendat believes that putting one's station on the Net is an opportunity to improve the relationship with listeners. In densely populated areas where in-office radio is difficult to receive, loyal listeners will appreciate the fact that their favorite station has "gone the extra mile."

Streaming your station on your Web site also presents an opportunity to recycle listeners and gives them extra exposure to the station's e-commerce possibilities. And, said Bendat, "If any manager wonders about the value of these potential opportunities, just ponder how much of Broadcast.com's audience and multibillion-dollar sale price was due to the audience recycling effect of offline radio to the Broadcast.com Web site, rather than to anything original being produced by Broadcast.com."

WABY.com employs eight people, plus local and national sales reps. As Bendat said, "It is virtually impossible to find any-

one with experience in this very new medium. The best expertise is common sense."

The station is selling ads and forming promotional relationships at the moment. (As a private company, it does not reveal its financial information.)

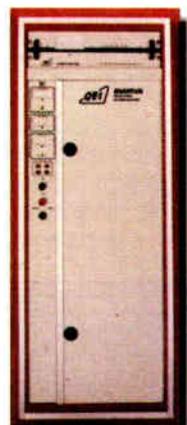
Billing itself "Post Modern Radio for the New Millennium," WABY.com is heard all over the world. Bendat related this story: "My family still lives on the west coast of Australia. Recently my dad was on his boat 20 miles out in the Indian Ocean, listening to WABY.com through a connection on a palm computer attached to a mobile phone. That's the wonder of the Internet."

■ ■ ■

Linda Jay Brandt is a free-lance writer/editor and frequent contributor to RW's sister publication TV Technology. Her e-mail address is LindaJay@aol.com



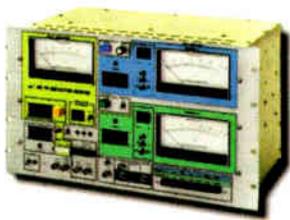
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GUEST COMMENTARY

Christian News Association Formed

Gordon Govier

While there's been a steady de-emphasis on news at many radio stations over the past two decades, one segment of the industry has been gradually increasing its news commitment.

As Christian radio continues to mature, successful stations are looking beyond typical fare of music, preaching and opinion and discovering that news also has an important role to play in serving listeners.

Research done by a few innovative Christian radio stations has proven that their audience will respond to a news commitment by listening more, not less — this in a part of the industry already known for its faithful listenership and for station managers who have maintained news is not important in their format.

Local news

As the publisher of a newsletter devoted to improving Christian radio news, I've often been asked how many Christian radio stations actually do local news. I could only guess, until now.

Participants in the Third Annual Scribe Conference for Christian Radio News Directors voted on June 29 to establish a Christian Radio News Association "to assist Christian radio news broadcasters in informing their listeners."

This would be accomplished by: increasing communication and cooperation among Christian news broadcasters; enhancing professional journalism standards in Christian radio; developing and promoting among listeners a better understanding of the value of news.

This meeting, which served as the news track for the annual Northwestern College/SkyLight Network INSPO con-

ference for Christian broadcasters, may have been the largest meeting of Christian radio news people in history.

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ference for Christian broadcasters, may have been the largest meeting of Christian radio news people in history.

There were 15 to 20 people in each session, as compared with previous efforts that drew less than a half dozen the last two years.

Joining me on the executive committee of the new organization are three other broadcast journalists with experience in covering both local news and serving radio news clients: Chad Bresson of CDR

Commitment to news

We have a strong commitment to news because it is a very important component of broadcasting and we're pleased to see

it's finally getting the recognition and attention it deserves among Christian broadcasters.

I believe it plays an important role in

the viability of commercial and non-commercial stations. I also think it's impossible for Christians to be the kind of salt and light Jesus commands us to be without being adequately informed.

The Christian Radio News Association will be developed under the authority of, and with the guidance and cooperation of, the National Religious Broadcasters, headquartered in Manassas, Va. The NRB has featured a workshop on news at each of its last two national conventions and in 1999 implemented a new award to recognize member stations with outstanding news coverage.

It's anticipated the next meeting of the CRNA will be at the INSPO 2000 conference in St. Paul, Minn., at which elections will be held and by-laws approved.

■ ■ ■

Gordon Govier serves as the interim president of the Christian Radio News Association until elections can be held. He has published Scribe newsletter as a resource for Christian radio news professionals for 13 years.

Reach him via e-mail at scribe@xc.org or by phone at (608) 271-1025.

RW welcomes other points of view.

Beautiful Music Format 'Godfather' Remembered

► SCHULKE, continued from page 48

this author, he observed that other, formerly popular formats — notably big band and MOR — were not being widely offered. Although these formats no longer command the widespread attention they received a few decades ago, both formats remain viable in selected markets, just as beautiful music does.

Unlike many broadcasters of his generation who parlayed their radio accomplishments into successful careers in the televi-

that missed the medium's capability for high-fidelity, stereophonic reproduction. Schulke Radio Productions was launched in February 1970 to fill the gap.

What is notable about Jim Schulke's involvement with FM? Perhaps the important contribution he made was in providing a generation of older listeners with an alternative to top-40 radio.

Schulke, along with SRP Vice President/Creative Director Phil Stout, took listeners to a quiet refuge where

An important contribution he made was in providing a generation of older listeners with an alternative to top-40 radio.

sion industry, Schulke chose the reverse path. While managing Los Angeles TV station KTLA in 1959, he embraced the new technology of videotape recording. He directed the station's national syndication of its production of "Ding Dong School" and oversaw KTLA's sale to NBC of its production "Wrangler," the first western produced on videotape.

Following a two-year stint as director of advertising for Magnavox, Schulke accepted appointment in 1963 as the first paid president of the National Association of FM Broadcasters (NAFMB). Among his accomplishments in advancing FM awareness, Schulke is remembered for helping persuade the FCC in 1964 to order a reduction of AM/FM simulcasting.

His radio involvement resulted in the formation, with Bob Richer, of Quality Media Sales, the first advertising sales representation firm devoted exclusively to FM clients. It was during this time that Schulke perceived a void on the FM band

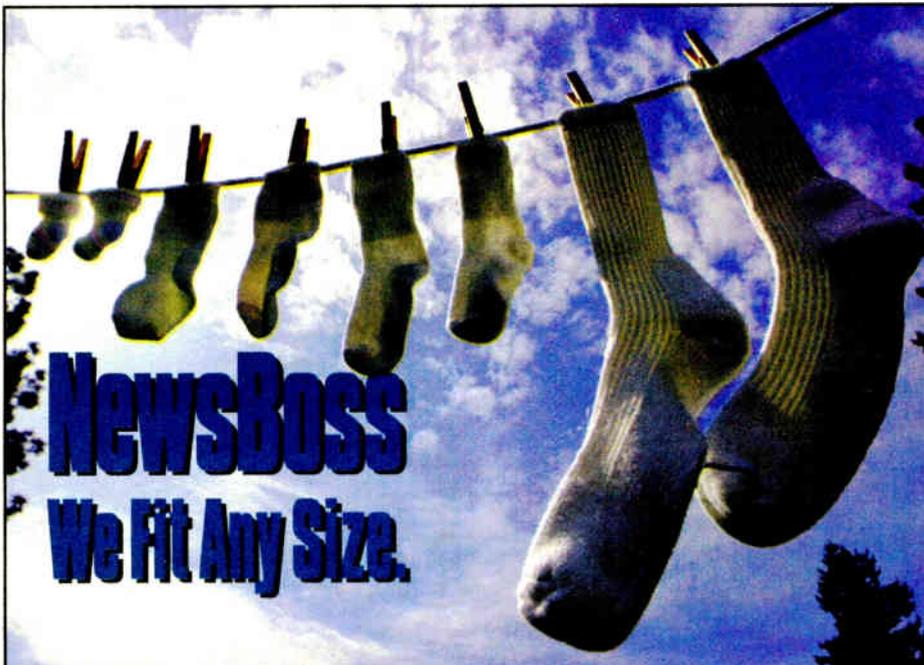
melody and its interpretation were emphasized. SRP's hallmark — its matched-flow presentation approach — always ensured graceful segues from one selection to the next.

Mindful of time of day as well as of season, SRP's music choices always respected the sensibilities of their listeners. Stopset intervention was minimal and the content of every commercial was expected to complement the mood established by the music.

For an excellent appraisal of the beautiful music phenomenon, including Jim Schulke's achievements, readers are encouraged to investigate Chapter 11 of Joseph Lanza's "Elevator Music: A Surreal History of Muzak, Easy-Listening, and Other Mood Song" (1994, St. Martin's Press).

■ ■ ■

Bruce Mims, Ph.D., is a professor in the Department of Mass Communication at Southeast Missouri State University, Cape Girardeau, Mo.



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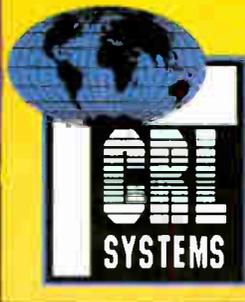
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STATION SERVICES

Easy Billing & Contracts

Columbine JDS Systems Inc. announced two new products for radio: Spotdata, which allows agencies to download invoices via the World Wide Web, and Electronic Contracting, which allows stations and rep firms to exchange contracts via the Web.



"It will be possible to modify contracts electronically as they occur, provided systems on both sides are compatible, speeding the process while reducing the potential for errors," Mike Oldham, COO of CJDS, said.

For more information call Mike Oldham at CJDS in Colorado at (303) 390-8401 or circle Reader Service 96.

One-Click Music Buying

Would you like to tap into impulse-driven e-commerce urges of your listeners?

GetMedia has linked with Microsoft to provide listeners an opportunity to see the cover art of what's currently playing on a radio station, and buy the CD with just one-click on the screen — all without leaving your radio station's Web site. This could also drive listeners to go online and visit your site.

Stations get a cut of everything that is sold via the GetMedia technology, and it costs nothing to obtain the software and install it on your site.

For additional information, contact

Steve Brown in California at (408) 573-6290 or circle Reader Service 98.

Help Listeners Find You Online

Take note of a new guide to online radio, promoted as the ultimate guide to live Internet events and programming, including news radio, music stations



and sports talk from Web sites of U.S. radio stations as well as web-only "broadcasters."

The Yack! Guide to Online Radio calls itself the Internet's only independent source to radio stations, in the vein of TV Guide (in fact,

TVGuide.com is a partner in the venture), but for online radio. The new Yack! Guide can be accessed using Windows Media, Real Player and Winamp's MP3 Player.

"We are responding to the explosion in online radio usage," said Farhan Memon, co-founder of the Yack! Guide. "According to Arbitron, online radio listenership among all Americans has jumped in the past six months from 6 percent to 13 percent. This means that almost one out of seven Americans have now listened to radio on the Internet."

The guide features thousands of links to U.S. online radio stations.

Users can search online by geographic location, radio format such as music or news, and by language. Additionally, users will be able to search for an event by name or topic. And Yack! will provide links to a station's home page or directly to a live stream on the Internet.

For more information, contact Joe Giagliardi in New York at (212) 385-2626, ext. 208, or circle Reader Service 107.

Check out
www.rwonline.com

Protection in Free-lancers Code

► FAIR CODE, continued from page 39 as a checklist of things that are important to think about. For producers who are just starting out, it's helpful in terms of things to think about when covering your own best interests," he said.

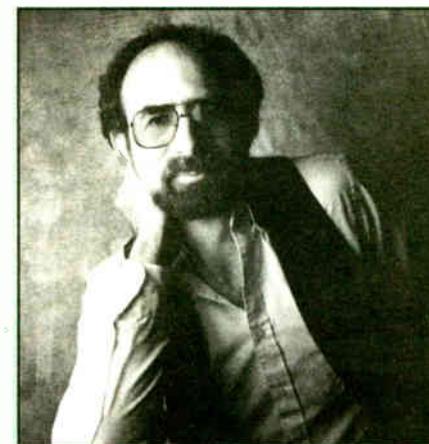
"For a station, it helps to make sure everyone's clear on what the expectations are. But there's just such an enormous range of circumstances that this really couldn't be viewed as anything more than a starting place for discussions that will take twists and turns depending on the character of the program and the work that was being done."

Thomas also said presentation of such a document could also make a station manager squirm.

"If I were working in the editorial function of National Public Radio, I might see this as an opening salvo toward collective bargaining."

When confronted with the appearance of collective bargaining, the

Dvorkin estimated that the volume of pieces from free-lancers and member stations has gone up 20 percent in



Steve Rathe

the last year. And the good news for these producers is that the pay rate is also going up.

If I were working in the editorial function of NPR, I might see this as an opening salvo toward collective bargaining.

— Tom Thomas
Station Resource Group

drafting organizations and NPR agree that the code does not represent a step in that direction. "We don't expect to call all the shots," said Rathe, who also is president of Murray Street Enterprise, which produces Jazz from Lincoln Center among other shows and features airing on NPR.

"We expect that it's going to be a give-and-take process. We do expect to be able to put our issues on the table, just as we expect the acquirers to bring their issues to the table, so that we can deal with them respectfully and professionally."

Jeffrey Dvorkin, NPR's vice president for News and Information said, "We've always worked well with free-lancers and independents. I think the code is, in principle, a good thing. There will probably be some points that will have to be ironed out amongst us. But I think the idea is that we're looking to create an environment where free-lancers and independents can provide material to us in an effective way."

Stuck for years at \$55 per minute, NPR's fee has risen to a minimum three-minute rate of \$300. Dvorkin also said that, for its next fiscal year, NPR approved an 18.9-percent increase in the amount of available money to cover acquisitions from content from independents, free-lancers and station reporters.

WYSO's Spencer said, "Some of the most amazing public radio that's been created in this country in the last 25-30 years has come from independents and free-lancers. There's lifeblood to this kind of work that invigorates the best of what we are. To finally create a structure where these people are finally being properly compensated for their work — well gosh, what a concept!"

Steve Sullivan is a consultant based in Leander, Texas, and a founding principal of the Advanced Interactive Media Group LLC. He writes about cultural and technical developments in the broadcast industry.

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New Public Media, New Questions

► PUBLIC, continued from page 37

San Diego; WYEP-FM, Pittsburgh; WCPN(FM), Cleveland; Oregon Public Broadcasting, Portland; WAMC(FM)/Northeast Public Radio (regional network), Albany; WKSU-FM, Akron/Cleveland; South Carolina Educational Communications Inc. on behalf of South Carolina Educational Radio (state network); and Vermont Public Radio (state network).

In the beginning

Public Interactive began as New Market Network, a Boston-based Web site developer. The focus on public radio came from success in creating a Web presence for several prominent public radio programs including "Car Talk," "The Savvy Traveler" and "Earth & Sky."

"We want to be the preeminent provider of content, services and technology for the public interactive space," Lix said.

ture. Does this signal a commercialization of the new public medium?

Lix sees that the for-profit/not-for-profit distinction is not the crucial distinction. "The people working within the (public broadcast) system gasp at the use of the word 'commercials.' I think if you really did a good survey of the audience, they would all say 'Look, public radio already has commercials.'"

Lix said, "So the question is how many commercials? You have to be thoughtful and not abuse your audience or your sources of funding. I think that can be done. This is a smart, educated and affluent audience. They understand that it takes money to put these things together. If you deliver solid information and entertainment they understand that trade off."

Crane agrees there is no inherent problem in adding for-profit elements to public broadcasting.

"For the past two years, we've spent a good deal of time at NPR Online talking with stations about how to find a better way to integrate local and national. We're looking at what models work, which don't, and trying to break down some of the barriers. The partnership with Minnesota Public Radio and others is an outgrowth of that," she said.

"We're working with stations, starting with our core foundation of our public service mission and extending our services to the public radio audience. We feel that the Web attracts new audiences."

How does the NPR/MPR offering compare to Public Interactive's

approach? "I'm keeping our team more focused on what we're doing — providing more services to stations so that they have access to more national content in forms that they want," said Bear.

Traditionally, public broadcast has been more collegial than competitive. But that may change in the emerging online arena. Lix would like to maintain that spirit of cooperation, but is ready to do what it takes to carve out Public Interactive's niche.

"We try to make it plain that we'd like to be able to work with them (NPR/MPR). But if they are not willing to do that, we will be tough competitors," he said.

■ ■ ■

Carl Lindemann is a frequent contributor to RW.

Traditionally, public broadcast has been more collegial than competitive. But that may change in the emerging online arena.

The core concept is to supply stations with the tools and content to extend their local presence onto the Web.

"The audience never sees the public interactive entity. We offer the underlying efficiencies and effectiveness of a portal where we can do things that individual stations or small groups do not have the financial wherewithal to do," Lix said.

Michael Crane, director of Broadcasting for Vermont Public Radio and member of the board of the Public Radio Program Directors Association, sees this as analogous to the current practice for creating the on-air programming mix.

"I'm looking forward to combining NPR and PI content on the Internet just as I combine NPR and PRI content on my radio station," Crane said.

Lix is not focused on providing streaming media for client stations. "While I think that's an important component, what we really have to look for is what is it that this new media gives us? What does it do that adds value to the experience, whether it's radio or television?"

Successful aspects of the "Car Talk" Web site point to the kind of value adds that they will be developing.

"We set up a section we called the 'Mechanics Files.' For years, listeners and callers asked time and again 'How do I find a good mechanic?', 'How do I keep from getting ripped off?' and the answer has always been, 'Well, you really just have to ask someone that you trust.'"

"We were able to create a database structure on the Web site to direct people within the 'Car Talk' community — who do they recommend to friends, family and neighbors? The database has around 15,000 listings. It is a great example of how the synergy of radio and the Internet can create something totally new," said Lix.

Public Interactive is a for-profit ven-

"Public Interactive has great potential to 'do well by doing good.' At its root it's a public radio effort, guided by public radio professionals and people who understand our values," he said.

Because public funding can change with the political climate, this adds flexibility to the system. "I think the future of public broadcasting must embrace creative partnerships like Public Interactive. I'm also confident that our principles and purpose are very clear, and won't be compromised," Crane said.

Join crowd

Public Interactive is not alone in seeking recognition as the pacesetter in this burgeoning online market.

Earlier this year, National Public Radio and Minnesota Public Radio announced a strategic partnership to extend their programming and services on the Internet.

How do these alternate services differentiate themselves?

"I think the main difference is in approach. They're really trying to move an audience to NPR — specifically 'NPR.ORG,'" Lix said. Lix sees this as running counter to the traditional relationship between NPR and its member stations. "They're (NPR) actually opening up other distribution channels. You would think that some of the stations would be outraged over some of the things they are doing. The very fact that you can go to America Online or other online systems and pick up NPR news on the hour — many stations are paying rather hefty fees to get the distribution rights for that," said Lix.

M.J. Bear, NPR's director of new media, takes a different perspective. She sees the NPR/MPR offering as an enhancement to member stations and their audiences.

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See Page 59

Radio World

Resource for Radio Production and Recording

September 29, 1999

PRODUCTION PROFILE

He Delegates, Delights, Delivers

Ken R.

"I used to work 12 hours a day, but now I balance my work with my family time. I guess I just learned to trust, to delegate projects to people and leave myself time to be creative."

The speaker is Sean Caldwell of Sean Caldwell Broadcast Services based in Tampa, Fla.

This radio professional certainly has demands on his time.

After a career on the air and in production rooms across the country, Caldwell started his own recording studio and now can be heard as the "voice" of big-market stations like KHKS(FM) in Dallas, KYW(AM) in Philadelphia, WRQX(FM) in Washington, D.C., KKBQ-FM in Houston, KBKS(FM) in Seattle and

experience, but drove down to Toledo, Ohio, one day and began listening to the radio," he said. "WRQN(FM) Bowling Green sounded the worst, so I talked the general manager into putting me on the air and by the late '80s I was programming the station."

Caldwell was still living in Detroit, but making the 50-mile trek to Toledo each day, arriving at the station with mere minutes to spare. It was at this time that he entered the University of Michigan at Dearborn.

From Detroit, Caldwell went to WEGX(FM) in Philadelphia, where he was hired by Brian Philips to work as production director.

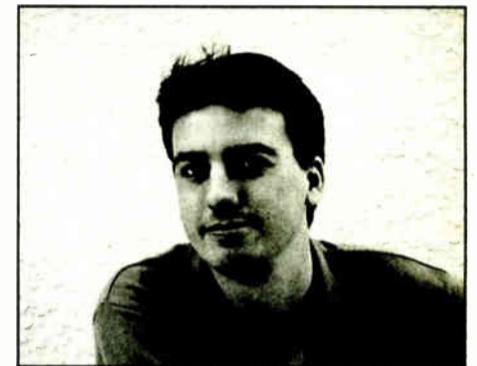
"It was a fantastic gig. John Lander and some of the top jocks in the country were there. I handled swing shifts and fill-in too."

starting out in his business. "Make a five- to 10-year plan. It's rare to see someone who has gone out and been successful within three years. It's all about servicing the customer. There are plenty of talented voices out there, but people like to work with someone who goes all the way for them and has a good attitude about it."

The changes in radio have certainly affected the production business but Sean Caldwell has a good understanding of the basics.

"Radio consolidation is at a mature stage and now production is even more important because everyone does research," he said. "Everyone plays the same songs, but the station that has the best imaging really stands out. The personality of the station can be highlighted with excellent writing and top-notch imaging."

Using ISDN lines and Internet transmission, Caldwell can turn a fresh batch of liners around quickly. "Speed is so important now. Most stations have the details of their promotion together only hours before it's supposed to hit the air. Some stations give



Sean Caldwell

me a week or two advance notice, but most will be talking to me late Friday afternoon wanting the project recorded on the spot."

Tricks of the trade

Compression is an important part of any mix, and Caldwell generally uses 6 to 10 dB at a 4:1 ratio. The compression is added before sending the audio into his computer, and he may again compress the entire mix using software plug-ins.

"Obviously a soft jewelry store spot would need less mashing than a dense high-energy spot," said Caldwell.

While he has quite an impressive list of production equipment, it didn't arrive

See CALDWELL, page 62 ▶

Radio consolidation is at a mature stage and now production is even more important because everyone does research.

— Sean Caldwell

WVRV(FM) in St. Louis.

In the United Kingdom, you'll hear him between songs on City FM in Liverpool, Hallam FM in Sheffield and Kiss 106 near Dublin.

Interestingly, his clients cross all format lines.

"I'm on news stations, CHR, A/C and country stations," said Caldwell. "I produce for about 60 stations a month."

Wheels in motion

Now in his early 30s, Sean Caldwell was bitten by the radio bug at the tender age of 13. His first gig didn't quite work out as planned.

"I just kept calling stations in my hometown of Detroit until WLLZ(FM) agreed to hire me as an intern," he said. "When they found out how young I was, they fired me on the spot."

Back on the street, he again picked up the phone and started pestering production directors.

"Gary Berkowitz was at WHYT(FM) at that time and he hired me just to stop me from calling."

Caldwell began handling some production chores and within a year had his first programming job. Unfortunately it wasn't at WHYT.

"I had absolutely no programming

When the station was purchased in 1992 and flipped to smooth jazz, the future didn't look so good.

"I made a lateral move to WPLY(FM) as creative director and afternoon drive jock, all while finishing a degree from the Wharton School at University of Pennsylvania. I stayed there three years, but I began thinking about going it on my own as a production guy."

In 1995, Sean Caldwell took the plunge.

"It was very scary. I not only changed careers but moved to Florida as a new base of operations."

Rick Allen at WQHT(FM) in New York was an early mentor. "He told me to prepare to struggle for a few years, but he told me he knew I could make it happen."

Caldwell originally found his clients by sending out tapes to "loads of stations."

"With no experience, no one will make you the voice of the station in New York, but you might get Saginaw, Michigan," he said.

"At first I didn't know how to price myself, so I called all the other voice guys and asked what they charged. Of course I had to undercut them because no one had heard of me."

Caldwell has advice for those just

ABG Wins ProTools Deal

The maker of ProTools audio editing systems hopes to reach more broadcast group clients, thanks to an agreement with one of its dealers.

Dealer Audio Broadcast Group Inc. has won a marketing agreement with Digidesign, a division of Avid, for the purpose of expanding the use of the ProTools digital audio editing system into the broadcast marketplace.

ABG Vice President Dave Howland said ProTools is recognized globally, with more than 100,000 systems installed.

"This is the top-selling digital audio workstation in the world, but they have not traditionally marketed to the broadcasters," Howland said. "They wanted to take that step, but they weren't sure how to do it, and we came along with this plan."

Digidesign Central Sales Representative Chris Hammond said the company "partnered with ABG due to broadcast conglomeration, to focus on selling ProTools into various broadcast markets."

The agreement does not supplant existing regional ProTools dealerships.

Howland said the basics of the agreement were hammered out in a 20-minute conversation in the lobby restaurant at the NAB99 convention in

Las Vegas.

Howland said ABG started to sell ProTools products about a year ago. At first, the company expected to place systems mostly in large markets, but quickly found interest elsewhere as well.

"We have put systems in Detroit as well as Richmond, Va., and Burlington, Iowa, so there is obviously interest in large and smaller markets," he said.

Howland said the entry-level ProTools 24 Core system starts at about \$6,000, not including hardware, and can be expanded with plug-ins and storage as the user's needs change. ProTools is available in both MAC and Windows NT formats.

"Their DSP plug-ins are world-renowned for what they do. They're so powerful, whether it's EQ or reverb or whatever," Howland said.

"If you have a guy on your staff who is really creative, and you want to take advantage of their knowledge and ability, this is the unit to do it."

ABG is based in Grand Rapids, Mich., and has six sales offices in the United States. It represents more than 300 product lines of digital and analog broadcast studio, production and transmission products.

— Paul J. McLane

PRODUCT EVALUATION

Sony: Affordable Quality

Flip Michaels

Remember the curiosity and mystique that wafted around the broadcasting industry when the DAT player was first introduced? Could we really store all that material on a tiny little cassette? Will they last after a couple of years? And if the consumers dropped it — shouldn't we?

Well, as you know, archiving was changed forever. Boxes of pancake reels were moved off of the production room shelves and stacks of old commercial carts were preserved in a digital format. Today, DAT players can be found in just

about every major market's production and on-air studios.

In comes the MiniDisc recorder. Could this be the latest technology to revolutionize the way stations move audio? Some have said yes, while others a definitive no.

Living in a hard drive

Intranets, Internet access, digital production software, e-mail, a-mail and a number of other 1s and 0s have transformed engineering departments into I-T departments — offering LANs just about every where you look.

With the cost of burning CDs way



The rack-mountable Sony MDS-E11 retails for \$825.

down, it's no wonder that many of today's progressive pundits are leaning

towards installing burners in their hard drives instead of transitioning an entire operation to an emerging technology that may never really take hold.

OK, to my point.

Prices are finally beginning to drop for the MiniDisc, making it a competitive alternative to burning CDs. According to www.minidisco.com, MD blanks are going for about \$2.39 per disc and quality recorders are available below \$1,000.

"MiniDisc has come of age," said Paul Foschino, marketing manager of professional audio products for Sony Electronics' Broadcast and Professional Company. "The format has a huge following in Japan and Europe and is rapidly growing in the U.S."

The MDS-E11

Enter the Sony MDS-E11.

When I opened the box, I thought, "If it performs anything like the remote looks, this is going to be one fun test-drive."

The unit is a compact recorder/player in a single-rack-space package — offering a built-in interface for computer control and a relay/playback terminal that allows the link-up of multiple units for longer continuous play (a great benefit in live applications). The wireless remote is a monster full of alphabet and number buttons.

Amazingly, I found this toy to be practically "stupid-proof." If you can program a VCR, then you will most likely leave the MDS-E11's operation instructions in its plastic.

When the "Blank Disc" message appears, guess what? You've just inserted a blank disc. If the "Disc Full" display lights up, guess again? Yep, you're catching on: 255 tracks have been recorded and/or the maximum amount of time has been used on the disc (60 or 74).

If you have not yet explored the power of MiniDisc, look no further than a MD player to equip your station for the next century. After just a few minutes, you too will be hooked on the benefits of MiniDisc technology. You can even create titles for your recorded discs and tracks. Titles are case-sensitive, with a maximum of 1,700 characters per MD. Recorded tracks can be moved to a different location and erased if so desired. Try that with a CD burner or DAT player (PNO what?).

The MDS-E11 provides balanced analog I/O on XLR connectors, unbalanced analog I/O on RCA, and coaxial digital I/O on RCA. The balanced analog output is switchable between +4 and -10 dBu.

See SONY, page 57 ►

The GSM moved his big meeting up by a week, and he was desperate . . .

If he thought it was in the traffic system, he wanted it. Sales reports. Historical data. Projections. Multiple copies, of course. And NOW.

When you called CBSI customer service, Liz answered.

She walked you through setting up report sequences that you could print with just a few keystrokes. Gave you hints and ideas you hadn't even thought of before. When you called back later with just one more question, you got right through — and she was as friendly, patient and knowledgeable as the first time.

Thank goodness you had someone like that in your corner when you really needed her.

CBSI's customer service team is full of people like Liz. Radio professionals who know your challenges through and through, because they've been there themselves. They're available toll-free, on a 24/7 basis, and they're ready to show you how to make your CBSI software a resource as well as a workhorse.

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A Fresh New Look for PC Monitors

Flip Michaels

Remember when the facsimile machine was introduced to the retail market? All of a sudden, as though a magic wand had been waved over the radio industry, thousands of sales assistants disappeared. Their jobs had been spent picking up the telephone and transcribing commercial copy word-for-word.

Standoffs

No longer could production directors push sales teams into one-week standoffs over a straight-read production order. Carbon copies were dead and so was the time it took to transcribe the product information to print. Soon, the orders began to arrive via fax at noon with a request to run in morning drive.

Another technological change is underway, but this time it has to do

with your computer monitors (and it's good news).

The monitor evolution first began with the primordial giant green (or even orange) monochrome monsters. At that time, those who had the privilege of having one take up half their desk felt pretty important.

Next came color CRTs (cathode ray tube), full of fine-tuning features and mountable speakers. Today, it seems as if these monitors have begun to lay eggs and hatch everywhere. From program-



NEC's line includes the LCD1510V.

ming and production to engineering and sales, work seemingly cannot be accomplished efficiently without one. No doubt, radio has changed internally.

Liquid-crystal displays (LCDs) are the latest breed in the desktop monitor family. And with new, lower-cost versions, everyone will look to reclaim the space that the old bloated CRTs rested on before.

While LCDs are not any cheaper, the latest crop of 15-inchers come out on top when compared to the best 17-inch CRT monitor. Spend a little extra and you will save a foot of desk space, cut power consumption in half, and view extra-crisp text in the tiniest of fonts.

The latest LCD also do not suffer from that annoying CRT screen flicker syndrome. Because they are about half the weight of a comparable CRT monitor, you can mount them easily on swing arms or directly to the wall, or take them off the desk entirely.

Here are just two models to consider.

NEC

With a street price of \$1,499, it pays to do your homework on whether the NEC MultiSync LCD1510V is the LCD for you.

I like the 1510V because it offers a feature that most LCDs don't: another angle. You can rotate the screen around its center and go from long-way-across to long-way-vertical; or, in the parlance of true power users, "Landscape" mode to "Portrait" mode.

It handles both PC and MAC platforms, has a 15-inch display and analog video connector, and does not include portable speakers. There is a 36-month warranty on parts and a 12-month on the backlight. But again, the excellent viewing angles and text at a high resolution make this LCD worth your time to test drive.

Apple

If your budget is a bit larger (I know, but indulge me), you might take to heart

Apple's "Think Different" campaign.

The Apple Studio Display, with its translucent blue case and unique features — including a space-saving "picture frame" option — grabbed my attention. The image quality was incredible, particularly when I ran resolutions under its 1024 x 768 pixel maximum.

Reward your programming and production staff with these and you just might get paraded down the hallway on their shoulders. The Apple Studio Display sports a 15.1-inch screen, can accept PC/MAC platforms, has a 12-month warranty and is priced at \$1,999.

If you need the flexibility of Portrait and Landscape modes, the NEC MultiSync LCD 1510V makes a reasonably priced option. But if you can spend a little extra, Apple's Studio Display outstrips the competition.

For more information on the NEC MultiSync LCD1510V, visit the company web site at www.nec.com or call (800) 632-4636. Point and click your way to the Apple web site at www.apple.com or call (800) 500-7078.

Got a favorite computer screen of your own? Tell us about it via e-mail to radioworld@imaspub.com

Flip Michaels is the director of multimedia development for WITF Inc. in Harrisburg, Pa. He can be e-mailed at Flip_Michaels@witf.pbs.org



The Apple Studio Display

LCD vs. CRT

LCD (Liquid-crystal display)

Created by sandwiching an electrically reactive substance between two electrodes, LCDs can be darkened or lightened by applying and removing current. Large numbers of LCDs grouped closely together can act as pixels in a flat-panel display.

CRT (cathode ray tube)

The active component of monitors and TVs, the cathode ray tube is a bell-shaped, vacuum-sealed glass envelope with electron guns at one end and a phosphor-treated viewing screen at the other. An image is created when electrons from the guns are "steered" by electromagnets ringing the neck of the tube into the phosphorous coating on the screen.

► SONY, continued from page 56

Control is via parallel port, RS-232C or the wireless remote provided. Sampling frequency of 44.1 kHz and 20-bit resolution converters deliver accuracy and wide dynamic range. Note that SCMS copy protection is built in and not defeatable.

The front panel is clean, with simple controls, a record level knob, level display and digital/analog input switch. Headphone volume is adjustable. When coupled with other E11 units, the deck can perform relay-play and relay-record functions.

Certain features require use of the wireless remote control. We could wish for a wired remote, particularly for facilities that want to use more than one E11.

The suggested retail price is \$825. For more information, including the users' manual in .PDF format, visit Sony online at www.sony.com or call (800) 686-SONY.

Flip Michaels is director of multimedia development for WITF Inc. in Harrisburg, Pa. Reach him via e-mail to Flip_Michaels@witf.pbs.org

Product Capsule:

Sony MDS-E11 MiniDisc Recorder

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- ✓ MD blanks becoming cheaper
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- ✓ 11.5 pounds
- ✓ Great dynamic range

Thumbs Down

- ✓ No pitch control
- ✓ Remote is wireless
- ✓ SCMS not defeatable

For more information, call your favorite pro audio dealer, visit the Web site at www.sony.com or circle **Reader Service 125**.

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- Bob Hamilton, New Radio Star

It's difficult to go anywhere in Cool Edit Pro and not hear yourself whispering to yourself 'this is cool.'

- Dave Oliwa, Radio And Production, May 1997

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Going for the Gold ... Uh, Green

Travis

Because most of us who work as voice-over performers work free-lance, we can be considered small, independent businessmen and women.

Those of us who have made the transition to working for ourselves have had to get accustomed to the disadvantages of self-employment, which you don't consider when you are working for someone else.

Often the biggest problem for most people I know who are self-employed is getting paid.

Now, it might be true that the work is extremely rewarding, and we get a lot of things other than money from it, but getting paid is important. I have heard many times from independent producers, "You know, I'm sure that I spend at least a third of my time and energy in this business just trying to get paid!"

The owner of one advertising agency I have worked for said, "There are three rules for success: One, get the money. Two, get the money. And three, get the money!"

It is often a shock to people who start their own business how much harder it is to get paid, compared to receiving the weekly/monthly paycheck. When you are an employee, you get lots of protection from the government, which makes sure

that you get paid in a timely manner.

If your paychecks don't go out, it is quite likely that somebody is going to spend time in the federal jug. On the other hand, when you work for yourself, you have a lot less protection.

If you don't get paid, you need to go to court to collect and the burden of proof is on you.

I have been working for myself for about 20 years. There have been several times that I have done big jobs where I did not get paid for almost a year. And there have been too many times where I did a lot of work and never was able to collect.

Look for the union label

Today, fortunately, almost all of my work goes through agents and unions, and that helps a great deal. I have never done a union job that I did not get paid for. But it took quite a while to get to this place.

I have had quite a few very hard lessons on this subject, and I am happy to share what I have learned.

There are a lot of reasons people and companies do not pay or take a long time to pay.

Many companies simply do not have the money to pay up-front for services.

Often, the companies don't get paid

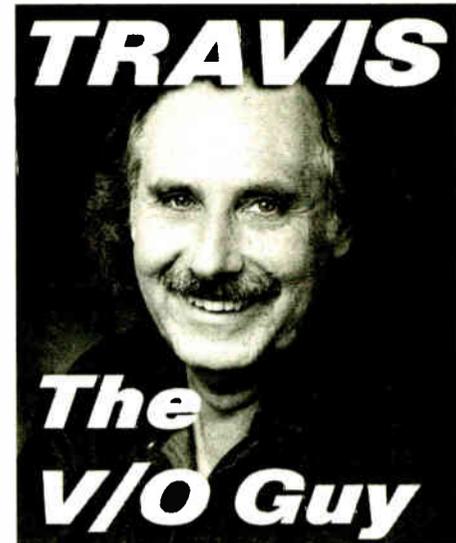
themselves until 30 days after a job is completed. This, of course, means a lot of people like yourself will not see a dime until sometime after that.

A TV commercial or industrial video might cost between \$50,000 and several hundred thousand dollars to produce. Most of that is production expense. Most production companies do not have anywhere near that much cash available, so they finance the production by not paying anyone else until they get paid. An honest company will make that clear before you start work for them.

If a producer came to me and said, "I've got a big job here, the money's pretty good, but I won't be able to pay you for 60 days," I would consider that fair. I can decide to take the job or leave it.

Years ago, a defense contractor came to me, described the job, told me what they would pay and that there was no way they could pay my invoice for six months. I took the job with the knowledge that payment was going to be extremely slow.

As far as I was concerned, it was money in the bank. I did the work in June and



which was sent to the wrong department.

The agency was so large that the book-keeping department had no knowledge or record of that person's existence.

Wanna buy a watch?

Over the years, I've also had to deal with some scam artists. Fortunately, most of these individuals are not very good at what they do, and if you keep your eyes open, you can usually spot them before they do much damage.

One of the realities of life as a free-lance voice professional is the occasional difficulty in getting paid.

was quite happy to see that check arrive just before the holidays.

Now the bad news

On the other hand, if I am expecting to get paid in two weeks and, after a month, I still haven't seen a check, I have a real problem.

I am expecting to get paid. I don't know if it's due to some mistake, a mail or billing problem perhaps, or if someone is trying to skip out on a payment, but *I am expecting to get paid!*

Of course, I can call and ask about the payment, but I don't want to upset a potentially good client. I also don't want to give the appearance of being desperate for the money. So, I will wait, wondering when and if the check is going to arrive.

If you figure in the time and energy spent stressing over the "getting paid" aspects of the job, it can often exceed the amount based on doing the original work.

Sometimes, late or non-payment is due simply to a mistake. Recently I did a job for a well-known, large advertising agency. My agent booked the job, I did it, and I got a call a week later.

"The agency has no record of the person who booked you for that spot, or a record for the spot itself," my agent told me. On the face, it looked as if someone had produced a spot, claiming to be working for that agency, and simply disappeared. This would not be the first time someone had tried this.

My agent and I did some digging. As it turned out, the producer *did* work for the agency. He had for years, but, because someone else was on vacation, this was the first time he handled the paperwork,

There are a few scammers, however, who are very good at their profession.

One scam artist who "got" me several years ago did teach me a lot about what to watch for. He started by calling me to his office to "discuss" his project: a large series of cassette tapes. His office was very impressive, with several employees, and an ocean view.

He explained how important the project was, and how much he liked my demo. We then got down to discussing my rate. We spent almost an hour, bargaining over just how cheaply I would be willing to work on the project.

Finally, he had to leave for an appointment. He said he would be calling me the next day.

Three days later he called me up for another "meeting." We spent two more hours "bargaining." Finally, after he got me down to the absolute lowest price I would accept, we made our deal.

The project went reasonably well for a while after that, except I noticed that sometimes the director would be extremely concerned about the quality of the work, and other times he wouldn't even show up for the recording session.

Then one day I got a call from the owner of the recording studio. He had just received a call from one of the producer's employees, whose paycheck just bounced, wondering if we had seen the producer recently. A couple of days later, the full story unfolded: The producer had skipped town.

His employees, his landlords for his expensive home and his business, the studio owner, the investors who put up several hundred thousand dollars, and me ... all

See TRAVIS, page 59

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Save Those Priceless Tapes!

Michael Ryan

You've just read a memo from your station manager announcing that it's time to roll up your sleeves and decide which of the hundreds (or thousands) of tapes in storage need to be saved and which can be tossed.

With more and more classic broadcasts, interviews and actualities being dusted off and re-purposed, your station may actually have some valuable nuggets in its possession.

Will they play back, and what can you do to ensure that potentially valuable tapes will be ready to mine when your station decides to unearth these treasures from your vaults?

Since its introduction in the 1930s, magnetic tape has proven to be the most reliable medium for long-term storage and archiving of audio. With proper care and handling, magnetic tapes have lasted for more than 50 years with no significant loss of quality since the date of recording.

It is true that some manufacturers have produced magnetic tapes that deteriorated prematurely due to hydrolysis, which occurs to a magnetic tape when there is binder breakdown due to the absorption of water. In the worst cases this results in severe shedding, and can be traced to inferior raw materials as well as an inability to detect the problem during accelerated aging tests prior to releasing the tapes to market.

Properly manufactured magnetic tapes are both magnetically and chemically very stable — as long as they are handled with care and stored in an appropriate environment.

The storage environment is the most critical factor for ensuring the long-term stability of magnetic recordings.

Working groups from such professional organizations as the Audio Engineering

Society and the Society of Motion Picture and Television Engineers have established that the optimum environment for an archive has a temperature of 68 degrees Fahrenheit, +/- 5 degrees, and a relative humidity of 40 percent, +/- 5 percent.

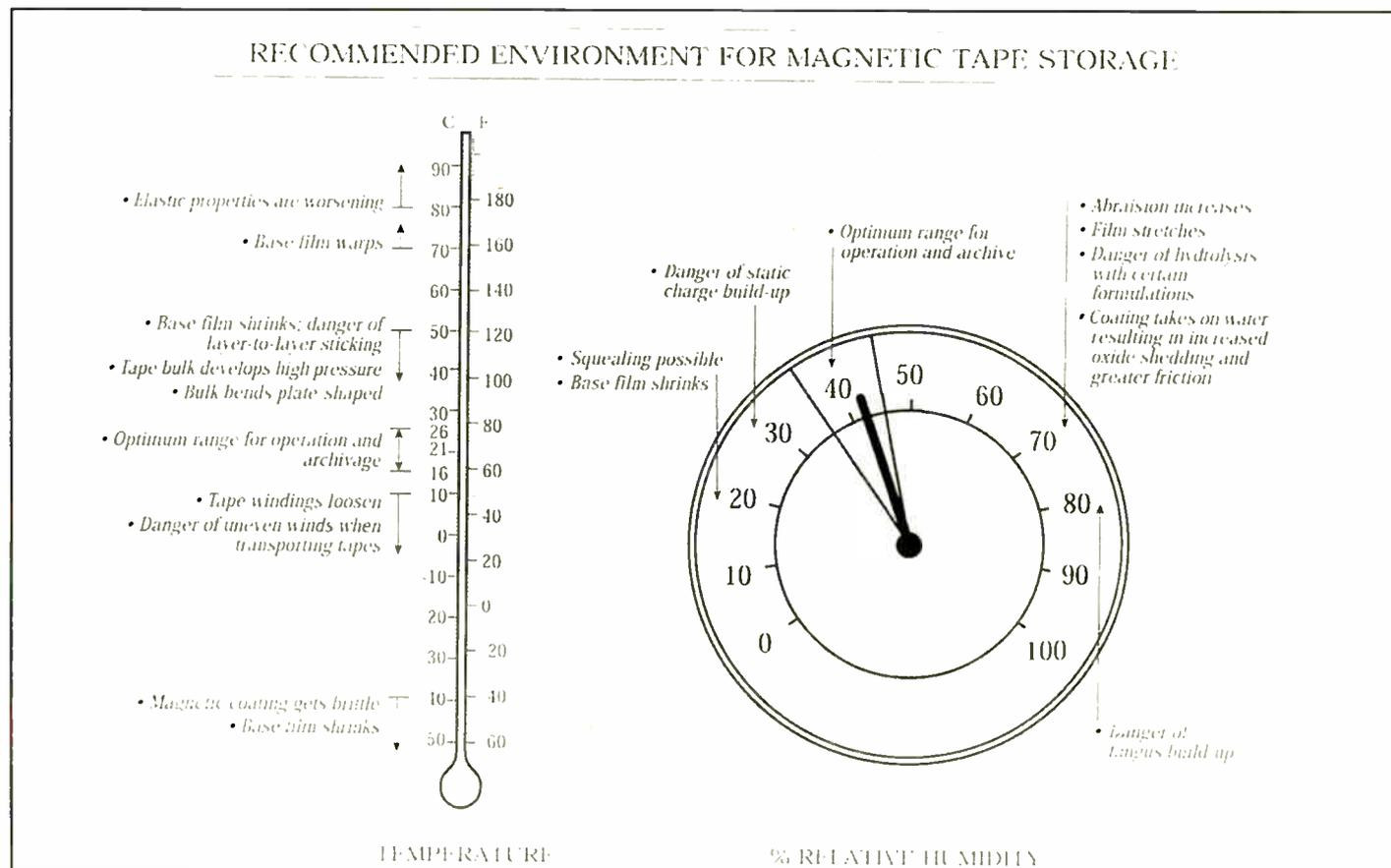
Deviations from these recommendations can cause a variety of problems including base film deformations from

every two to three years is necessary to prevent uneven pressure distribution in the tape pack caused by expansion and contraction.

The storage environment should be as free of dust and other airborne debris as possible and the packaging material should not contain any acid-based chemicals. Acids, which can be found in cartons and

problem occurs when the recording on one tape layer influences its adjacent windings because the magnetic fields from one layer magnetize the oxide particles on the surrounding layers.

Because "tails out" tapes must be rewound before playback, any increase in print-through over time can be reduced by up to 6 dB by the physical action of fast-winding the tape before use. The tape pack should be very smooth and without any individual layers of tape protruding from the pack surface. Ideally, the winding



▶ TRAVIS, continued from page 58
left with nothing. I was fortunate, because I had not given up any other work to do this job, so I really had only lost my time. Many others were not as lucky.

The studio owner and I wondered why someone not expecting to pay anyway would spend so much time getting us to drop our rates to the absolute lowest. I found the answer about a year later, when I was watching a PBS documentary on con artists.

What these people will initially try to do is get you to invest something of value. This does not necessarily mean money; it can be hopes and dreams, talent or, in this case, my time and energy.

Once I spent my time at his "meetings" I did not want to lose my "time investment," so I would be much more likely to overlook various warning flags. On the surface, it looked like the producer was investing his time, trying to get the best deal from me, but what he was really doing was getting me to invest my time.

See you in court

Over the years, I have also had to deal with a number of individuals and companies who simply will not pay until they have to, when threatened with legal action.

Also, there are well-meaning individuals who truly intend to pay, but who

can't because their project did not pan out the way they expected. Their projects never pan out the way they expect.

Then I have had a number of clients who were good clients, and, for whatever reason, suddenly had a turn of bad luck. I have had to explain to these clients, whom I've already made good money from, that I was more concerned for our future relationship than the current situation.

I would much rather give them a freebie to help them get back on their feet than become just one more bill for them to juggle. I have done this a few times, with both good and bad results.

If you really plan on going into business for yourself, it is a good idea to get informed as to exactly what your rights are as a businessperson. Knowing how to collect through the legal system can often keep you from actually having to do just that.

A number of publications on these subjects are available at your local bookstore. It also is a good idea to really check out new clients. Ask for references, then go and check the references out, too.

If you ever have any doubts, "cash up front" is always the safest way to go.

■■■
"Travis the V/O Guy" writes from sunny California, where clients are always pleasant and always pay on time. Reach him via e-mail at vo-guy@pacbell.net

adhesive labels, can act as a catalyst in the chemical breakdown of magnetic tape.

The result is crystallization of the lubricant or even hydrolysis when the acid-bearing element remains in close proximity to the magnetic tape over long periods of time.

Tapes should be wound "tails out" to reduce the effect of print-through. This

should be done in one continuous pass on a well-maintained tape recorder in library wind mode or in normal play mode.

Care must also be taken when moving tapes from one environment to another. For example, humidity can condense on a cold tape brought into a warm room. Tape should be allowed to acclimatize by sitting idle in

See TAPE, page 62 ▶

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You can find many uses for the HC-1 around your station: on-air studio, production room, newsroom, sales office, field news kits, sports remotes, etc.

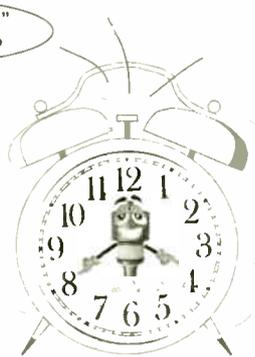
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Neumann's Slimmer Shock Mount

For fans of Neumann TLM 103 and M 147 Tube microphones, the company offers the EA 1 shock mount. This new all-metal suspension mount was designed to complement performance and blend esthetically with the newer, smaller mic bodies.

The EA 1 is available in satin nickel finish for the TLM 103 and M 147 Tube, and matte black for the TLM 193. It replaces the older EA 103 and EA 193 suspensions. Retail price is \$195.



For information, contact the company in Connecticut at (860) 434-5220, send e-mail to neumlit@neumannusa.com, visit the Web site at www.neumannusa.com or circle Reader Service 71.

BSI, Olympia Enter Into OEM Deal

Olympia Management and BSI Inc. announced an agreement for BSI to resell MixMax!, Olympia's automated audio mixer for radio stations, under the BSI product banner.

"We were in the process of designing a mixer that would tie into our successful Wavestation automation software when we came across MixMax," said BSI President Ron Burley. "We now have extremely powerful control of six channels of audio through MixMax."

Jim Withers, director of sales for Olympia, said, "The BSI Wavestation software operates under Windows and so does MixMax, so it was a simple task to write the code to allow Wavestation to control the mixer functions directly. Of course, users can still pre-program the eight internal MixMax operating setups for breakaways, any time they want."

MixMax was designed as a standalone automated audio mixer, to be operated "live" from an operator interface panel, or from a local, or remote computer, or over the Internet.

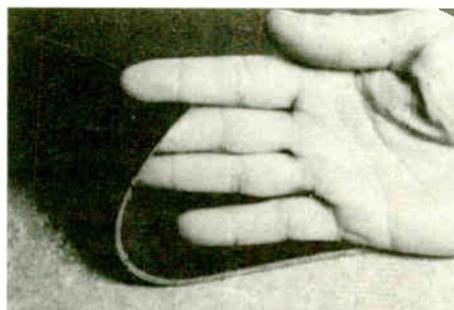
For information, contact Olympia Management Inc. in St. Louis at (314) 345-1030 or circle Reader Service 70.

dB-Bloc Acoustic Barrier Vinyl

From NetWell Noise Control comes a thin, weighted mass material that installs within the substrate of any wall, ceiling or floor surface to block sound from transmitting to an adjoining room.

The dB-Bloc is available in 50-foot rolls with a weight of one pound per square foot — a heavy, limp mass that is thin enough to conceal behind a layer of sheetrock, and still yield a 10 to 12 decibel drop.

The material is suited to indoor or out-



door use. Call for a sample or a variation of the material in blankets or composite panels.

For information, contact the company in Minnesota at (800) 638-9355, visit the

Web site at www.asknetwell.com or circle Reader Service 66.

Spirit by Soundcraft Moves to Nashville

Spirit by Soundcraft has moved its U.S. operations from California to the Harman Pro North America facility in Nashville, Tenn.

It joins its sister company, Soundcraft, at that location. Spirit is a brand of mixing consoles and near-field monitors. The Nashville facility also is the U.S. headquarters for Amek, AKG and BSS.

The company said both entities will maintain their identities and market focus. But customers now have one number to call for sales and service. That number was not immediately made available, but the company invited calls to the main switchboard at (615) 360-0471.

Group Sales Director Adrian Curtis said he hoped many of the employees in the Rocklin, Calif., facility would join the move to Nashville.

For information, contact the company in Tennessee at (615) 360-0471, fax to (615) 367-9046 or circle Reader Service 81.

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Page 78

Radio World

Codecs & Telco Gear

September 29, 1999

USER REPORT

Comrex and Margaritaville Online

by Coleman Sisson,
General Manager, and
Steve Huntington,
Program Director
Radio Margaritaville

MANASSAS, Va. It's 7 p.m. and we're backstage at a Jimmy Buffett concert in Manassas, Va. Buffett and we are marveling over our very latest toy, a Comrex Vector.

For those who aren't familiar, the Vector delivers 15 kHz two-way audio on a single, standard, dial-up telephone line.

"Let's try it out!" Jimmy said, and we broke new Radio Margaritaville ground with a live interview backstage. Just before taking the stage Jimmy said, "Go ahead and broadcast a couple of songs if you want and let's see how it goes."

During the break, Jimmy came back to check to see how things were going and we told him, fine.

He said, "Let's broadcast the rest of the show!"



Comrex Vector

From that point on, Radio Margaritaville has broadcast every Jimmy Buffett concert live over the Internet using the Vector POTS codec from Comrex.

The opening of Jimmy Buffett's Margaritaville Restaurant at Universal Studios CityWalk in Orlando, Fla., was the first live performance to be hosted by Radio Margaritaville. Tens of thousands of dollars, sound trucks, audio equipment, man hours, blood, sweat and tears were necessary to pull off this event.

Fast-forward three months, an eternity in Internet time, to the aforementioned event and you have the beginning of what has turned out to be a regular entertainment event attended by more than 10,000 Internet users per show.

Thanks to the flexibility of the Comrex Vector we have also gone "on location" to St. Louis for the Peter Mayer Group's "Farewell to St. Louis" concert and to Costa Rica for the Women's and Men's Longboard Surfing Championships.

And we plan to do many more in the coming months, including a special Buffett concert in St. Bart's and Sunny Jim from the Cayman Islands.

It's a tough life but somebody's got to do it.

Airing the mix

Radio Margaritaville's format is an eclectic mix of Jimmy Buffett, Club Trini, Bob Marley, Bonnie Raitt, James Taylor, other reggae and Caribbean sounds, New Orleans music, folk, rock and world music. Relevant news and information are sprinkled in, all in a style that avoids the commercialization of so much of today's media.

We needed portability, reliability, quality and ease of use and that is exactly what we got with the Comrex Vector.

This technology, combined with the willingness to take a few chances, has enabled Radio Margaritaville to dramatically increase our audience and reach new heights in Internet broadcasting. If you'd like a first-hand "look" at how we are using the Comrex Vector and other exciting technology you can visit us at www.radiomargaritaville.com

For more information contact Comrex at (800) 237-1776, visit www.comrex.com or circle Reader Service 161.

USER REPORT

Premiere Radio Expands With Telos

by Barry Victor
Director of Engineering
Premiere Radio Networks
Sherman Oaks, Calif.

Premiere Radio Networks is responsible for network programming at Clear Channel Communications and syndicates many national talk shows including Rush Limbaugh, Dr.

United States.

These shows are produced in studios in Los Angeles, New York, San Francisco, Nashville, Florida and Medford, Ore. The majority of Premiere's live on-air telephone calls are done with Telos telephone hybrids.

Premiere's first telephone hybrid system was a Rood hybrid. In 1989 it

Premiere has handled many multi-station remotes, ranging from 10 stations to 100 stations during special events.

Laura, Art Bell, Mike Reagan, Jim Rome, Dr. Dean Edell, and "The Group Room."

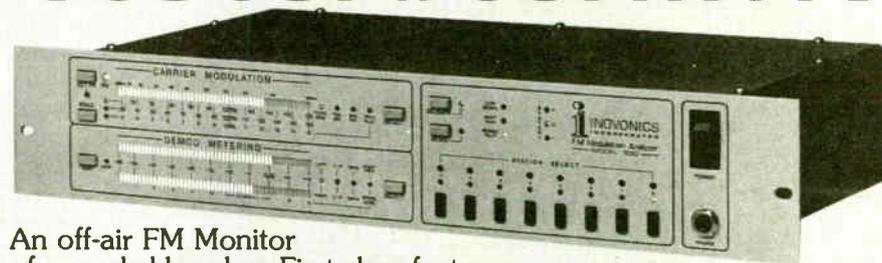
Premiere's live country programming roster includes "After Midnight," "Heart to Heart" and "Club Country Live." Premiere also provides 14 comedy networks. The combined talk and comedy networks total more than 6,000 non-duplicated affiliates across the

was the best in the world and did its job reasonably well.

We purchased our first Telos hybrid, a model One-Plus-One, in 1992 when the corporate headquarters and L.A. studios were relocated from Hollywood to their present location in Sherman Oaks, Calif. At that time, Premiere's only live programming was a 30-minute daily feed.

See TELOS, page 70 ►

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USER REPORT

Aeta Audio Delivers the Scoop

by Sean Caldwell

Owner, Sean Caldwell Broadcast Services Tampa, Fla.

ODESSA, Fla. Aeta Audio has come to market with an impressive remote audio unit that combines ISDN and POTS to deliver audio under many circumstances.

The Scoop Reporter II is a portable unit that has the capability to send 20 Hz to 20 kHz bi-directional audio to any location that supports ISDN. The Scoop would be a great choice for remote broadcasts, sporting events, club broadcasts, and as a backup studio to studio unit.

Bells and whistles

What differentiates the Scoop Reporter II from other ISDN codecs on the market is the ability to still send quality audio when ISDN is not available by sending data down a standard phone line to another Aeta Audio unit.

It operates on AC power and automatically adjusts from 85 to 265 volts at 47 to 440 Hz and works on DC power with D cell backup.

The Scoop is delivered in an attractive heavy-duty carrying case, and the unit itself is housed in rugged metal that appears to be ready for the road. It measures approximately 11 inches wide by 11 inches deep by 4 inches tall and weighs less than 12 pounds.

The front has an XLR mic input, XLR

line input and line output, and a headphone jack. There's also a five-pin headset input that has send and receive on the same cable.

The mixer is built into the unit, allowing

ISDN and POTS inputs, and a modem port for computer profile programming.

Just like other ISDN units, the Scoop Reporter II must be programmed to



Aeta's Scoop Reporter II

you to adjust input volume, and headphone volume. There's also a pot to adjust headphone mix between send and receive audio. The back of the unit has a power jack,

communicate with the telco switch before it will let you talk over ISDN.

Input the ISDN SPID numbers, director numbers, and some other parameters and hopefully you'll be ready. ISDN has never been simple, but once you get the proper settings input, the unit happily connects to any compatible unit.

So, what is it compatible with? It supports G.711, G.722, ISO/MPEG Layer II and J.52.

If all that sounds confusing, simply stated, this unit should connect to any other Aeta, Telos, Comrex or CCS unit out there. J.52 helps to auto establish the algorithm when the two units start talking, saving lots of headaches.

As for PC connections, the Scoop Reporter II is easy to program using the supplied computer interface.

Connect the cable to your PC, load the software and you're ready to input all the different locations you might be calling. If you're sending a reporter out to feed back audio, it's a snap to press a few keys and be connected to any of your pre-programmed locations.

The POTS (plain old telephone service) capability is what was most intriguing.

This could be a unit primarily used over POTS. You plug the Scoop Reporter II into any phone line, and an internal modem dials out and connects with another AETA audio unit.

I did quite a few tests in the POTS mode and the audio quality was surprisingly good. It sounded better than G.722. It is almost as good as single-channel ISDN.

The user's manual quotes 7.5 kHz audio for POTS. News or sports over AM would sound great but there would be noticeable roll off on FM.

Music definitely went beyond the capabilities of this algorithm. If you want to broadcast music or other high-quality audio, you'll want to stick with ISDN. The coding delay for the POTS service is short as well — 40 ms.

There are a couple areas that could be improved.

The two-line LCD screen could be expanded to provide more data. Connection speed, algorithm in use or other parameters could be displayed for easy troubleshooting. You can view the settings by pressing a few keys on the front of the unit, but continual display would be even better.

An audio limiter and/or automatic gain control would improve remote broadcast situations. A call to AETA's 24-hour technical support number informed me this feature would be implemented soon.

The keypad could be shifted slightly away from the edge of the unit but right-handed people will have no problem.

Overall, the AETA Audio Scoop Reporter II unit is an excellent entry into portable audio delivery.

Caldwell, a voice-over and imaging talent for radio and television stations, is profiled in Studio Sessions in this issue of RW. Reach him at studio@seancaldwell.com

For more information contact Aeta Audio at (973) 659-0555, fax (973) 659-9555, visit www.aetausa.com or circle Reader Service 191.

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Musicam USA

Musicam USA's new Prima LT codec, designed for small-market stations, recording studios and voice-over talents, retains many of the features in the Prima 120 codec but with a list price of \$3,495 including a built-in TA.



This fully bi-directional codec can accept one ISDN terminal adapter or a V.35 or X.21 digital interface for leased-line operation. Equipped with a 24-bit A/D and D/A converter, the Prima LT gives the user Musicam-enhanced MPEG Layer 2, Layer 3 and G.722 coding.

The Prima LT comes with a 250-address speed-dial directory with 38 factory-preset configurations for date rate, sampling rate, coding and line configuration.

Every Prima codec, including the LT, comes with the ability to remote ISDN online diagnostics. Musicam USA's tech support can check your codec con-

figuration on demand for the correct algorithms, sampling rate, or line format from anywhere in the world as long as an ISDN connection is available.

For more information contact Musicam USA at (732) 739-5600, fax (732) 739-1818, or visit www.musicamusa.com or circle Reader Service 172.

USER REPORT

Henry Upgrades The Audio OnLine

by Tom Koza
Chief Engineer
KPWR(FM)

LOS ANGELES, Calif. It's been more than years since KPWR installed Henry Engineering's Audio OnLine telephone information system.

This PC-based system is used by KPWR to provide various kinds of listener information services such as concert information, contest rules, request line info, prize-pickup details and directions to the station. The system is caller-interactive; callers can select the message(s) they want to hear from a menu of available information.

New bells and whistles

Henry Engineering has released a new version of the software, Version 4.2, which we've been beta-testing. It will likely be available by the time this article appears. Version 4.2 adds features that we've found useful:

Quick Record: The two-line Audio OnLine modems have a "line input" jack that let the user feed audio directly into the card for recording messages.

This method of recording messages yields the best audio quality, because you can record a message without having to call into the system over a phone line. Version 4.2 has a "Quick Record" function to use the line input recording method. The audio inputs accept (unbalanced) audio at about -10 dBm on mini-jacks.

Quick Play: There is also a "line output" jack on the two-line modem. The new software lets you play any message through this jack, which outputs unbalanced audio at about -10 dBm. This function provides an easy way to check any message.

Ring-Set: Previous versions of Audio OnLine always answered calls on the first ring. The new version allows the user to program the number of rings before calls are answered.

This was added, according to Henry Engineering, so that users could use external "Caller ID" devices, which evidently require a certain amount of "data detection" time before the call is answered.

Answer-Default: One potential problem with older versions of Audio OnLine concerned the message that was preset to answer each line.

Any message can be set as the "opening menu" message for any line, but there was always the chance that during the installation/setup process, this menu message might accidentally get deleted or not recorded. If this happened, the system could not answer, making it awkward to record the missing opening message.

The new software solves this potential "Catch-22" situation by adding a "default" message that will always play if the user's opening message is missing.

Other recent updates to Audio OnLine have added an on-screen Message Status field that quickly indicates which messages are being played or recorded, and an on-screen Line Status field that shows

which message is being played over each phone line.

These features provide useful information about overall message and line activity, and confirm that messages are in the "record mode" as new messages are being loaded or updated.

Audio OnLine has performed well over two years of operation. Callers enjoy using the system, and like the ability to select the information they want to hear quickly. We get several



Henry Engineering's Audio OnLine

thousand calls each month, which would have certainly "consumed" a few of the older cart machines we 3656; fax (626) 355-0077; visit www.henryeng.com or circle Reader Service 181.

used to use for this purpose.

We've seen significant cost savings due to the elimination of the maintenance expense of those old decks. Audio OnLine is an easy and efficient way to provide your listeners with useful information and enhance public service, with a minimal commitment of cash, time or personnel. It's worked fine for KPWR since 1997.

For more information, contact Henry Engineering in California at (626) 355-

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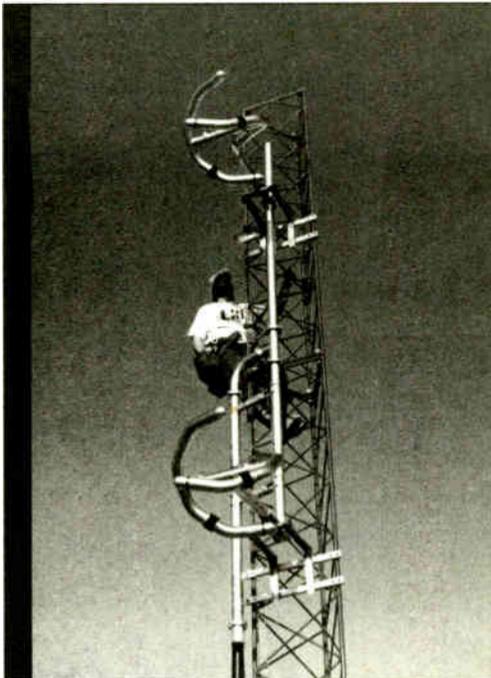
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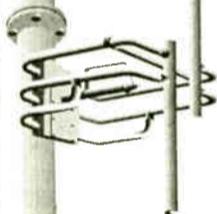
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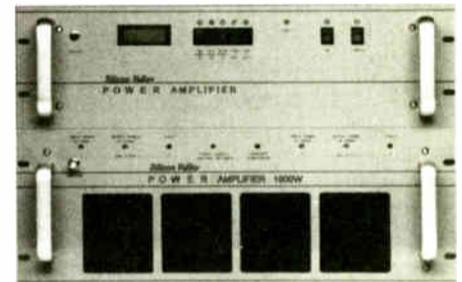
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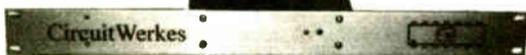
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USER REPORT

ABC Finds a Fit With Zephyr

by Chris Tobin
 Manager of Technical
 Operations
 ABC Radio Networks Inc.

NEW YORK Listened to the radio lately?

We at the ABC Radio Networks do, every day. You may recognize the brands Paul Harvey News and Comment, ABC News, ESPN Radio, Dick Bartley and Tom Joyner, to name a few.

Our affiliates and clients enjoy quality distribution from our network Technical Ops Centers both in New York City and Dallas. These centers pass along to stations across the country and some 90 countries much different radio shows.

ABC Radio Network Engineering has for many years practiced implementing user-friendly automation systems, audio codecs, T1 and ISDN equipment. The result is 99.999-percent systems reliability.

The monthly outage time, if any, is 30 seconds on average. For the curious, this would be five-and-a-half minutes a year.

Learning the ropes

We currently use more than 40 ISDN circuits for radio show backhauls and have several types of codecs for this purpose.

But we needed a codec with a simple user interface. The Telos Zephyr provides us with such an interface.

On the front panel you will find a sim-



ABC Radio Networks Control Room

ple display of the Zephyr status and other important status indicators. The display immediately tells the user to expect either dial a number or troubleshoot a problem. The directory tree for the Zephyr is very intuitive.

Recently I had the opportunity to assist an affiliate by phone on how to change the settings on their codec. The process was very simple as the person

read to me the various display parameters and I instructed him to acknowledge "yes" or "no" to the changes.

The Zephyr uses a simple approach to accomplishing a task. For this reason, it is well suited for the applications we have tasked this codec.

Another nice feature is the serial port on the codec for remote access to confirm operation of the unit. During our

coverage of the TWA Flight 800 plane crash off Long Island, we had a Zephyr set up as a remote microphone for use during the NTSB press briefings, which allowed our newsroom in New York City to feed audio to affiliates.

The Zephyr uses an optional V.35/X.21 card which allows the user to attach this codec to a DDS (Digital Data Service). We use this option with many of our full-time affiliates and clients for a more cost effective connectivity to our facility.

The setup and cabling required for DDS use is straightforward and flexible enough to allow an external DSU (Digital Service Unit) to be used as a circuit failure switch between the DDS and an ISDN dialup for backup.

Customer support from the folks at Telos is very good. I can say that when I have presented them with a quirky request or told of problem, in all cases the response has been quick and on the mark.

In one case a problem we experienced required some hardware mods. Telos responded with documentation and phone support for the work.

In most cases, however, we have solved our problems with good old troubleshooting common sense. You will find the operators manual to be very good in terms of explanations for most questions on ISDN, setup and troubleshooting.

The Telos Zephyr sounds great and is one many tools we use for getting the job done.

For more information contact Telos Systems in Ohio at (216) 241-7225, fax (216) 241-4103, visit www.telos-systems.com, or circle Reader Service 145.

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Telos on the Line at Premiere

► TELOS, continued from page 65

Telephone hybrid needs were for comedy production effects and for taped telephone interviews.

As we grew, the demands for telephone hybrids grew as well. Telos was able to provide the right hybrid for the right use.

Premiere now has in its inventory Telos IA2 controllers, One-x-Six hybrids/controllers, 10 line Direct Interface Modules, Telos One hybrids, One-Plus-One hybrids and 100 Delta hybrids.

These devices are used for a variety of different shows and needs.

The decision as to which hybrid to utilize is based on the audio quality that is required, the amount of nulling that is



Telos One-Plus-One

Its compact size and ease of use with a single-line telephone make it a winner for remotes.

Most of our talk studios utilize stan-

The telephone lines are interfaced directly from the telephone company and the IA2 key system allows as many multi-line telephone sets to be installed as needed.

The Telos IA2 controller is matched with the 100 Delta for the best quality live on-air sound.

Premiere has come across a small problem using the 100 Delta with our IA2 controller.

We found that the 100 Delta was trying to null before the IA2 controller was able to fully switch the telephone line on. The on-air problem that resulted was that the 100 Delta did not null the telephone call all of the way until the host spoke for a few seconds.

This problem was rectified with help from the Telos tech-support specialist for hybrids. A pulse stretcher was constructed using a 555 op-amp and inserted between the IA2 controller output and the 100 Delta input.

This circuit increases the pulse width to around 750 milliseconds. This gives the IA2 controller the time it needs to switch the telephone circuit to the hybrid, allowing the 100 Delta to fully null the call before being put on the air.

The 100 Delta works so well, in fact, that when a new studio was put into service some time ago, it was not discovered for several hours that the audio console input module that was being used for the hybrid output had not been selected for mix-minus operation.

The hybrid was able to reject itself and the operator had not noticed anything unusual during the show.

Direct interface

Premiere utilizes the Telos One-x-Six hybrid/controller and the Direct Interface Module interface for several

studios where IA2 telephone equipment was either not necessary or unavailable at the time.

The down side of using these units is that you can only have two locations

where the incoming telephone lines can be accessed or answered without tricky interfacing. Also, you are limited to the number of telephone lines that can be accessed, six with the One-x-Six and 10 with the Direct Interface Module.

The positive side is that the One-x-Six is a

small, high-performance, easy-to-connect self-contained system.

Premiere uses Direct Interface Module with a 100 Delta hybrid for the highest quality on-air usage without utilizing a dedicated IA2 key system.

Premiere uses the Telos One-Plus-One mainly in our production studios. The hybrids contain the optional Super Auto Answer circuit, which allows the hybrid to auto answer the telephone line. They are connected with an on-premises analog station line from our PBX (on a regular 1Mb digital circuit).

This allows Premiere's production people to initiate telephone calls that originate from within the studios and then transfer them to the hybrid for use in candid calls and telephone interviews. The One-Plus-One is located in the tech area and can be connected to any studio via audio patch bays.

Overall, Premiere's eight years of experience with Telos telephone hybrids has been very good.

When there were problems, the Telos support staff was up front with real answers, and fast response times with replacement equipment and/or solutions to problems. Nobody is perfect and I haven't found the perfect telephone hybrid yet, but Telos seems to improve on theirs with every new software release.

Barry Victor soon will leave his position at Premiere to devote full-time energies to his contract engineering firm, The Victor Group, which he founded in 1981. He will continue his relationship with Premiere Radio as a consultant.

For more information contact Telos Systems at (216) 241-7225, fax (216) 241-4103, visit www.zephyr.com or www.audioactive.com or circle Reader Service 171.

Premiere uses the Telos One-Plus-One mainly in our production studios.

needed and the intended end product the hybrid will provide.

Premiere has handled many multi-station remote broadcasts ranging from 10 stations to 100 stations during special events. When a live telephone interview is required, the Telos One is in our remote kit.

standard IA2 key telephone equipment for on air usage. The IA2 key equipment allows the highest quality audio to be derived from the telephone system.

There are neither the analog-to-digital nor the digital-to-analog conversions that take place in modern PBXs.

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TECH UPDATE

Innovative Devices Inc./ Broadcast Telephone Systems

Broadcast Telephone Systems' new PROtalk 4 with its streamlined console lets you take any combination of four callers to air at any time.

The control system uses separate lighted buttons for each of the four lines' functions, allowing the talent to see the status of all lines at a glance, take several lines to air together, or hold all the callers simultaneously. The PROtalk 4, through built-in digital hybrids, automatically balances all of the caller send and studio audio levels.

Features of the PROtalk 4 include a pre-fade mic/line input; a mix output available for call recording; hold audio

input with its own level control; and the convenient use of a standard telephone as the privacy handset (your talent can use the feature phone they prefer for their off-air calls). The studio audio send has automatic mix-minus to the caller with manual level-influence control; the caller return audio has a manual level control.

The compact desktop console is connected to the rack-mount control unit by a single miniature cable. The front of the 1U rack-mount control unit has the manual controls while the audio XLR connectors, the RJ-11 telephone jacks and the power connector are mounted on the rear.

For more information contact Broadcast Telephone Systems at (888) 890-7424; e-mail info@broadcast-telephones.com; or circle Reader Service 164.

USER REPORT

Sine Gets WSAF(AM) Time/Temp

by Terry Adams
General Manager
WSAF(AM)



Terry Adams at WSAF(AM) Studios

SOMMERVILLE Ga. How many times have we heard the phrase "Time is money?" Well, finally someone has put their money where their mouth is.

Sine Systems of Nashville, Tenn., has a true moneymaker in the Time-Temp Announcer.

It used to be that to give the public the service of the time and temperature, you had to be a big bank or insurance company. Not anymore with Sine Systems standalone Time-Temp Announcer. Almost every station can afford and profit from this small but powerful machine.

Here at WSAF(AM) and AGTV television, our system has been in service for almost three years and has paid for itself several times over not only in money but also in station recognition.

We now receive more than 1,000 calls per day to our (706) 857-4444 phone line. To start with, we advertised the service very heavily on radio, television and even in the local newspaper.

Also, to promote the time and temperature we had business cards printed that simply stated "for the time and tempera-

ture call ... " We handed these out at ball games, left them at businesses and so forth. It was not long before the phone was ringing, not only to hear the time and temperature, but also from clients who wanted to advertise on our system.

How does it work

It's probably the simplest system that we have ever run across.

The Time-Temp Announcer has a very human-sounding voice. You can record one 30-second message, two 15-second rotating messages or three 10-second rotating messages at the front of the time and temp announcement and one 15-second spot at the end.

rack-unit space and supports MPEG program audio, voice and LAN data at rates up to 128 kbps. The IntraLink 6100 supports up to three ISDN connections simultaneously in a one rack-unit space.

Both products can communicate with most popular industry codecs including the Intraplex OutBack, Telos Zephyr and CCS CDQ Prima codecs, and codec modules can be added as required.

Each remote connection can be fully controlled through simple, intuitive

There are several other options to get the full 45 seconds, but we have found that the three 10-second rotating messages with the 15-second close work the best for us and bring in the most money.

Following the opening announcement, the time and then the temperature will play followed by the closing message. The time is updated every 60 seconds to ensure accuracy.

The temperature probe is a single three-legged integrated circuit that sends the current temperature back through a cable to the Time-Temp Announcer and our circuit has always been correct.

Sine Systems even includes with your unit a plan to build the housing unit for the temperature probe.

We went to our local builder's salvage and picked up a house shutter and a couple pieces of plywood and assembled the housing unit for less than \$30.

With all the benefits we've encountered using the Time-Temp Announcer, it still continues to surprise us. Whether it's to promote your station or to generate extra income, you will not go wrong with Sine Systems Time-Temp Announcer.

Terry Adams can be reached at (706) 857-5555 or by e-mail at agtv@wavegate.com

For more information contact Sine Systems Inc. at (615) 228-350.; fax (315) 227-2367, visit www.sinesys.com or circle Reader Service 173.

TECH UPDATE

Gentner TS612

The TS612 Version 2.5 is a multi-line telephone system designed to bring caller audio into a broadcast situation.

The mainframe contains two internal digital hybrids that provide high-quality



interface to six telephone lines and is expandable to 12 lines. The dual hybrids allow the TS612 to operate as a single-studio telephone system able to conference up to four callers simultaneously or as a two studio system able to

conference four callers to each studio.

The TS612 supports a dedicated call-screening control surface.

An off-air screener takes incoming calls and places them in a screened-hold queue. The on-air talent or producer presses the NEXT button on the main control surface and the call is immediately on-air.

Automatic gain control provides consistent audio levels on calls.

The TS612 can be configured to operate as a single-studio dual hybrid system or as two independent studios with a single digital hybrid for each studio. The system is expandable via the

Network Interface to accommodate up to nine studios sharing 12 telephone lines.

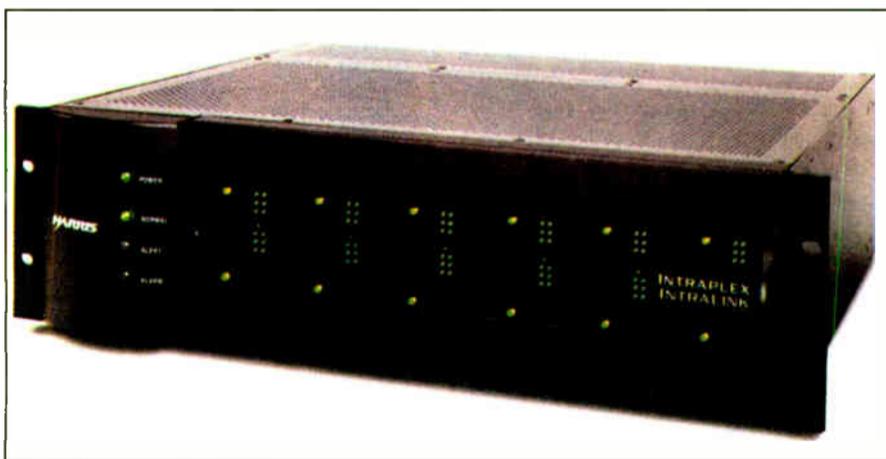
For more information contact Gentner in Utah at (800) 945-7730; fax (801) 977-0087; visit www.gentner.com; or circle Reader Service 182.

TECH UPDATE

Harris/Intraplex

The new Intraplex IntraLink from Harris Corp. is an ISDN codec multiplexing system that allows broadcasters to control and manage multiple remote broadcasts, using multivendor remote codecs, all from a single Windows-based user interface.

The Intraplex IntraLink system consolidates the functions of up to six ISDN codecs into a single rack-



mounted unit. IntraLink's compatibility with major industry brands eliminates the need for studio personnel to store and maintain codecs in-house and then match them to the specific unit being used in the field. Also, the Intraplex IntraLink supports high-speed data and voice communications over ISDN lines.

IntraLink is fully compliant with MPEG Layer 2, Layer 3 or G.722 ISDN standards. Up to six "codec-on-a-card" modules can be plugged into an IntraLink system.

The IntraLink 6500 supports up to six basic rate interface (BRI) ISDN connections simultaneously in a three

Windows-based user interface software running on an attached PC or notebook.

The Intraplex IntraGuide interface software allows users to monitor the status of multiple codec connections simultaneously, program phone numbers, dial and disconnect circuits and screen incoming calls. The rack-mounted multiplexer unit also features front panel LEDs and VU meters. Pricing for IntraLink starts at \$7,500.

For more information contact Harris/Intraplex at (877) INTRAPLEX; fax (978) 486-0660; visit www.harris.com; or circle Reader Service 162.

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TECH UPDATES

Intelix

The Intelix V2A2 Balun is a passive transformer device that allows users to run audio and video signals over Cat5 cabling.

For use in situations where users need to retrofit a teleconferencing system, or to expand a current system with little expense, the V2A2 balun plugs audio and/or video mixing sources directly into a building's structured wiring system.



The V2A2 A/V Balun allows the transmission of two-way composite baseband video and audio signals over Cat 5 for runs up to 2,500 feet without loss.

The V2A2 is enclosed by a 2.25-inch-square molded plastic casing and is equipped with four standard RCA phono jacks at one end and an RJ45 at the other end.

For more information contact Intelix at (608)

831-0880, fax (608) 831-1833, visit www.intelix.com/baluns.htm or circle Reader Service 91.

Arrakis Studio Furniture systems are #1 with over 1,000 sold!

The Master Control Studio, shown right, is one of seven Arrakis studios in Sony's Manhattan network origination center for GW Networks.



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JK Audio

JK Audio's new innkeeper 1 Digital Hybrid uses the latest DSP algorithms and connects audio signals to a standard analog telephone line without the transmit/receive



cross talk common to analog hybrids. The DSP continuously monitors both the phone line and audio signals to deliver separation.

This proprietary, dual-convergence echo canceller algorithm can achieve trans-hybrid loss, typically exceeding 50 dB, without any setup. It can adapt to changes such as another phone going off-hook, without any user adjustment.

Users can take telephone calls while

on the air and retain complete separation of the caller's voice and the talent's "radio" voice.

The innkeeper 1 features a "Presence" button for richer sound from the caller's voice. This digital filter compensates for some of the low-end

loss found in the telephone network. An optional remote control keypad called the Guest Module 1 allows the user to answer, dial or drop calls.

JK Audio's innkeeper 1 Digital Hybrid is available in either a desktop version for \$780 or a rack-mount version for \$875.

For more information, contact JK Audio Inc. at (800) 552-8346, fax (800) 552-8346, visit www.jkaudio.com or circle Reader Service 163.

Nagra

The Series-C machines from Nagra are designed to provide broadcast field reporters with a small, rugged, lightweight recorder with built-in editing and high-quality transmission capabilities using G 711 A-law and U-law, G.722 and MPEG Layer II compression.

Both the ARES-C and C-PP feature two powered microphone and stereo line inputs with individual level control and sensitivity adjustment. In ISDN mode, each B channel is used for communication in one direction. Therefore, transmission of recordings and live audio is limited to 64 kbps.

With the latest software/hardware updates, the Series-C machines have received new features that enhance

operation when using the optional ISDN codec.

The new DSP II provides the ability to record in high-quality bit rates (up to 192 kbps) and joint stereo and convert these during playback to a single 64 kbps ISDN feed. Bi-directional MPEG transmission is now possible. DSP II provides the mixing of the playback signal with the line or mic inputs during ISDN transmission with playback level adjustment.

It is also now possible to convert compression algorithms of recordings to MPEG prior to transmission. The codec is compatible with other manufacturers' units.

For more information contact Nagra USA at (800) 813-1663, fax (615) 726-5189, visit www.nagra.com or circle Reader Service 83.

Conex

The Conex DT-55 is a 10-channel telephone remote control.

The DT-55 answers a phone, accepts a user-determined access code,

actuation on the calling telephone).

Additionally, the DT-55 can be set to act in "interlocking mode." When a button is pressed, its associated relay is set and all other relays are cleared.

The DT-55 can be installed in min-



then allows remote control of 10 SPDT relays as well as the remote monitoring of 10 external switch contacts or logic levels. Status lights indicate ringing signal, power, DTMF tone detection, line connection, and access.

The relays are magnetic latching. On power loss and restoration, the relays can retain their prior states or return to the de-activated state (user's choice). Each relay can be set, cleared or activated momentarily (for the duration of the push-button

uses. Holes have been provided for mounting the unit to a wall or to a blank panel for rack-mount installation.

Uses for DT-55 are wide-ranging. TV stations use it to remotely control tower cams. Radio stations use the DT-55 as a backup to their existing transmitter remote controls or for remotely starting generators.

For more information contact Conex at (800) 645-1061, fax (360) 676-4822, visit www.conex-electro.com or circle Reader Service 75.

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Microtech 1200. W Gunn, 760-320-0728.

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ERI Rototiller, 7 bay CP up to 12 kW input, gd cond, \$3500. B Campbell, 915-673-5289.

Cablewave, 200' foam heliax w/2 7/8" Cablewave Type N connectors on each end, \$300; Cablewave 200' of 7/8" Cablewave foam heliax w/1 7/8" Cablewave Type N connector on one end, \$950. B Brewer, 918-756-5400.



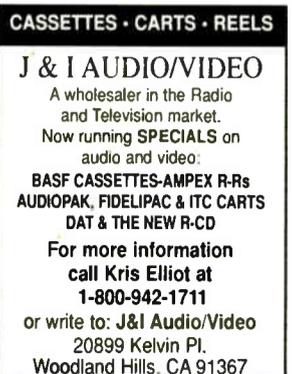
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dbx 165A mastering compressor, vgc, \$1.2K +shpg; Lexicon PGM 70 digital reverb, excel cond, \$1.5K +shpg; Joan Hardy M-1 mic pre, excel cond, \$675 +shpg. P Trembley, 661-254-5213.

dbx II 142 stereo NR system, Audio Distributor KLH transient noise eliminator, SAE 5000A impulse NR system. B Campbell, 915-673-5289.

Orban 280RX adaptive enhancement processor, \$795; dbx FS-900 w/2 dbx 411 NR cards, \$500; Orban 429 compressor/limiter/deesser, \$450; Rane HD-6 headphone amp, \$200. M Pappas, 303-988-0976.

Ramsa WZDE40-20 stereo digital effects processor, w/2 graphic, parametric & notch EQs, compressor/limiters, speaker delays, spectrum analyzer, excel cond, \$2000/trade for older recording gear. M Hughes 301-962-6823.

Sony PCM501ES, 16 bit 44.1 PCM analog to digital processor, permits up to 6 hrs uninterrupted digital recording using std VHS cassette rcd, \$500. B Meuse, 650-969-2433.

Tascam PB32 patchbays (5); Tascam PB32 patchbays 1/4 to 1/4 standard (unbalanced), decent shape, \$400 for 5. M Hughes 301-962-6823.

ITC DigiCenter servers (2) w/2 workstations, 2 DSP cards with all cables, all gd working order, includes network hub, audio input/output connectors, audio mixer board connectors, logic I/O connectors & Weidmuller blocks & 2 manuals, \$7500/complete system. R Stewart or G Hagerich, 540-228-3185.

Peavey 4 channel 4BV phantom power supply, \$75. J Borde, 414-482-8954.

Smartcaster (older mdl) w/manual, audio & logic connectors, system in gd working order when replaced, great backup or spare parts, \$300. R Stewart or G Hagerich, 540-228-3185.

ADC Propatch 1/4" punch-block patchbays, new, \$600 (many, ADC TT 144 point patchbays recond, \$149-229, Switchcraft 1/4" 96 point, new, 2 spaces, \$249. W Gunn, 760-320-0728.

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dbx 150X or 180 Type 1 NR. J Borden, 414-482-8954.

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DCS digital audio system w/486 CR workstation, DA56-01 digital audio board, MPEG audio board, 4.3 GB drive, silence sensor, uninterrupted pwr supply, \$10,000. H Close, 603-352-3691.

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BE 10 Spotmaster (2) 10 spot mono, never used; Beaucart stereo/play (3), \$150 ea; Harris/Gates stereo R/P (2), \$275 ea/BO. J Lalino, 315-891-3110.

BE 5302B triple deck stereo cart player w/plugs, \$800; BE 2100 R/P cart deck w/manual, \$350. D Brou, 318-445-4843.

Intl Tapetronics stereo recording cart machine, rack mount, gd cond, \$250; (2) Intl Tapetronics stereo play cart machines, 2 machines per rack unit, total of 4, gd cond, \$300 per dbl unit; Spotmaster stereo cart recorder, fair/gd cond, \$120, prices do not include S/H. A Berger, 781-239-5245.

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Sparta A-15. W Dougherty Jr, 578-998-3117.

Logitek 12 stereo mixer. Mike, 800-588-7411.

MCI 618 24 inputs (12 mono, 3 w/super EQ, 12 stereo) great prod board, \$6k, MCI 528 27 in recording board \$7k, Neve 8108 65 in, mint \$59k, D&R Orion 1k-nu 26 inline, (64 on mixdown) \$12k, Trident 70 28x16, \$8500, JL Cooper 16 trk automation, \$1200. W Gunn, 760-320-0728.

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Soundcraft 600/800, Tascam 2600, Auditorics 110A, Mackie 1604, Neotek Elite. W Gunn, 760-320-0728.



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WANT TO BUY

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

Telex WT-50 & WT-200, \$125 ea; EV 636, \$65 & 654, \$85. J Price, 214-321-6576.

Shure 4 mic mixer mdl M68, gd cond, \$90. A Berger, 781-239-5245.

Neumann U87s \$1800, Telefunken U48, long body, chrometop, New \$6800, Altec salt shaker mics, \$175/ea. Sony C37fet, ECM377 mics, \$600/ea, Neumann U89, w/shockmount \$1500. W Gunn, 760-320-0728.

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Altec 175A M-30 system, matched pair of tube lipstick mics, 29A capsules w/525A power supply & stainless steel 169-A shockmounts, complete, \$1400. W Dougherty Jr, 578-998-3117.

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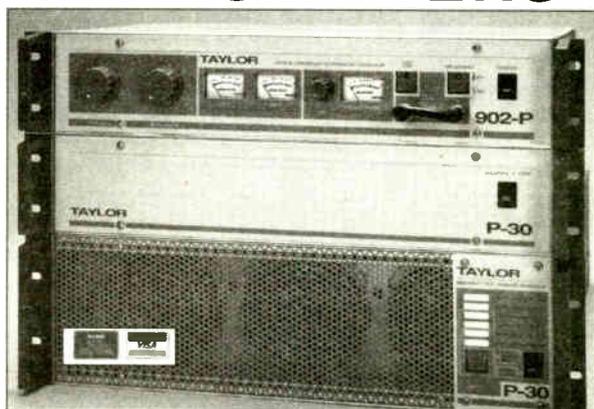
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WTS WTB Category: _____
 Make: _____ Model: _____
 Brief Description: _____
 Price: _____

WTS WTB Category: _____
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 Brief Description: _____
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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 listee.

Broadcast Equipment Exchange

PO BOX 1214, Falls Church, VA 22041 • Tel: 800-336-3045 • Fax: 703-998-2966



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| Amplifiers | Furniture | Software/Databases |
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| & Cables | Microphones | Stereo Generators |
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| Business Opportunities | Receivers | Equipment |
| Cart Machines | & Transceivers | Test Equipment |
| CD Players | Recorders/Services | Transmitter/Exciters |
| Computers | Remote & Microwave | Tubes |
| Consoles | Equip. | Turntables |
| Disco-Pro Sound Equip. | Repair Services | Employment |

Classified Advertising Rates Effective January 1, 1999

	1x	3x	6x	13x
1-9 col inch (per inch)	\$79	77	75	72
10-19 col inch (per inch)	\$74	72	70	67
Distributor Directory	\$121	118	115	110
Professional Card	\$84	82	80	76
Classified Line Ad	\$2.00 per word			
Blind Box Ad	\$15 additional			
Station/Studio Services	\$175			

To compute ad costs: Multiply the number of ad inches (columns x inches) by the desired rate schedule for your per unit cost. Example: a 3" ad at the 1x rate is \$237, at the 3x rate \$231, at the 6x rate \$225, at the 13x rate \$216, etc.

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This listing is provided for the convenience of our readers.
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◆ READERS FORUM ◆

NWS \$1,600 toilet seat

Dear RW:

How can NWS/NOAA mandate using expensive, custom-designed and manufactured equipment for simple narrowband VHF-FM public communication purposes?

The Department of Defense has major specialized systems using COTS (Commercial Off The Shelf) items. It is amazing that standard VHF-FM radio equipment used daily for life/mission, critical fire, police, medical and federal situations is not good enough for NWS warning/information messaging.

One wonders how many lives and how many tax dollars could have been saved if a nationwide COTS weather radio system were in place today.

Vern Killion
Director of Engineering
Nebraska Rural Radio Association
Lexington, Neb.

LPFM revisited

Dear RW:

Congratulations to Scott Fowler on a bang-up job on his guest commentary in the Aug. 18 RW ("LPFM Without Interference").

This is the first *practical* solution to the question of low-power broadcasting (note that I didn't use the expression "low-power FM").

I firmly and wholeheartedly agree with Scott that the low-power issue should *not* be confined only to FM, but should include AM as well.

The potential for interference is much more of a problem in the big cities than out in the country; however, I tend to believe that some high-power licensees are just using this argument as a crutch, to oppose competition from low-power stations.

Therefore, an FCC requirement for documentation, along with an active demonstration that interference is actually happening, should be set into place. Simply making a complaint to FCC about interference from a low-power station should not, in itself, be justification for closing down the low-power station.

(The actual reason for the complaint might be jealousy over the low-power station's better programming or lower ad rates.)

I believe Scott's idea is the first *workable* plan for implementing low-power broadcasting, and I highly recommend that FCC Chairman Bill Kennard take it

very seriously, as a practical plan upon which to legalize low-power broadcasting, not only on FM, but on AM, as well.

Ed Bolton
Amateur Radio Operator WA3PUN
Harrisburg, Pa.

Dear RW:

I am an engineer for an automotive receiver manufacturer and am very concerned about the interference an LPFM station would create. If the proposed spacings listed on the cover of the March 17 RW are implemented, it would be the *worst* possible place for an LPFM station. Here is why:

The proposed spacing between class B FM stations and the LPFM station on second- and third-adjacent channels is 67 km or about 41 miles. This would place the LPFM station at the edge of the 54 dBu contour for most stations.

A 1 kW LPFM station with a 60-meter HAAT would produce a field strength over 80 dBu within about 1.5 to 2 miles away. When this signal level hits a receiver's RF front end — AGC gain reduction occurs across a large part of the FM band in most cases.

This would make the Class B FM station's signal, which is already quite weak, appear even weaker or totally unlistenable due to RF gain reduction. This happens in virtually *all* radios made today to cope with RF front-end overload.

This situation would create a reception "hole" about three to four miles in diameter that would affect stations as far away as 10 MHz from the LPFM frequency because front-end selectivity of receivers is very wide bandwidth (-3 dB bandwidth is typically 6 to 8 MHz.) This would affect many stations — especially those closest to the LPFM's frequency.

The real problem here is the desired-to-undesired signal ratio and the true RF dynamic range of today's receivers, which is typically about 60-65 dB. I have measured the AGC threshold of many receivers and the numbers are between 70 and 80 dBuV. Anytime the D/U ratio exceeds +40 dB and the stronger signal is greater than 70 dBuV, AGC gain reduction occurs which pushes the weaker signals into the noise floor of the receiver.

A better solution would be to place the LPFM transmitter in the center of the area's Class B stations' towers. This keeps the D/U ratio down and eliminates the holes in coverage to the primary service stations.

The D/U ratio now would be 15 to 20

Time for a Bigger Tent

Will The NAB Radio Show survive?

The question sounds silly at first. Attendance was off in Orlando this month. But you could find plenty of good reasons, like the timing of the show and its location in the far South.

The show remains a slick, well-produced convention, with great speakers, useful sessions and healthy exhibits. And San Francisco, the organizers believe, will be much better next year.

But there is legitimate concern for those who believe that radio needs this show. Times are different than three or four years ago. Groups with 400 or 500 radio stations in their portfolio will never send 400 or 500 managers to a show. Perhaps they will send 30 or 40. Perhaps they will send fewer.

And with so much information available so readily electronically, all trade shows must provide compelling reasons for people to spend time and money to come.

Soon the NAB may be forced to decide what it wants to do with this convention. The association should apply its hugely successful spring-show formula to the event.

People are knocking on the door to get into radio or its new variants. Broaden the scope of the show to include the new world of Internet-only broadcasters. Embrace the new media players. And if the FCC allows new low-power stations, even at very low-power levels, the NAB should welcome them into the tent as well.

A broader focus will help attendees, who will experience new business models and challenges. It will help exhibitors, who want to reach new markets. And it will help NAB to advance the goals of its members with the increased revenue that a smash show provides.

The NAB should welcome these new players. Redefine the audience for the fall show. Go after those visionaries who like the power of "radio" but are not part of the traditional bands.

This approach works at the spring show, where broadcasters accept many types of conferences and exhibits — including competing media and competing technologies.

Radio can do the same. If it does not, the experience of Orlando could be a bellwether, not an anomaly.

— RW

dB, which today's receivers can handle and the impact on the LPFM station would be insignificant which is a secondary service. By the time the LPFM signal gets weak the Class B FM signal would be below the AGC threshold of the receiver and thus no AGC gain reduction would occur.

To verify this effect, try to receive stations from a city 35-40 miles away while being near other FM transmitter towers — the distant stations fade to noise.

Rob Tywla
Engineer
Fujitsu Ten Corp.
Plymouth Mich.

Dear RW:

This letter is in reference to the Readers Forum Letter "Everybody has one" in the Aug. 18 RW.

Although I oppose much of the LPFM proposal, I am down on my knees praying that if it comes to pass, Ed Richards gets a license. The glib assurance oozing from his letter leads one to surmise that he has never had to meet a payroll, or pay the bank loan and FCC regulatory fee in the same month, or dozens of other things that owners of actual radio stations must struggle to do.

I'd be very interested in how much creative programming he thinks he'll be able to afford when he and an existing station both try to survive in a town of 5,000. He believes that small-market broadcasters are "so settled and comfortable ... grabbing up the entire sales market."

I hope that when he sees what it's really like, trying to stay afloat in a small market, he'll have the honesty to go back, re-read his letter and turn bright red with embarrassment.

Chuck Crouse
President/General Manager
WLMI(FM)
Kane, Pa.

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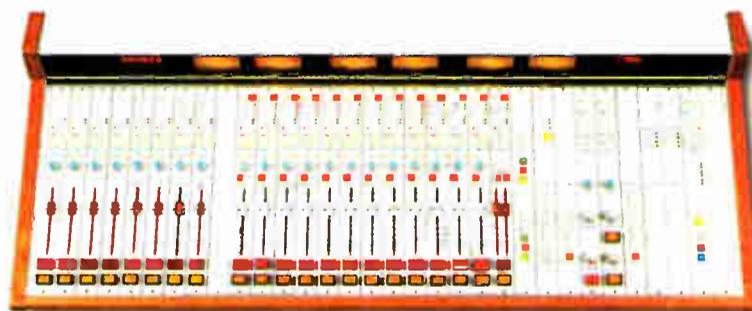


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