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On Beer and Audio Coding

Steve Church explains the benefits of MPEG-4 AAC and its low-delay offshoot.

Page 12

Radio World

The Newspaper for Radio Managers and Engineers

September 26, 2001

NEWS ANALYSIS

Satellite Repeater Battle Heats Up

NAB, Wireless Firms Petition FCC to Stop XM, Sirius Terrestrial Repeaters

by Leslie Stimson

WASHINGTON Are satellite repeaters really a back door to a new land-based radio service?

That's the gist of an ongoing debate involving satellite and traditional radio companies.

NAB has been fighting the developers of satellite radio ever since the idea was first proposed to the FCC. Now, as the companies come closer to nationwide service launch, the battle has intensified.

NAB has accused both companies of "lack of candor" with the commission about how many terrestrial repeaters they need and how the devices would be used. Wireless telephone companies have joined the fray, expressing interference concerns.

XM Satellite Radio and Sirius Satellite Radio have always claimed their terrestrial repeater networks would be used only to retransmit satellite programming, and that the repeaters are necessary to reach car receivers in urban areas, where blockage by buildings, trees and other obstructions is a problem.

NAB believes XM and Sirius intend to use the repeaters to create a national terrestrial digital radio network.

XM and Sirius continue to reject

See REPEATERS, page 10 ►

Radio Show Debates Net Fees, Outlook

New Commissioners Signal Interest in Broadcast Indecency; 5,200 Attend NAB Radio Show

by Leslie Stimson

NEW ORLEANS "If you like cable radio, you'll like SDARS," said NAB President and CEO Eddie Fritts, speaking derisively of the satellite digital radio services set to launch their pay products this fall.

Satellite's impact was among the top discussion topics at the NAB Radio Show in New Orleans this month, which ended three days before terrorist attacks brought the country to a halt on Sept. 11.

Other convention topics included the outlook for radio sales in the current economic climate, streaming, radio's digital transition and a potential change to the FCC's broadcast indecency laws.

Stations cannot fight the upcoming satellite competition with analog transmission and now is the time to start planning each facility conversion, said Ibis Digital Corp. President and CEO Robert Struble to

See OVERVIEW, page 6 ►



Photo: Associated Press

N.Y. Radio in the Aftermath

Page 3



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Emmis to Split Radio, TV

INDIANAPOLIS Emmis Communications Corp. is separating its radio and TV businesses as well as exploring a taxable spinoff of its TV division.

Emmis' pro forma estimated second-quarter radio net revenue was expected to be down by 4 to 6 percent while radio broadcast cash flow was projected to fall 9 to 11 percent.

Estimated radio net revenue for the third quarter is \$74 million and just over \$61 million for the fourth quarter, bringing estimated radio net rev-

ene for the fiscal year to about \$272 million. Emmis' third quarter will end Nov. 30 and the fourth quarter Feb. 28, 2002.

TV net revenue for fiscal year 2002 is projected at \$212 million.

"The economy has not improved as most people originally predicted, and our guidance needed to reflect that," said Emmis Chairman and Chief Executive Officer Jeff Smulyan.

The decreases are attributed to the downturn in the economy that has eroded advertising sales in major markets. The company also spent more funds on radio station promotion and maintaining its sales force.

Clear Channel Implements Realignment

COVINGTON, Ky. Clear Channel's Radio division has been realigned to offer advertisers more convenience for regional ad purchases and increase operating efficiency.

Under the new system, the company believes it can offer advertisers packages that include radio stations, market clusters and geographic regions along the same lines as the trade areas of its clients.

Clear Channel Radio established eight geographic divisions within the United States, each under the leadership of a senior vice president.

The eight divisions are subdivided into approximately 20 regions or "trading areas," creating a new management tier of regional vice presidents. Each RVP manages a larger market while overseeing a group of smaller, adjacent markets.

To help execute these regional sales opportunities, Clear Channel Radio intends to add 500 new salespeople by Oct. 1.

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A DAB Call For Action

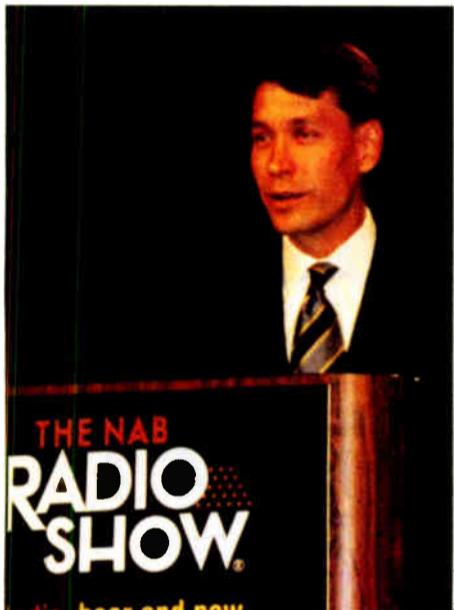
by Leslie Stimson

NEW ORLEANS In-band, on-channel digital audio broadcasting is getting some respect.

IBOC technology had a higher profile at this year's NAB Radio Show than it has enjoyed in the past.

"IBOC is the right system for U.S. broadcasters at the right time," said NAB President and Chief Executive Officer Eddie Fritts at the Radio Luncheon.

NAB is bullish on digital radio, he said, because it will improve radio's service to local communities, especially as stations face new competition from satellite radio.



Ibiuity's Robert Struble

It will be harder to combat satellite radio if terrestrial stations still broadcast analog signals, said Ibiuity Digital Corp. President and CEO Robert Struble. Ibiuity has spent nearly \$1 million on developing its technology so far, a fraction of the \$100 million XM Satellite Radio plans to spend just on advertising.

Wall Street analysts are asking Ibiuity what radio is doing to prevent the satellite companies from stealing their markets, Struble said. Working with equipment manufacturers to have product ready to sell is one way of doing that.

Some of Ibiuity's manufacturing partners plan to have IBOC-compatible equipment ready for sale at the spring NAB2002 show. Two of Ibiuity's RF manufacturing partners, Broadcast Electronics and Nautel Ltd., have progressed from signing development agreements to executing licensing deals with Ibiuity for a new line of IBOC transmitters and excitors. Ibiuity announced a similar deal with Harris at NAB2001.

Ibiuity is giving its partners technology specifications, a so-called "reference" design, to follow so the equipment can pass the IBOC waveform. Under the agreement, Ibiuity receives a percentage from the sale of each piece of equipment.

On the receiver side, Ibiuity finalized development agreements with Philips Semiconductors for ASIC receiver chips and Toko for IBOC-compatible tuner modules. The combined Toko/Ibiuity

See IBOC, page 8 ▶

N.Y. Radio Rebuilds After Attack

by Randy J. Stine

NEW YORK In the wake of the World Trade Center collapse, five New York City radio stations were faced with rebuilding transmission facilities, following the loss of the 360-foot broadcast mast atop the north tower in the attack of Sept. 11.

Playing out behind the horrendous loss of life was a blow to the country's biggest broadcast market. Gone were the eight main television antennas, auxiliary antennas and a master FM antenna, which had been transmitting since 1980.

FM stations WKUT, WPAT, WKCR, WQCD and WNYC lost transmission facilities in the building collapse after suicide pilots flew two commercial jets into the 110-story twin towers. At press time, it was unknown whether any broadcast employees lost their lives.

WKUT suffered minimal interruption by using its backup site atop the Conde

Nast building in Times Square. WQCD's auxiliary site was on the north tower.

Employees of affected stations scrambled to find available tower space and obtain new transmitters.

Dale Mowry, vice president of transmission systems for the Harris Broadcast Division, said Harris shipped Quest 1 kW solid-state transmitters to three stations within a day of the attack.

"We shipped two that very night and a third the following day. All were looking for a quick fix to get something on the air," he said. Mowry declined to identify the stations making the purchases.

Some RF systems eventually could be relocated to the transmitter site on top of the Empire State Building. That facility has transmission systems for 13 radio stations. New Jersey could be another option. Mowry said the three broadcasters he spoke to were looking at existing tower sites.

"There may be room for them on

Empire, but getting in on short notice is tough," said William Mierisch, CE for WNJU(TV) and former frequency coordinator for the city. "Many of the VHF stations will be looking to move there."

"Empire could accommodate (radio stations) on low power. They could probably design an interim combiner facility to get the stations up. I'm sure they'll be working with ERI to get it done," he said, referring to the RF hardware company.

ERI and Harris Corp. set up a joint equipment assistance program in the wake of the attacks.

The radio industry reacted with dismay and sympathy to the events.

Joe Riley, president of the New York State Broadcasters Association, said, "All of the New York City stations did exactly what was expected of them. They had prepared for an emergency situation and carried through their coverage plans."

Riley said his organization would help any station that lost equipment.

The Broadcast Executive Directors Association, who are leaders of state associations, offered assistance, Riley said.

Vendors also wanted to help.

"As an equipment supplier to many of the stations affected by this tragedy, we find ourselves not only in shock, but also feeling helpless," said Tim Schwieger, president of BSW, on the day of the attack. "We stand ready to do whatever is necessary to assist these stations when they call upon us."

Studio equipment supplier LPB Communications also offered assistance.

FEMA asked the nation's stations to suspend EAS tests in the days after the attacks, in part to avoid confusion; and the FCC agreed. There were no reports that EAS had been used in New York or Washington during the events of that day.

Disruption

Los Angeles County LECC Chairman Richard Rudman advised stations to check that EAS gear was operating and to refresh staffs in its operation, according to the newsletter CGC Communicator.

In Washington, one of the hijacked planes crashed into the Pentagon. A fourth crashed in rural Pennsylvania. News stations went wall-to-wall with crash coverage; most music stations dropped their regular song rotations and cut back or rearranged commercial blocks.

Broadcast business was disrupted in other ways. Federal offices closed, the NAB sent its staff home, RTNDA cancelled its Nashville, Tenn., trade show and XM Satellite Radio delayed its launch events planned for Sept. 12.

The Audio Engineering Society postponed its convention planned for New York, in part because the Javits Convention Center had been taken over by emergency personnel. The show has been reset for Nov. 30 to Dec. 3.

NAB President and CEO Eddie Fritts thanked radio and TV stations for their "tireless and outstanding" services to listeners and viewers. He saluted stations sponsoring relief efforts and blood drives.

"NAB ... will serve as a clearinghouse for information on the efforts of broadcasters to assist citizens in time of crisis," he said.

FCC Chairman Michael Powell said, "I am deeply saddened by the loss experienced yesterday by the people of New York and Washington rescue workers, federal employees and all Americans affected by (the) tragedies."



The staff of Radio World devotes this space to a moment of reflection for those who lost their lives and those who worked to save them in the events of Sept. 11, 2001.

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DIGITAL NEWS

Is Europe Ready for Satellite DAB?

European Satellite-Delivered Digital Radio Service Proposed; Developers Look for Investors

by Michael Lawton

COLOGNE, Germany Someday, Europe may get its own "Death Star."

A Belgium-based company is developing a satellite-delivered digital audio broadcasting system that would target European consumers and is similar to the service offered by WorldSpace, which targets third-world countries.

The proposed system is called Global Radio. Just like Sirius Satellite Radio and XM Satellite Radio in the United States, Global is targeting the long-distance and commuter drivers who spend a lot of time on the road.

At a radio conference here this summer, Global Radio Chief Executive Officer Paul Heinrichs said the basics. His company is looking for funding and exposure. The company was founded in 2000.

Signal angles

The new digital broadcasting scheme would provide Europe with approximately 100 programs in the main European languages, direct to home and automobile by 2005.

Heinrichs said the challenges facing satellite radio in Europe differ from those in the United States, XM and Sirius are launching subscription-based radio services.

XM planned to roll out its service Sept. 12 in Dallas/Ft. Worth and San Diego and expand nationwide in the fourth quarter. Sirius also plans a nationwide service launch by the end of the year.

Sirius and XM are subscription-based services while WorldSpace is not. Global plans to offer partial subscription services.

Another difference: Sirius and XM are licensed by the FCC to use the S-band spectrum they purchased at auction. Global needs to make arrangements with 43 licens-

ing authorities and to broadcast programming in more than 20 languages.

In addition, much of the European continent lies above 45 degrees north, making satellite transmissions to mobile users more difficult.

While transmissions to homes can work with a signal coming in at a fairly shallow angle, mobile users need a signal that, ideally, comes from straight overhead, in order to avoid surrounding buildings.

Like Sirius, Heinrichs said Global Radio would use three satellites in elliptical orbits, which it claims will ensure signals at angles appropriate for adequate auto and portable reception across Europe.

Some terrestrial repeaters would be required, particularly in urban areas.

"In the open country, you can get away with lower angles than 75 degrees, but in some of the cities on the edge of the target area, like Madrid or Naples, we will need to have terrestrial repeaters," Heinrichs said.

In addition, each program will be broadcast twice, eight seconds apart. The first, lower-quality signal will be stored in the memory of the receiver and used to fill signal gaps caused by buildings or tunnels.

Global Radio plans to use software-based MPEG-4 Advanced Audio Coding, developed by Fraunhofer.

Heinrichs said this would allow his service to provide more programming in the bandwidth than that allowed by the coding in the terrestrial form of DAB beginning to take hold in Europe and other parts of the world, Eureka 147. Eureka uses MPEG-2 Layer II.

Because satellite broadcasting is unable to offer local or regional programming, Global Radio does not see itself competing directly with most terrestrial stations.

But if the Eureka form of DAB does not succeed, Heinrichs said he is not worried.

"It would save us money, because the receivers could be made more cheaply, without the expensive Eureka-147 chip."

The satellites for Global Radio would transmit one signal for the whole of Europe, with other beams targeting major language groups.

Offerings

As for programming, Heinrichs said he envisions a selection of free programs from public-service broadcasters or funded by advertisers, plus a larger subscription offering.

The concept is similar to how cable TV is sold in America; there is one service that covers everyone, plus additional services that offer targeted programming.

On the Europe-wide beam, there would be a selection of musical styles and at least one news station in each major language.

"Most people listen to no more than five stations, and they want to put together their own mix," said Heinrichs. "When people find out that the stations are there, they will start wanting to include an all-sport station or a business station in their mix."

To boost the personal nature of the mix, listeners would be able to select whether they want their programs to be interrupted by news and weather, and what language they would want for the news.

Listeners would also be able to program their car radio from their home computer, as their subscription will include home and mobile use. In addition, Global plans to offer a range of data services, as well as downloadable content for home and business use.



Paul Heinrichs

Global Radio has commissioned surveys, said Heinrichs, that show Europe is ready for the satellite DAB concept. Like executives of XM and Sirius, he says market penetration need not be very high to make the endeavor successful.

"I do not need 80-percent listenership across Europe," he said. "I can make do with quite a small proportion. I am looking for long-haul truck drivers and people living in a foreign country, but I expect most of our listeners to be people who simply want more choice — our surveys show that enough people will be prepared to pay for that."

Now comes the hard work of convincing major investors to provide money. Millions of euros will be required to sell the concept in the first 12 months. By 2005, that amount will grow to billions needed to build and launch satellites, build studios, build and deploy terrestrial repeaters and acquire programming.

So far, the company is supported mainly by private funders, although U.K.-based transmission-services provider NTL has signed on as a 30-percent partner. 

Overview

► Continued from page 1
attendees (see story, page 3).

The show also provided attendees their first glimpse of the three new FCC commissioners and a chance to hear their thoughts on how upcoming radio issues might fare at the agency.

The convention was the first NAB show in two years that wasn't shadowed by low-power FM protestors, and the first radio show since Viacom pulled its Infinity Radio and CBS TV stations out of NAB membership.

Turnout

Attendance dropped compared to previous radio shows. The registration figure was 5,227, compared to 7,600 in San Francisco and 5,600 in Orlando. Of this year's number, approximately 2,000 were fully paid attendees, NAB President and CEO Eddie Fritts said.

Attendees pointed to several factors for the lower attendance, including consolidation among radio groups, the tight economy and show dates close to the Labor Day holiday.

"It shows what happens when you hold a major show in the south when it's still hot," and next to a holiday weekend, joked one supplier, whose company chose not to exhibit in New Orleans. Approximately 160 companies exhibited.

Some previous exhibitors had dropped out, citing the poor economy. Among the more notable were equipment suppliers Klotz Digital and

Telos/Omnia and program syndicators Premiere and Jones.

Reaction from exhibitors was mixed. "Attendance has been steady," said Scott Beeler, director of worldwide sales for ERI. "The quality has been excellent. You don't get to spend 40 minutes with one person at the spring show."

Another exhibitor said traffic was slow. "Will we come back? No, not based on what we've seen so far. We'll have to see how our leads turn out."

A third supplier, who works in the satellite hardware arena, said he had only had about 10 qualified visitors. "But one guy represents 300 stations."

Bob Cauthen, owner of SCMS, said, "The booths that seem to be crowded all have to do with IBOC."

Jay Tyler, sales engineer for Wheatstone, described traffic as moderate. "We booked some big sales, though. Three clients paid for the trip down." And a salesman for one of the largest vendors said he had sold at least two transmitters during the show.

Michael Uhl, director of sales for Sierra Automated Systems, said he'd be back. "I must say that I was surprised to see a number of people representing companies that dropped out of the show doing business in the public areas of the exhibit hall." He called that "pirating" of business and said it was "disingenuous."

A scheduling conflict also may have affected turnout; Clear Channel Communications had scheduled a management meeting in Atlanta that overlapped with the radio show. The NAB tried to find hotel space for that meeting

See OVERVIEW, page 7

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Overview

► Continued from page 6

in New Orleans but was unsuccessful. Clear Channel Executive Vice President and CFO Randall Mays apologized publicly to Fritts about the scheduling during a session.

Fritts said it was too soon to tell whether the association lost money on this year's radio show, but he said the NAB was able to cut some unspecified costs in producing the four-day event.

NAB was pleased with the show in light of the economy. Fritts pointed with pride to the Xstream addition to the Radio Show. Several sources said the Xstream sessions were well-attended.

Separately, organizers of the AM/FM Antenna Certification Workshop, which attracts mostly engineers, said they enjoyed the best turnout in the five years since that session went to a one-day format; approximately 90 people were in the room that morning.

Opinions about the near outlook for radio business were mixed; some owners seemed cautious. Despite predictions earlier this summer from the RAB and other radio industry groups that sales would see an uptick by the end of this year, some here said they expected business to be flat.

NAB Radio Board Vice Chairman Ginny Morris, president of Hubbard Radio Group, said the economy appeared to have "bottomed out and appears to be stuck there." She believes most broadcasters will be cautious about financial planning for next year.

Fritts said radio is "nimble" and predicted stations would begin to bounce back in Q4.

During a financial session, Drew Marcus of Deutsche Bank Alex Brown, was asked if he would recommend radio stocks to investors in the current economic climate. "It depends on whether you think the economy will turn in the first quarter of next year. If you think that, then, yes, buy now," said Marcus.

"We expect a renewed interest in the buying and selling of radio stations by late 2001," said BIA Financial Network Vice President Mark Fratrik. More than four out of 10 stations, or 42 percent, are part of consolidated operations, according to a new BIAfn study.

More consolidation

Radio group heads who spoke during a super session said that consolidation has benefited radio by allowing stations to raise salaries and add more employee financial benefits. Cox Radio President and CEO Bob Neil predicted that as consolidation continues, the number of top radio groups would shrink to three or four.

Also, to stream or not to stream is an issue that's dogged stations for months as the question of whether those that do stream would be liable for separate licensing fees applied retroactively remains murky.

Recording Industry Association of America President Hilary Rosen urged broadcasters to end their legal battles with record companies and work together to create a profitable business model for digital music distribution. She suggested that an out-of-court settlement is possible.

A district federal appeals court in August upheld an earlier decision by the U.S. Copyright Office that makes stations responsible for the additional fees, retroactively. Fritts said NAB had three

weeks to decide whether to appeal to the Fourth Circuit Court of Appeals.

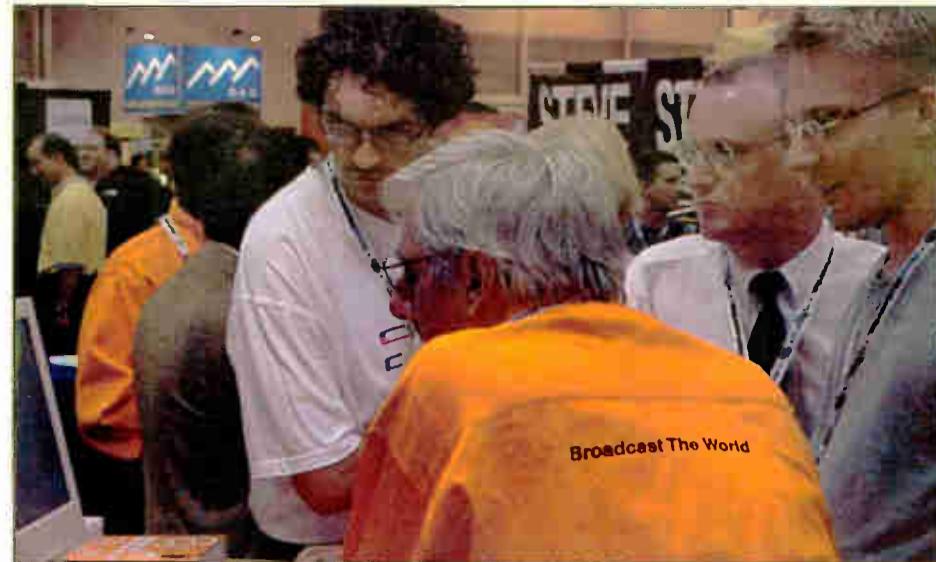
Although NAB and the RIAA are talking, said Fritts, he believes Congress will eventually have to settle the issue.

Many stations stopped streaming once the copyright fee issue arose, and are struggling to make money on their Internet sites. Ironically, one new source of national ad revenue for radio this year may be national buys from Sirius Satellite Radio and XM Satellite Radio.

Satellite radio is seen by many as a new direct competitor for traditional broadcast; indeed, in August, Sirius circulated a promotion that read "Radio Sucks!" near the bottom.

Susquehanna Radio Corp. has been approached with an ad buy in Dallas, one of XM's early rollout markets. When

See OVERVIEW, page 8 ►



Ken Tanel of Dalet Digital Media Systems, center, works the exhibit floor.

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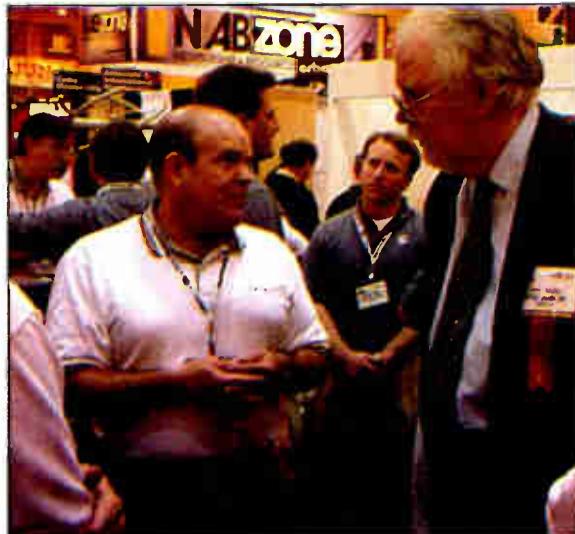
Show

► Continued from page 7

asked if his group would air such ads, Susquehanna President and Chief Operating Officer David Kennedy, who is also NAB Joint Board Chairman, said it would depend on how the ad copy is crafted. If the copy read "Radio Sucks!" his group wouldn't air it, he said.

The end of the show was lively. New FCC commissioner Republican Michael Copps assured attendees he listens to the radio more than he watches TV. He and Commissioner Kathleen Abernathy, a Democrat, proposed that stations keep voluntary records, which are typically tapes, of what it airs for indecency purposes.

They appeared to take up the cause of



Jeff Detweiler of Ibiuity talks digital with John Mielke of KKNX(AM) in Eugene, Ore.

former commissioner Gloria Tristani, who has said it's difficult for the average person to bring an indecency claim against a station because the commission requires a tape or transcript of a broadcast for investigative purposes.

A source close to the commission said a proposal has been circulating among the commissioners' offices calling for stations to keep tapes of aired programs. Still up for discussion is whether to make the records mandatory or voluntary.

Telecom lawyers at the show said such a policy raises First Amendment issues and that the question of how long to keep the tapes is tricky, since they

have the potential to be subpoenaed and used against a station. Some speakers used the word "transcripts" when discussing this proposal, and some print reports used the term as well, but a source close to the issue said the proposal was for taped programs, not typed transcriptions.

Abernathy brought the house down at the FCC breakfast during a discussion of LPFM interference tests. The FCC has contracted with Mitre Corp. to conduct tests to determine whether LPFMs would cause third-adjacent channel interference to full-power stations.

She said it's been difficult to get a straight answer from engineers on whether LPFMs would cause interference.

"Engineers — they're like lawyers," she said. Finding the answer to the interference question, she said, is likely to be expensive and a long-term process.

Earlier in the week, Mass Media Bureau Chief Roy Stewart declared his intention to stay at the bureau, whatever the outcome of a reorganization that's expected to merge the functions of the MMB with the Cable Bureau and other bureaus at the agency. ■

IBOC

► Continued from page 3

components will speed the receivers' time to market, according to O'Connell Benjamin, senior vice president, Ibiuity. The company already has a deal with Texas Instruments for DSP chips.

For Ibiuity's effort to get receivers to consumers, Crutchfield has agreed to carry some IBOC receivers in its catalog.

To continue the focus on consumers, Ibiuity plans to host a digital radio wireless data conference Oct. 18 at the Pontchartrain Hotel in Detroit. The conference is being held at the same time as the Digital Car Show, attended by automotive electronics and telematics suppliers.

The conference launches Ibiuity's efforts to work with industry participants to define the standards for formatting and presenting wireless data using Ibiuity's technology.

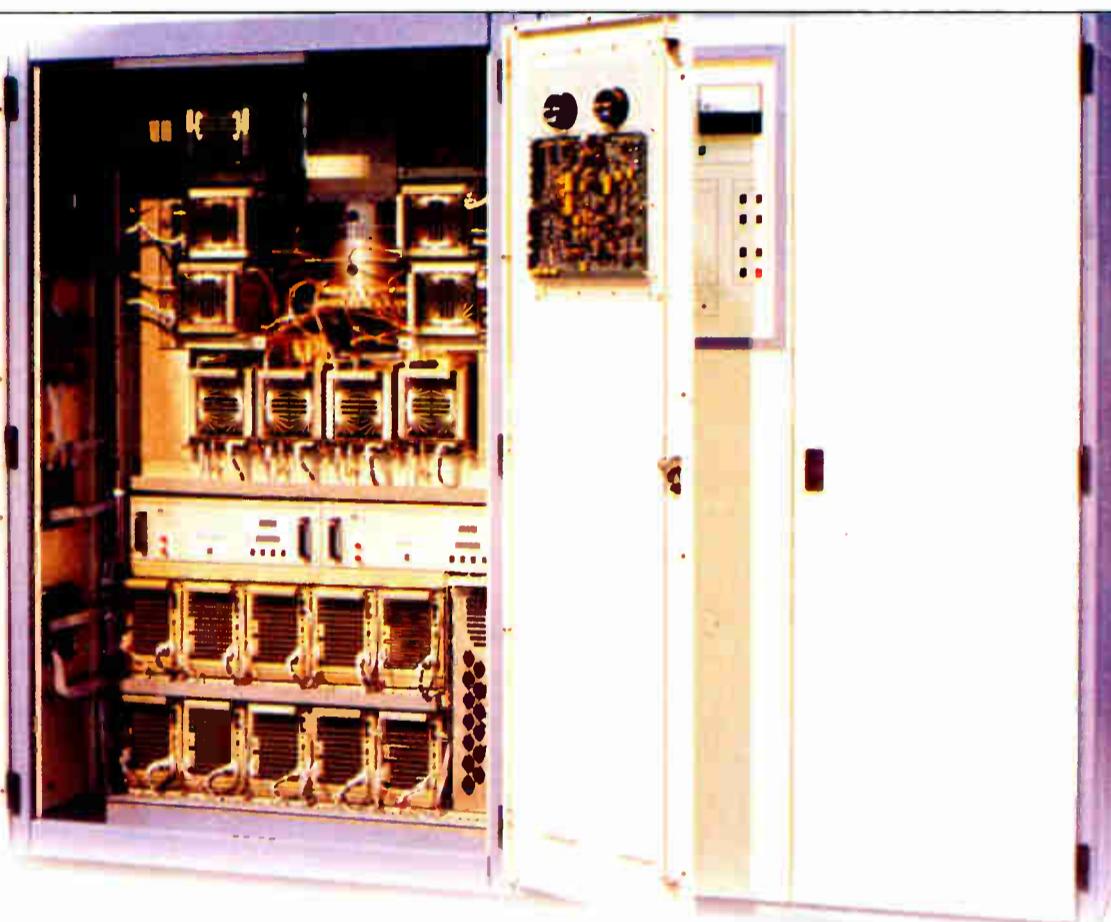
On the exhibit floor, Impulse Radio's display of IBOC data capabilities for front- and rear-seat entertainment in Ibiuity's booth focused on front-seat applications. Stations may use the Impulse software to enhance their receiver displays. They could, for example, create different images of buttons on the receiver for traffic or weather. When the driver pushes the button, the music fades to the background while the traffic or weather information is spoken to the driver.

The three new FCC commissioners listened to an IBOC demonstration in Ibiuity's booth. All three were positive about radio's expected digital transition.

When asked how a possible FCC reorganization might affect the resources the agency can commit to crafting DAB rules, answers ranged from "no effect" to "that remains to be seen."

Elsewhere in the convention center, NAB conducted IBOC listening tests taken by about 100 show participants. The setup was similar to the tests previously conducted by DynaStat. The company conducted those listening tests with consumers and included them as part of Ibiuity's test results to the NRSC.

NAB will forward results from these new tests to the NRSC and also intends to make the results public by the end of the year. ■



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Repeaters

► Continued from page 1
this notion.

NAB believes the repeater rules proposed by Sirius and XM contain a loophole that would allow the satellite broadcasters to use terrestrial repeaters to air local programming.

Many broadcasters think this is the true purpose of the repeaters if the original business plan for XM and Sirius fails.

The terrestrial repeater issue is particularly acute for XM. It was unclear at press time if the company would obtain temporary permission to operate its repeater network from the FCC in time for its Sept. 12 service launch in San Diego and Dallas/Fort Worth.

The FCC accepted public comments on the matter until Aug. 31. During The NAB Radio Show, commissioners said they expect to come to a decision on the rules soon.

Sirius has more time to work out the issue because it plans a nationwide service launch in the fourth quarter.

XM was confident its authority would come but was unsure of the timing. As for using its terrestrial repeaters to air local programming, XM Vice President of Corporate Affairs Chancellor Patterson said, "That won't happen. We're not allowed to do it."

He said XM has submitted its repeater specifications detailing placement and power levels to the commission and that what is happening is a normal migration from an experimental approval to operate equipment to the so-called Special Temporary Authority to do so.

Strong words

"The time for subterfuge by XM Radio and Sirius Radio is over," NAB President and CEO Eddie Fritts stated. "These companies must come clean with regulators and the American people on their true intentions for making satellite radio a viable business."

Patterson said NAB has been using the same arguments about the terrestrial repeaters since 1997.

NAB, joined by broadcasters such as Entercom and Mount Wilson Broadcasters, have asked the FCC to deny requests from XM and Sirius for temporary permission to operate their terrestrial repeater networks before their service launches. The companies need the STA because the commission is still working out the parameters of the rules to govern those repeaters. To date, contractors for XM and Sirius have been deploying repeaters under experimental authorizations.

In July, XM and Sirius asked for authority to deploy 778 and 151 terrestrial repeaters respectively, each operating above 2 kW effective radiated power. XM plans to deploy about 1,000 repeaters, but the rest are not high-powered.

Specifically, XM requested an STA for 168 terrestrial repeaters operating at an ERP of 10 to 40 kW, and 610 terrestrial repeaters operating at an ERP of 2 to 10 kW.

Sirius requested an STA for 151 repeaters at 104 sites operating at an ERP of 2 to 40 kW.

XM and Sirius intend to make sure their repeaters stay within allowed power levels.

Joining broadcasters in this fight are several wireless carriers who have different concerns. Both say the number of high-power repeaters planned by the satel-

lite radio companies has increased.

The wireless companies are concerned about interference to their services from the higher-powered repeaters. The Wireless Communications Service and satellite companies occupy adjacent frequencies in the S-band. The wireless companies and satellite radio companies have met at the commission several times to resolve the interference issues.

But AT&T, BellSouth, Metricom, Verizon Wireless and WorldCom asked the FCC to deny XM's authorization "until all interested parties have been given an opportunity to analyze fully the significant blanketing interference issue it presents," they wrote in a July 27 letter to the commission.

XM and Sirius say they will make sure their repeaters stay within allowed power levels.

AT&T Wireless offers telephone and Internet access on the WCS spectrum and said the high-power repeaters would interfere with those services.

In its comments to the FCC, NAB stated that one of its main arguments against the use of terrestrial repeaters is they are "a crutch for a technology that is not up to the task of providing the seamless, mobile coverage promised by its proponents ... especially in cities where numerous 'urban canyons' exist."

NAB believes this statement by AT&T Wireless Services supports its claim: "Apparently the gaps to be filled in the satellite service now encompass entire metropolitan areas."

XM's Patterson said out of hundreds of repeaters, "AT&T has found 16 of them problematic. In those cases, we'll coordinate with them." He said engineers from both companies would discuss the issue and the fix may be adjusting the repeater signal in another direction.

NAB is adamant the rules governing the use of Sirius and XM repeaters must prohibit the transmission of locally originated programming. It doesn't believe the language suggested by Sirius and XM does that. The language must be specific, stated NAB, to keep the satellite services from morphing into a terrestrial digital radio network.

The commission's proposed rule would require the signals being transmitted by the repeater be received from the satellites, NAB stated.

In January, Sirius and XM proposed the rules be crafted so that "terrestrial repeaters shall not be used to originate programming not also transmitted from authorized DARS satellites."

"This merely confirms that material transmitted from terrestrial repeaters is also transmitted by the ... satellites,"

argued NAB.

It is technically possible, NAB believes, for Sirius and XM to transmit programming encoded so that it could not be processed right away in the signal portion of consumer receivers, but instead would be received and stored in memory "residing within the terrestrial repeater."

NAB said that programming could be targeted to specific repeaters and contain local content.

Local content

NAB gave the FCC an example of how that might work: Local ads could be sent overnight on the satellites for local storage on terrestrial repeaters. Reducing the bit rate on some music channels overnight would give the necessary channel capacity for the transfer. At the receiver end, receivers could be designed to "favor" the signals being sent from the terrestrial repeaters over the signal sent from the

satellites. Because the AM/FM/Sirius or AM/FM/XM receivers actually are two receivers in one, stated NAB, this would ensure locally originated programming reaches the listener.

(The receivers are a satellite receiver, processing the single-carrier satellite transmission, and a terrestrial receiver, processing the multicarrier terrestrially transmitted signal.)

The downloaded material would comply with the repeater rule because at some point it would have been transmitted over the satellite, NAB argued.

XM said none of these situations would occur.

Part 74 rules governing broadcast repeaters state the devices may be used only to retransmit an incoming signal without altering any characteristics of the signal other than its amplitude, and in some cases, its frequency. Bandwidth and content may not be changed. 

◆ NEWSWATCH ◆

Infinity's TDI, Outdoor Merge Operations

The outdoor advertising divisions of Infinity Broadcasting Corp. — Infinity Outdoor and TDI — are now one entity: the Viacom Outdoor Group.

Viacom Outdoor holds advertising properties in all of the nation's top 100 markets, according to the company. The group is to be run by President and Chief Executive Officer Wally Kelly, who previously served in a similar capacity at Infinity Outdoor.

Infinity Broadcasting Corp. is a unit of Viacom Inc. Infinity owns approximately 180 radio stations and operates and holds an equity position in Westwood One Inc.

More LPFMs Possible

WASHINGTON The FCC designated another 232 low-power FM applications that it says are acceptable for initial processing in August.

These applications were received in the third LPFM filing window (Jan. 16-22) and earlier. The commission said these applications meet all the requirements for channel spacing and won't conflict with other LPFM station requests.

Anyone who objects to the location of the recent station designees was free to file an objection by Sept. 17.

Those requests that do appear to conflict with other LPFM frequency allocation requests will be identified in a later list.

FCC Cuts EAS Fine to \$3,000

WASHINGTON The FCC has reduced a fine against a Mississippi station.

It originally had proposed a \$15,000 fine against WBSL(AM) in Biloxi for failing to have its EAS equipment connected to a power source so the station could not send or receive EAS messages. WBSL also was cited for not having a proper enclosure around its tower.

The commission cut the fine to \$3,000 after station owner Hancock Broadcasting Corp. produced tax returns for the past three years, proving such a high fine would cause financial hardship.

To explain the EAS violations, Hancock said that when its new transmitter was installed, its EAS equipment was not properly connected. Hancock said having the equipment shows it did not "willfully" violate the EAS requirements, but the FCC said that wasn't sufficient.

Hancock said there was a locking fence around the tower but agreed that someone could open it with "some force." The FCC said that when it inspected the tower, the fence was not just unlocked, but open.

Tristani Departs FCC

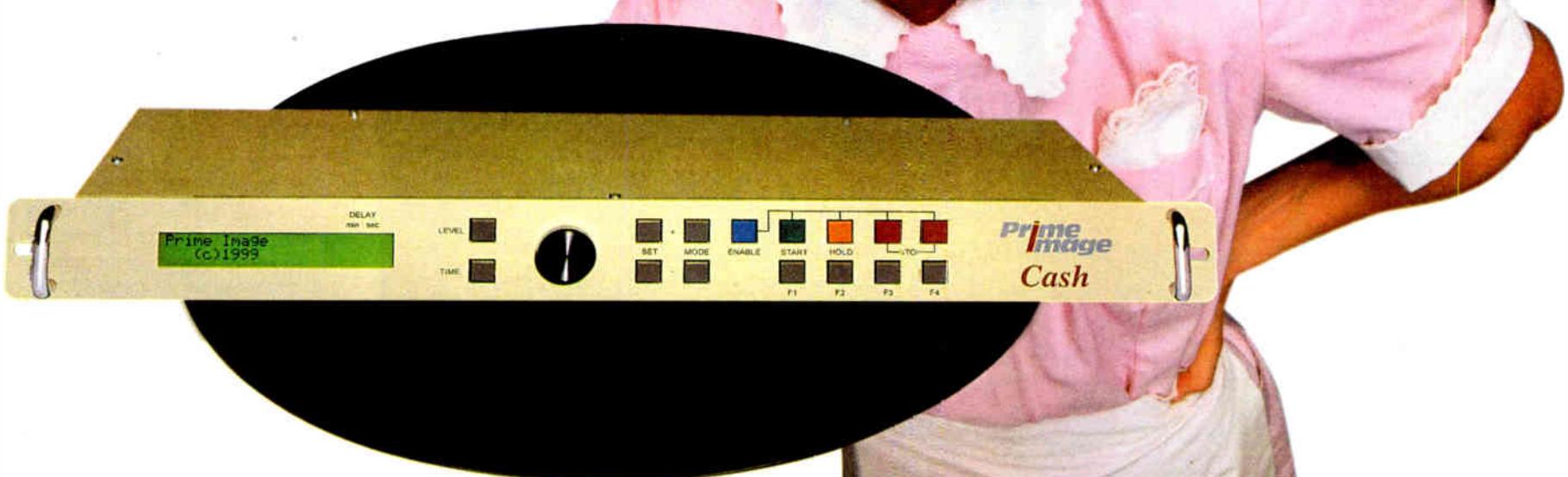
WASHINGTON FCC Commissioner Gloria Tristani left the commission Sept. 7. She is expected to run for public office and has said she would run for a seat in Congress or for governor of New Mexico.

Tristani and Chairman Michael Powell were appointed as FCC commissioners by President Bill Clinton and sworn in together in November 1997. Tristani had been elected to the New Mexico State Corporation Commission in 1994 and served as SCC Chairman in 1996.

Her departure leaves three Republicans and one Democrat on the five-member panel until President George W. Bush appoints someone to complete Tristani's term, which runs until June 2003.

"It has been a great honor to serve as a member of the FCC during this period. I am proud to have advocated for the E-rate and better access to telecommunications for all Americans. After nearly four years, however, I believe it is time for me to move on. I plan to return home to New Mexico in the near future," Tristani said.

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GUEST COMMENTARY

On Beer and Audio Coding

Why Something Called AAC Is Cooler Than A Fine Pilsner, and How It Got That Way

Steve Church

The author is president of Telos Systems.

Munching on bratwurst and sipping a thick German beer, I first heard about something supposedly new and exciting called NBC.

Now this was weird for two reasons: 1) NBC has been around since Mr. Sarnoff created it many decades ago, and 2) I was sitting in a biergarten near

Nürnberg and talking with guys from Fraunhofer, the outfit that invented MP3 — not people particularly likely to be familiar with American television networks.

Turned out this NBC stood for "Non-Backward Compatible," and referred to next-generation MPEG stuff. And what it meant more specifically was that the clever engineers at Fraunhofer who made MP3 had been turned loose to make the best audio codec possible.

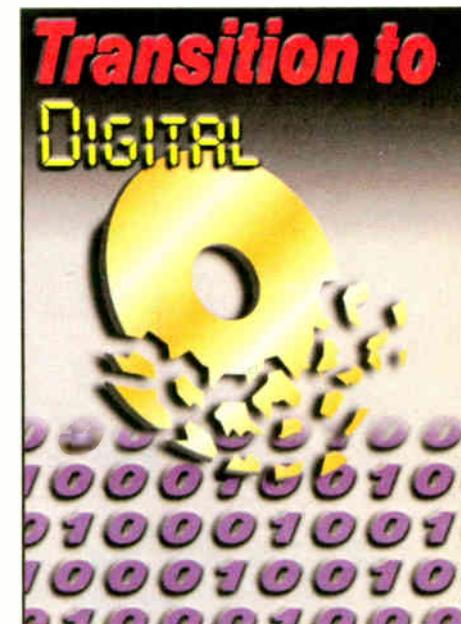
Before the stein was downed, I agreed that we should work together to get this new coding method into our next-generation gear.

It took some time, but the payoff has finally arrived. Not only is MPEG-4 AAC (for Advanced Audio Coding) here, but so is the very interesting and useful offshoot, AAC-LD.

The LD stands for Low Delay, and it lives up to the promise.

How MPEG works

The MPEG audio story begins in 1988. True to its name, MPEG, the Moving Pictures Experts Group, was



focused almost exclusively on video compression projects. But persistent audio coding pioneers convinced the organization to allow the formation of an audio group.

Today almost all agree that the MPEG process has been successful at picking the best technology and encouraging compatibility across a variety of equipment.

Researchers who work within MPEG want to create standard, widely usable, top-quality codecs, preempting what may become an unmanageable tangle of formats. It seems to be effective. Despite persistent attempts to lock users into proprietary schemes, by far the most popular high-fidelity codecs are developed and offered under the MPEG umbrella.

Probably the main reason MPEG consistently has been successful at finding the best technology is that the process is open and competitive.

A committee meets to determine goals for target bitrate, quality levels, application areas and testing procedures. Interested developers who have something to contribute are invited to submit their best work. Finally, a careful double-blind listening test series is conducted to determine which of the technologies delivers the highest performance.

AAC arrives

Before becoming an MPEG standard, AAC was tested and compared carefully to other codecs in two series, the first conducted jointly at the BBC in England and NHK in Japan, the second at the CRC Signal Processing and Psychoacoustics Audio Perception Lab in Canada.

The tests conducted by CRC for MPEG were among the most extensive and thorough ever. The researchers concluded that there was a clear performance distinction among the various codecs, and that AAC was the best performer.

"The AAC codec operating at 128 kbps per stereo pair was the only codec tested which met the audio quality requirement outlined in the ITU-R Recommendation BS.1115 for perceptual audio codecs for broadcast," according to G.A. Soulard, T. Grusec, M. Lavoie and L. Thibault of the Signal Processing and Psychoacoustics/Communications Research Centre in Ontario, Canada, in a paper presented at the AES 104th Convention in 1998.

See Figure 1 (page 14), which is adapted from that paper.

Therefore, AAC was selected as the

See TELOS, page 14 ▶

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"Telos asked us what we wanted and they put it in there... you can't ask for anything more than that." — Paul Burt, Clear Channel, New Orleans

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Telos

► Continued from page 12
general-purpose audio codec under MPEG-2 and recently was adopted by MPEG-4.

An important topic for many real-world codec applications is delay. When announcers do remotes, they often need to have natural two-way interaction with program participants located back at the studio or callers via telephone lines.

Because it is a hot subject for engineers working in the field of Internet telephony, a

might have leakage.

As you might expect, echo is more or less annoying depending upon both the length of time it is delayed and its level. Telephone researchers have recorded people's reactions, and you can see the ITU-T G.131 findings in the graph shown in Fig. 2.

The main goal with audio coding is to provide the best tradeoff between quality and bitrate. Codecs for voice telephone applications use ADPCM, the technology used by the familiar G.722, and CELP, used in mobile phones. These are optimized for low-delay and speech, but they are terrible for music.

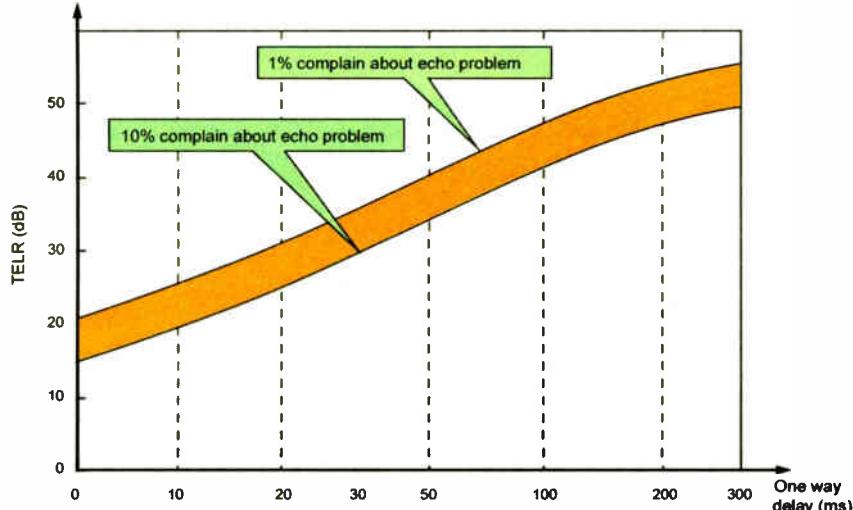


Fig. 2: Designers of telephone systems often must cope with echo. From ITU-T G.131.

number of studies have been conducted to determine user reactions to delays in telephone conversations. The data apply directly to the application of professional codecs to remotes, so it may be fruitful to see what the telecom people have learned.

When there is no echo, it has been discovered that anything less than 100 ms one-way delay permits normal interactivity. Between 100 and 250 ms is considered "acceptable." ITU-T standard G.114 recommends 150 ms as the maximum for "good" interactivity.

Echo introduces a different case. We try not to have echo in our broadcast setups by using mix-minus arrangements, but sometimes it is unavoidable. An open-air headset might be cranked up or a phone hybrid

Because they are also bad for mixed signals that include ambient sounds such as from spectators at sporting events, they are not optimum for broadcast remotes.

Is it possible to have high quality and low delay in the same codec?

Tradeoffs

Perceptual codec designers must manage several tradeoffs. The most important comes from a fundamental principle in signal processing: spectral splitting filters may have either good time resolution, or good frequency resolution, but not both.

This makes sense when you consider that a longer time window means that the analyzer has more audio cycles to work with. (Perhaps this is the DSP designer's

FEATURES

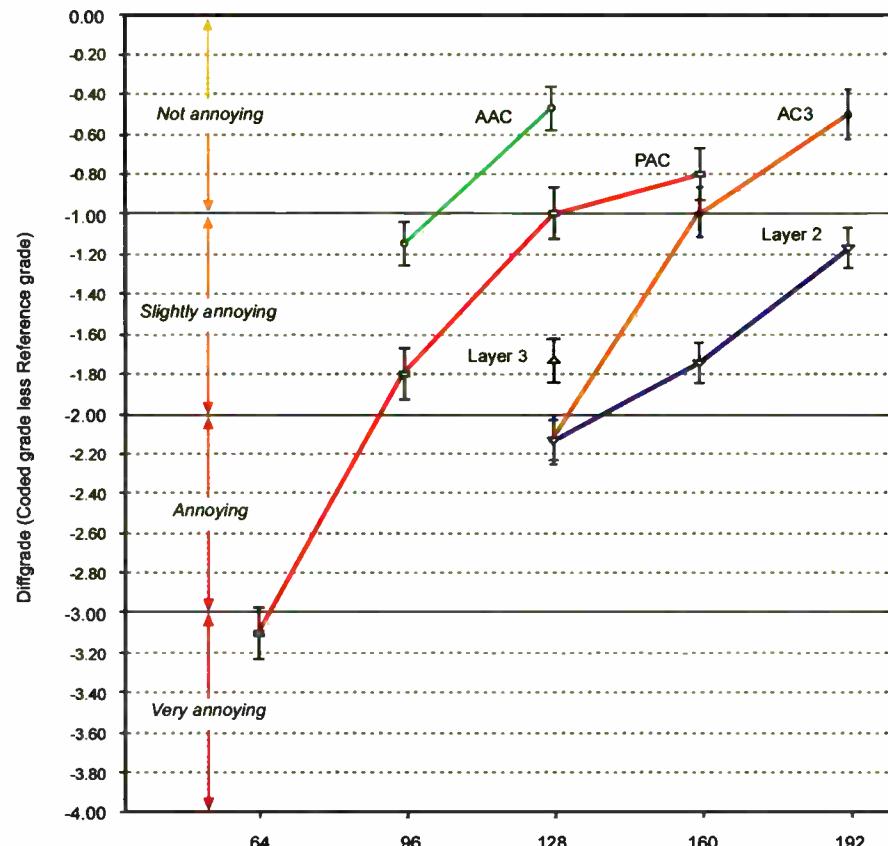


Fig. 1: This chart presents a comparison of overall quality for various stereo codecs at their recommended target bitrates.
(Adapted from Soulodre, Grusec, Lavoie and Thibault.)

equivalent to the economist's "TANSTAAFL" — There Ain't No Such Thing As A Free Lunch.)

AAC-LD uses new techniques, some freshly discovered, in order to offer both low delay and high fidelity. Layer 3 and AAC use filter banks with high-frequency resolution. But when there are transients, the encoder switches to a filter bank with lower frequency resolution and better time resolution.

standard single-channel ISDN 64 kbps rate. The result: AAC-LD is clearly better than Layer 3 for half of the test items, and as good for the remaining half. See Figure 3.

AAC-LD's coding power is roughly the same as Layer 3, meaning that mono 15 kHz audio may be achieved on one ISDN channel. With two channels, you can have near CD quality stereo.

Before AAC, the choice was usually a tradeoff between quality and delay. G.722

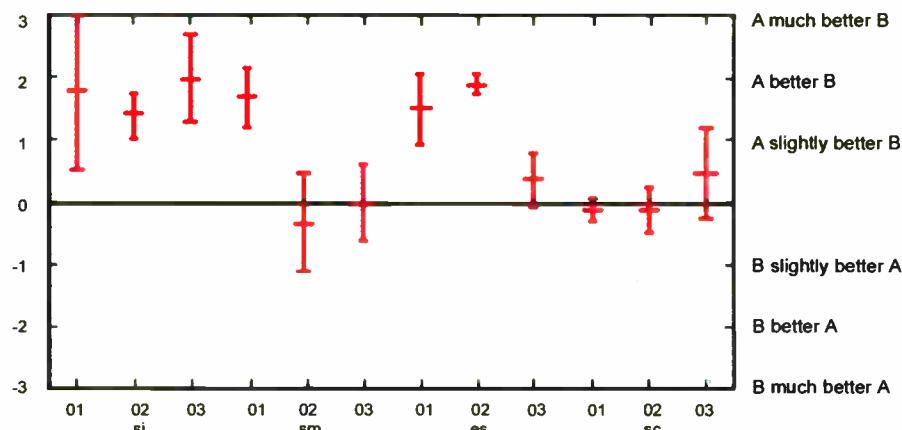


Fig. 3: AAC-LD is compared here to Layer 3 at 64 kbps mono. (Source: E. Allamanche, R. Geiger, J. Herre, T. Sporer: 'MPEG-4 Low Delay Audio Coding Based on the AAC Codec,' presented at the AES 106th Convention, 1999.)

In order to correctly decide when to make this change, a look-ahead process is required, which is a significant cause of delay. In AAC-LD the shape of the spectral filter is adaptive, dynamically switching to a shape that has a lower overlap when necessary.

This and other enhancements result in delay that can reach as low as 50 ms, well within range for good conversational flow.

But how does it sound?

Low delay would not be useful if the quality was not acceptable. So how does AAC-LD stack up?

Because most codec users are familiar with Layer 3, a series of tests was performed to compare AAC-LD to it at the

lowest delay and poorest quality, Layer 2 good fidelity and medium delay, and Layer 3 best fidelity and most delay.

Things are easier now. AAC has lower delay than Layer 2 or Layer 3 and higher quality than both, so it should be used for most applications. AAC-LD has the lowest delay of the perceptual codecs and should be used when delay has priority over fidelity. G.722 can be used when delay must be at minimum, and Layer 2 or Layer 3 for compatibility with older codecs.

Find more graphics and a much more in-depth version of this article at www.rwonline.com, including links to MPEG resources on the Web.

RW welcomes other points of view. 

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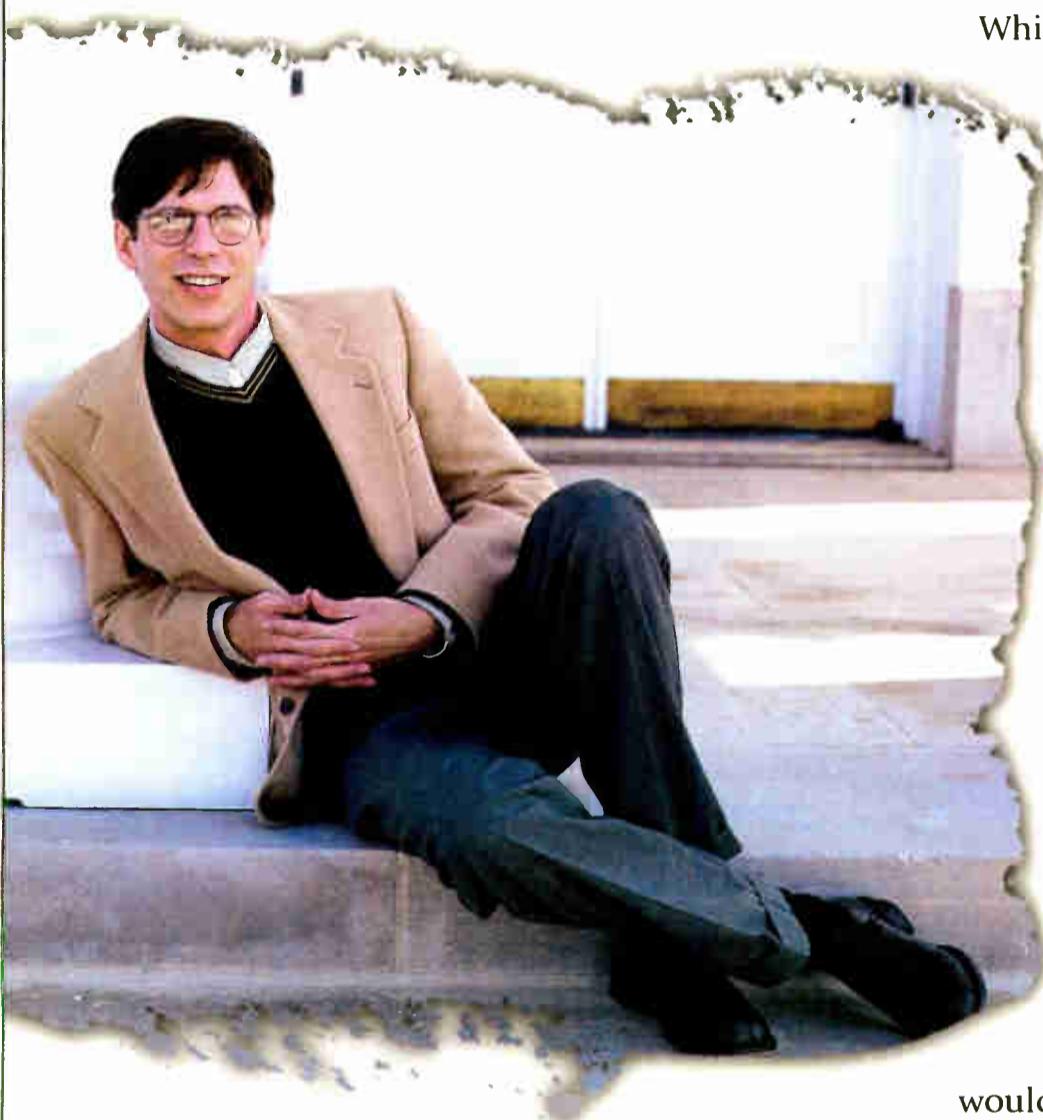
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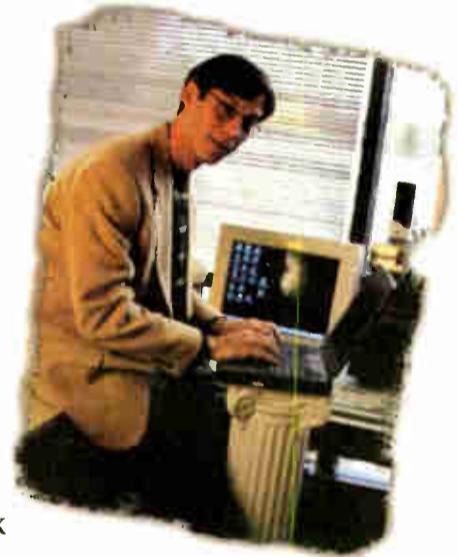
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Jim Dougherty
Director of Internet Initiatives
WNNX-FM/WWWQ-FM
Atlanta

Jim Dougherty is a computer guy who loves radio. Which makes him a perfect fit for his job. From his webmaster chair, Jim has directed live webcast events for 99X. He's worked with the station's sales team to uncover new revenue. And he's continued to help link his station's listeners to its website, increasing time spent with both. As a result, 99X was honored as the Web Marketing Association's "Best Radio Station Website" two years in a row. Naturally, we're proud to have people with Jim's talents working with us as we continue to evolve radio's unique relationship with the internet. It's fun making the future come to life. As Jim adds, "If I didn't have fun with what I do I wouldn't be doing it. At Susquehanna, you work with the best in the industry!"



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FEATURES

WHO'S BUYING WHAT

New Century Media got off on the right track when it relocated studios in Seattle, gaining almost three times as much space and adding production capabilities — despite the presence of nearby railroad switching yards.

John Miller is director of engineering for KBTB(FM), KHOO(AM), KUBE(FM) and KJR(AM).

The building is near downtown at 351 Elliot Ave. West, with views of Mt. Rainier, Puget Sound and Safeco Field. Also in view are the railroad tracks, so isolation from freight-engine noise and vibration was a concern.

The broadcaster hired Russ Berger Design Group for the studio design, including layout, sound isolation, air conditioning concepts, acoustical finishes and interior design.

Acoustically sensitive rooms have floating floors and completely isolated walls and ceilings, according to RBDG. It also addressed concern about the building's limited structural floor-to-floor height.

"The clearance above the studios was extremely tight," Miller said. "Instead of having ducting ducts running above the ceiling to a central unit, each control room has its own enclosed system and an elaborate way of getting the air in and out of the rooms via dedicated fan coil units."

Wire management systems were incorporated into the floating floors, to recover valuable inches for the overall ceiling height.

The lead architect for the new 35,000-square-foot facility was Callison Architecture. Turner Construction was the project's construction management firm. New Century Media is the radio broadcasting segment of The Ackerley Media Group Inc.

Clear Channel Interactive chose Encite Commerce to develop, host and manage online, branded music stores for its national network of radio station Web sites.

The stores, which will be accessible from each local site, will offer a selection of CDs, vinyl and cassettes.

The two companies said their partnership "introduces a new strategy in music e-commerce."

Rather than offering a single, generic online music store, Encite is using proprietary software to create a branded shopping environment for each station, featuring products and content specific to the market or niche on which the stations are focused.

"We are big believers in contextual commerce and think that this will be a significant part of our business," said Rob Slingerland, CFO of Clear Channel Interactive.

He said Encite had done a "fantastic job" with the 100 or so local stores it operates for CCI. ...

KQED(FM) in San Francisco ordered (25) HHB MDP-500 MiniDisc recorders.

Dan Mansergh, director of engineering, placed the order after evaluation a demo unit for several months. ...

Jones Radio Networks announced that its seven to midnight country show, "Lia," hosted by Lia Knight, debuted on Infinity's WHOK(FM) in Columbus, Ohio this summer. The show also is heard on Infinity's KMPS in Seattle.

"Lia" is now heard on Entercom heritage station WDAF(AM) in Kansas City.

Detroit's new AC station, Greater Media's WMGC(FM), signed up for JRN's evening "Delilah" program.

And in less than four months of syndication, JRN's national AC overnight show, "Dave 'til Dawn" featuring Dave Wingert, was heard in 50 markets.

"Who's Buying What" is printed as a service to our readers who are interested in how their peers choose equipment and services. Information is provided by suppliers.

Companies with news of unusual or prominent sales should send information and photos to: Radio World Managing Editor, P.O. Box 1214, Falls Church, VA 22041.



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AUDION

THE NAB RADIO SHOW

Photo Gallery



Nathan Miller and Darcey Christianson inspect a dish in the Patriot Satellite booth.



Engineering Legends Arno Meyer, Mike Dorrough, Geoff Mendenhall, Bob Orban and Charlie Morgan pose with moderator Paul McLane.



Visiting BSW, Lee Davis and Nancy Rutherford of WCUB(AM) & WLTU(FM), Manitowoc, Wis., shop for problem solvers.



The Food Show With Tom Fitzmorris' was part of The Great Remote Giveaway.



RW Founder Steve Dana, left, and Editor Paul McLane honor Comrex on its 40th anniversary. Lynn Distler accepts.



Mike Dorrough makes a point or two.



On The Air

A Monthly Newsletter from Broadcast Software International

Issue 7

Quote of the Month

"You have a great product that seems to only be limited in use by a person's imagination."

Alan Burton, WKW-P
Paintsville, KY

News



This is one of the most exciting times in BSI's history. In the next month, we will be releasing three new innovative products that will give incredible capabilities to broadcasters at all levels.

Our new automation software package, **Simian**, redefines power, reliability and affordability. This new program has the capability of automatically healing itself of errors and even notifying us here at BSI if something isn't right. We are able to remotely correct or repair an installation before our client is even aware that there's a problem.

Skimmer is a wonderful new tool for PDs and air talent to air check themselves and the competition. It will also undoubtedly be popular with media tracking services.

Perhaps the most exciting new offering is **TimeShift**. This ground-breaking application is capable of storing a year's worth of network programming, including all cue tones. West Coast stations can permanently delay an East Coast feed. Stations can effortlessly and instantly create "best of" programs. Never again will anyone need to "dub the network feeds" for sports, business or other features.

In true BSI tradition, despite the products' amazing capabilities, all three of these new offerings are priced affordably like major brand software, not "black box" broadcast products.

The real software can be downloaded to test and try from our web site at www.bsiusa.com. I encourage you to visit the web site, try the software and ask us any questions you may have. Our open approach and dedication to our customers are the reasons we have thrived when others have fallen by the wayside. We look forward to hearing from you.

Sincerely,

Ron Burley - BSI President

A Letter from BSI's President

Calendar

October, BSI is accepting beta team applications for Simian through October 31st. See our website or next month's On The Air for details.

Birthdays:

Sept 25 1944, Michael Douglas
Sept 25 1969, Catherine Zeta-Jones

Tip

Easy Air Checking

Skimmer, one of our newest products, is a great tool for air checking. It was specifically designed to record, play-back and cut-out air checks. When you set it to record, you can stop/start using the microphone button. Triggers are another way to control Skimmer externally. Using the software is a reliable and affordable way to record your broadcast. Skimmer also makes this a lot easier to do than tape decks or in-house "hack" software.

User File

Radio Wanaka - W. Johnson

Wayne Johnson works at Radio Wanaka 92.2 FM in beautiful Lake Wanaka, New Zealand. He says, "Our station has been on air for about 8 months. We have a full and part time staff of 5 very dedicated people. The heart of our system is, of course, WaveStation. I loved the way that you guys let me download a working system. I had it running within the hour."



"Some of the other companies made you send, by email, all of your details before they would let you look at their systems. Bit like the secret service," Wayne says, "I got the feeling that you guys had nothing to hide and that anyone in the market could check it and see how it works without any obligation."

"In the end we got WaveStation and also purchased 1000 titles through the Music Store (Now there's another great thing), loaded it up and went to air. It was pretty much as easy as that. I can honestly say that WaveStation has NEVER let us down."

We at BSI want you to know that even though we have developed a new automation system in Simian, we will continue to support WaveStation on our website and through our free e-mail technical support.

Send us your story.

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SPECIAL REPORT

FEATURES

How Top Engineers Manage

How do engineers in a big group communicate? Should the broadcast engineering department control information technology as well? Who controls the LAN at a radio facility?

A highlight of the NAB2001 convention was the "Radio Engineering Roundtable," which brought together prominent radio engineering managers who discussed these questions.

The conversation, moderated by Radio World Editor Paul McLane, focused on challenges facing top-level engineers.

It also touched on facets of the huge new digital facility operated by XM Satellite Radio.

Here are excerpts from the session April at the convention in Las Vegas. A much more in-depth transcript appears at www.rwononline.com.

The participants:

David Baden, chief technology officer of Radio Free Asia;

Margaret Bryant, director of engineering and technical operations for ABC Radio Networks;

Al Kenyon, vice president of projects and technology for Clear Channel Radio;

Tony Masiello, vice president of operations at XM Satellite Radio; and

Frank McCoy, vice president of engineering for American Media Services.

McLane: In 2001, how does one manage a radio group's engineering functions? Let's start with Clear Channel.

Kenyon: We have Jeff Littlejohn, who is the vice president of engineering services, who operates out of our radio corporate division offices in Covington, Ky. — which is just across the river from Cincinnati, but we've been open all the time, instead of closing at night like Cincinnati has recently. (Laughter).

Under Jeff there are 15 regional engineers who handle geocentric areas of the country. Tom Cox has the largest station load, up around 120 radio stations. The lowest station count for a regional engineer is somewhere in the forties.

We're somewhere between 1,200 and 1,300 domestic radio stations, which if you check the back of Broadcasting magazine is roughly 10 percent of the radio stations in the country.

The regional engineers each work with local management, the local general manager, the local chief engineer, the local director of engineering, on purchases, on maintaining the equipment. This infrastructure is also put to use a lot during our capital process.

Like almost every organization, you take capital requests (that) start out at the station level. In Clear Channel, they go from the sta-

tion level to the regional engineer, who goes through and vets it. He takes out silly things, like the request for two pop-up tents for remotes because they only last six months and they want to depreciate that over a five-year period.

and sent in. Sensitivity becomes pretty important.

McLane: Maggie, at ABC Radio Networks, is e-mail a much-used tool for engineering communication? Is there a regular engineering discussion?

Bryant: Dallas is the headquarters for ABC Radio Networks. The news stuff comes out of New York; Paul Harvey of course is in



Al Kenyon, Frank McCoy, David Baden, Margaret Bryant, Tony Masiello and Paul McLane, From Left

He then discusses it with local engineers and they put together a package. It's submitted to Steve Davis for review. He accretes it all and we figure out where we are and try to combine it with the reality of where we have to go. It goes back and forth between people so that everyone is involved in the ultimate selection process.

Some of it is pushed all the way back down to the local engineer. "You've got a choice: you've got this much money that you can spend. What's the most important project for your station?"

That's the only way we've been able to come up with to manage that large number of stations.

McCoy: The worst you ever got was a request for two pop-ups? (Laughter) I've had a request for a margarita machine!

Maybe it was in the capital budget as a target. "If you're gonna cut something, this will go."

Kenyon: Did they try to capitalize the first load of tequila?

Baden: At Radio Free Europe, almost two technical departments developed. As computers became more prevalent, there was a whole I-S department built up, and they found themselves with the technical group that was doing the transmitters and the broadcasts, and the technical group that was handling all the computers — two separate networks, two separate computer requests and capital budget logs.

But we've been fortunate at Radio Free Asia that we control the I-S function as well as the broadcast function.

McCoy: One of the challenges is not having the folks at the local market level think, "Oh, gee whiz, it's those 'no' people again." It's hard not to be a "no" person, but obviously there's a finite pie that can be spent on various different things.

I believe that every market-level operation is filled with people who are genuinely committed to their work and really want to do a great job and look at themselves and compare themselves to the competitor across the street. They see that those folks have a shiny new vehicle and they make those assessments. Those are reduced to a capital budget

Chicago. We have a facility in L.A.

It's very interesting to see how things have changed. I think a part of it is the style of the personalities involved. It used to be that almost everything was e-mail, and there's still a lot, but more and more of it is on the telephone.

It has to do with the new vice president of engineering, Christine Ianuzzi. It is very much for the better. There are more conference calls, which one may think is a waste of time, but we have so many diverse locations that are working on so many different projects.

We are more in tune to what all the various areas are doing now, more than ever. Conference calling or just being on the phone and talking with people, there is more one-on-one rather than e-mails. I like the change.

McLane: Tony, you've been on both ends of the terrestrial/satellite, traditional/new-media divides, what's your take on this?

Masiello: Prior to joining XM, I spent 11 years in charge of the technical aspects of the CBS radio division. In the late '80s, early '90s, we employed the same regional technical management. At the time, we only had 26 O&Os, not the thousands that big groups have now, so it was somewhat more manageable.

But there is a totally different model at work at XM for technical management. Since all of our stations are located at one very large facility, it takes on a different style of technical management.

We employ something that's used a lot in I-T-type, Internet-type, large telcom environments. We operate on the principle of SLAs, or service-level agreements.

My department is responsible for the operation and maintenance of the facility, and we have different tiers. Tier 1 is the operators in the various control centers. We have a broadcast operations center, a network operations center and I-T operations center. I am responsible for the I-T as well. Those are the front-line operators in the seats, working shifts around the clock.

If something breaks, there's Tier 2, the maintenance folks who come out and fix it. Then there's Tier 3, the engineering people

See ROUND TABLE, page 26 ▶

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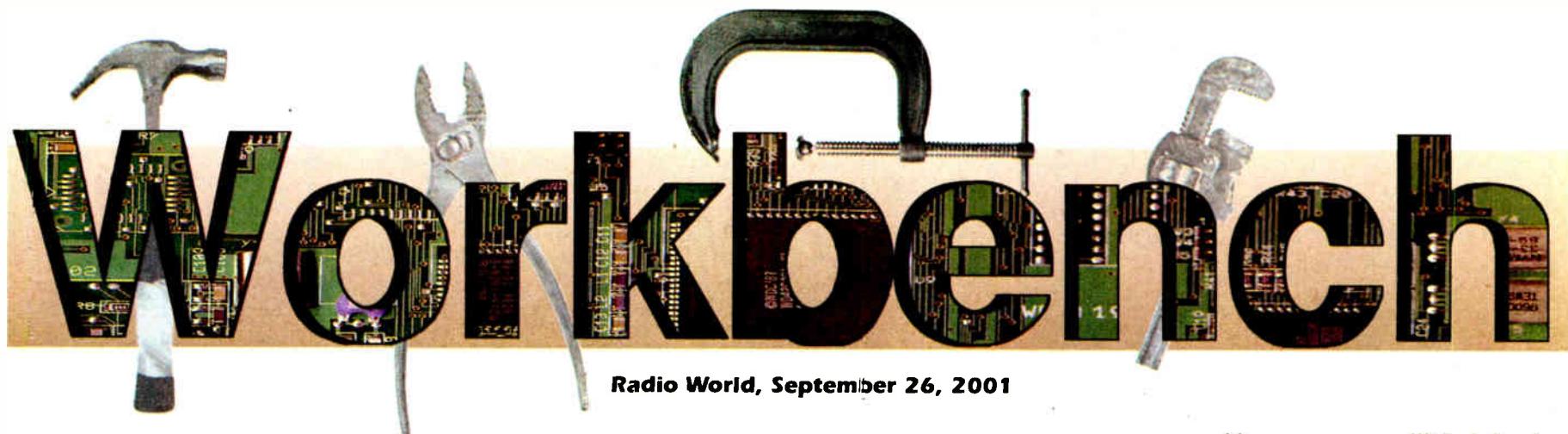
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Radio World, September 26, 2001

Care and Feeding of a Dehydrator

John Bisset

One of my biggest disappointments watching broadcasting evolve is the lack of mentoring programs for entry-level engineers.

All too often, when someone wants to get a start in broadcast engineering, they are shoved into the deep end of the pool, and either sink or swim. Opportunities to learn engineering tricks of the trade at the side of an experienced engineer are more the exception rather than the rule these days. That's why educational programs are so important.

Manufacturers play an important role in providing education, too. Seminars, training and publications are useful ways to expand your knowledge base.

Andrew Corp. recently sent me a copy of a free booklet that every FM engineer ought to own, "The Biannual Care and Feeding of Your Andrew Dehydrator." This 10-page booklet is chock full of tips regarding dehydrators.

A section on preventive maintenance describes routine procedures that will keep your dehydrator running.

For example, you replace the fuel and air filters in your automobile periodically. When was the last time you replaced the intake filter on the dehydrator compressor? These are to be replaced every six months, and more often if the dehydrator runs in a dusty or dirty environment.

The maintenance booklet has lots of pictures, so you're not left wondering what the text actually meant. A useful process for checking for leaks in your entire pressurization system is included. The booklet wraps up the subject of dehydrator maintenance by including two pages of troubleshooting tips and answers to common questions.

For example, do you know how to identify the 1/8-inch NPT valve fitting?

There's a chart to help, but the 1/8-inch reference is the inside diameter of the fitting, not the outside.

Winter is just around the corner, and your pressurization system had better be working. Get your free copy of Bulletin 1557 by contacting the Andrew Customer Support Center toll free: (800) 255-1479.

★ ★ ★

Take a look at Figure 1. How's this for a splice kit?

When station personnel investigated to find out why satellite signals were failing, they discovered this "home-brew" splice. Not only had it leaked, but the partially weatherproofed hose clamp was an integral part of the splice.



Fig. 1: Bet you can't find this splice kit in a Cablewave or Andrew catalog.

File this one under "Anything to save money." Include it in your calculation the loss of programming and commercials when the satellite signal (and the listeners) went away.

★ ★ ★

Laverne Siemens is the director of engineering with Golden West Media in Canada. He writes that the information provided on sinking ground rods was

most helpful. Thanks again to all the engineers who contributed their ideas.

Laverne has had success in sinking 10-foot ground rods by hand, wetting the soil, pounding the rod into the ground, working it from side to side, removing the rod to pour more water in the hole and repeating the process.

Usually he's able to step on the rod to bury the last foot or two. Laverne even taught the procedure to a tower crew, who had previously used the sledgehammer method.

Don Jeerings, John Stortz' assistant at the Moody facilities in Florida, writes that the proper hardware is necessary when making the ground wire connection from the ground rod to the guy wire. Instead of the more common "U" bolt,

this process, you will find that it takes more strength to bend the wire, and the wire will get warm. If you look closely, you will find that the wire is not bending where you started, but the wire bends next to the point where you began the bending.

The initial bend has "work hardened" and become stiff and brittle. The softer part next to the work-hardened portion of wire is the section that is now flexing.

As the radial wire leading from the guys to the ground rod flexes as the wind blows, if the "U" bolt is used, this highly concentrated stress will cause the ground wire to work harden, crystallize and eventually break.

The split bolt spreads the stress over a larger area, reducing the hardening action. It goes without saying that an inspection of guy wire grounding should include a close inspection of the ground wire itself.

★ ★ ★

Bill Ruck responded to our picture of a power cord tied neatly to the wall in the Aug. 1 Workbench.

Although it looks pretty, Bill cautions that it's not a good idea. As his father used to say, "Yes you can, but no you may not!"

Securing a portable cable to the wall is a direct violation of the National Electrical Code. After a couple of times fighting over this with electrical inspectors (Bill lost each round), he has learned the difference between an "appliance" and a "fixture," and wants to enlighten Workbench readers.

An appliance is something that plugs into an outlet. Bill has seen some transmitters fed with electrical range plugs that were considered appliances.

As long as the power cord is free, you can mount the device (for instance, into a rack). However, you cannot secure the power cord to anything except with

See WORKBENCH, page 24 ►

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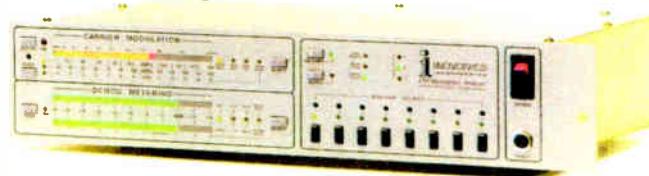
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Workbench

► Continued from page 23
gravity. Thus, power cords neatly bundled and secured to a tie bar with cable ties are not allowed for appliances.

Power cords run in "D" rings or Panduct probably are O.K. because the mounting is not permanent.

Multiple outlet strips can be consid-

ered plugged in.

Don't let that inspector inside your portable remote racks! Figure 2 shows a wall wart that is definitely not secured by gravity.

Now before you dismiss Bill's caution, be aware that an electrical inspector can shut you down if NEC violations are spotted. Try explaining that to your GM.

Furthermore, should there be a fire, and the insurance inspector finds NEC

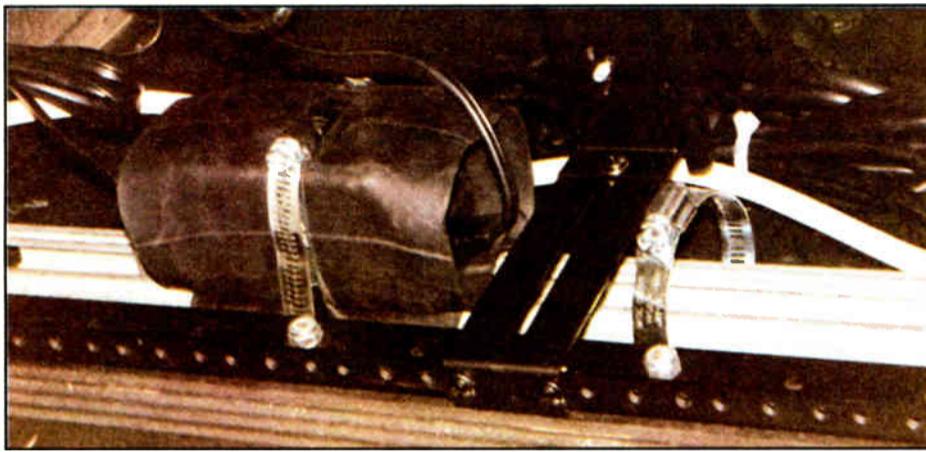


Fig. 2: Power cords bundled and secured to a tie bar are not allowed for 'appliances.'

violations, you suddenly may find yourself without insurance coverage.

Your best advice: follow the NEC at all times, even though it can be a hassle and cost additional money. National Electrical Code and NEC are registered trademarks of the National Fire Protection Association Inc. Radio World encourages readers to obtain a full copy of the code as a reference.

ered an "appliance" if they are only supported by gravity, such as sitting on the floor. However, if the strip is mounted in any way (screws, hook-and-loop fasteners, double-stick tape), it becomes a "fixture" that must be connected in a permanent fashion as specified in the NEC.

Following this rationale, a rack-mounted power strip is not an appliance but a fixture, and therefore cannot be

FEATURES

★ ★ ★

Looking for obsolete semiconductors?

Dave Hershberger, principal engineer with ADC Broadcast Systems Division, offered a good tip on the *radio-tech* page at broadcast.net recently.

Try Rochester Electronics in Massachusetts at (978) 462-9332, or online at www.rocelec.com.

★ ★ ★

Bob Hoffman is market chief for Bonneville International's WIL(FM), WSSM(FM) and WRTH(AM) in St. Louis. Bob offers this tip to anyone who plans to install new audio processing gear, or even a delay system, which could create a bothersome delay for studio talent monitoring the direct air signal.

Bob recently implemented a simple solution, using the Broadcast Tools Smart Silence Monitor.

The air console audio is fed to a

sidechain processor and looped back to the studio air monitor through the normally closed contacts of the Smart Silence Monitor relays. This allows the talent to hear a "pseudo air monitor."

A tuner (through a distribution amplifier) feeds the silence sensor input and the normally open contacts of the SSM relays. When an off-air condition occurs, the SSM relays will switch to feed direct tuner audio to the studio monitor, alerting the talent of the condition in seconds.

Bob has wired a second output of the SSM to drive an audible alert in the engineering shop.

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

Old Marti Facility for Sale

The Marti equipment brand is alive and well. Nevertheless, technology nostalgia buffs might be excused for feeling that a bit of history has passed in Cleburne, Texas.

The manufacturing facility of Marti Electronics appeared recently in the Industrial Properties listing of a local newspaper, a reminder that the company's ties to the town are in the past.

INDUSTRIAL PROPERTIES

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Two Loading Docks

Concrete Paving and Drives - 50 Cars

"We closed the Marti facility several months ago and moved all manufacturing and service to our Quincy facility," said President Jim Godfrey, referring to the Illinois home of Marti's parent company, Broadcast Electronics.

"All products are shipping from that location. I moved our sales and purchasing office to Fort Worth. Our old phone numbers still work and we are 'business as usual.'"

The 20,400-square-foot building in Cleburne had been home to Marti for about five years. But the company's ties to Cleburne go much farther back.

Marti, which manufactures remote pickup and radio telco equipment, was founded in 1960 by George Marti, six-time mayor of Cleburne. The company was sold to BE in 1996. The company had been renting the facility from George Marti in recent years.

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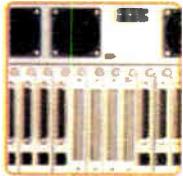
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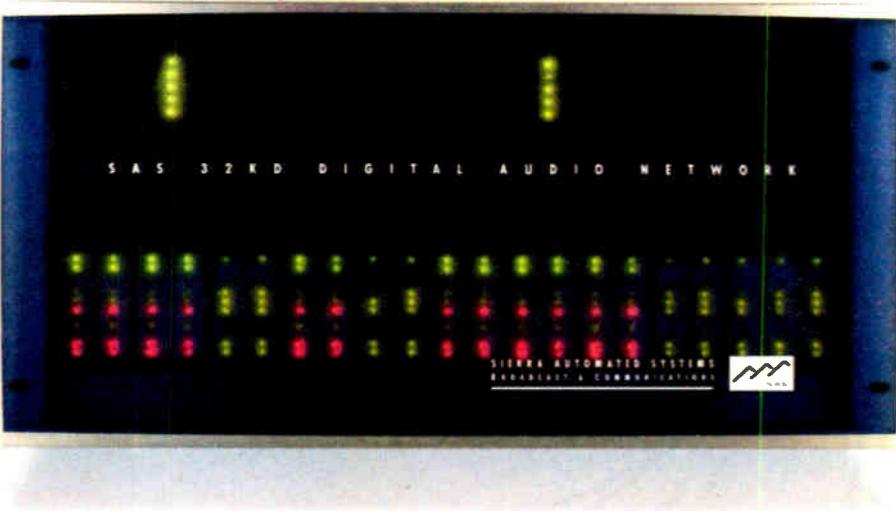


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Roundtable

► Continued from page 20

who have to solve a problem. It's beyond the maintenance people, it's a system design problem requiring extra expertise.

McLane: Particularly in smaller operations, it seems the engineer is still the jack-of-all-trades, who is expected to know how to fix the toilet and the laptop.

Baden: But is that a *bad* thing, to be in charge of anything?

I've been in organizations where they'll start up a whole I-T department. They'll pay these guys who (are) nothing but Microsoft-certified, and they make twice the money as the guy who built the console. It's because they're in the new field and thanks to this new I-T thing, they have more earning power. That creates a lot of problems, to have a whole separate support division.

Masiello: We took great pains (at XM) to make sure with the different service levels that the personnel, who may have different titles, are all within the same salary ranges. They may call them different things. "Principle Software Engineer I" is akin to someone on a manager level. Broadcast ops or maintenance may have the same pay scales for that very reason.

Within an organization, those providing the services on the same level are at the same pay scale.

Baden: We use a faceless automated help desk system (at Radio Free Asia) where we

don't even take calls from users; they have to send an e-mail.

McCoy: So Tony, someone who writes code gets paid the same money as the guy who works on a bench?

Masiello: If the guy is what we call an analyst, not writing the code but fixing it, yes.

McCoy: So software maintenance and hardware maintenance get paid the same. Wow.

Baden: How do you justify that? Aren't you either overpaying one engineer or underpaying another?

Masiello: I don't think either one applies. Nowadays, when you want to get a broadcast maintenance tech, you don't want someone who knows how to fix an Ampex 350, because we don't have any.

McCoy: What if you *do* know how, but you can do other stuff, too?

Masiello: The levels of the two between the software person and the broadcast maintenance person are converging because more knowledge is necessary that's closer to the software than to the broadcast side. The software guy cannot fix the cart machine if it breaks; and even though we have an all-digital facility, there are some cart machines for the odd cart that shows up.

McCoy: You still have two disparate groups, don't you? Basically software/information technologies and then the folks who

FEATURES

are responsible for audio delivery? Even if it is AES?

Masiello: No, because at our facility when you start talking about digital in general, there's a convergence. There are hundreds of Compaq workstations that are the actual playback devices.

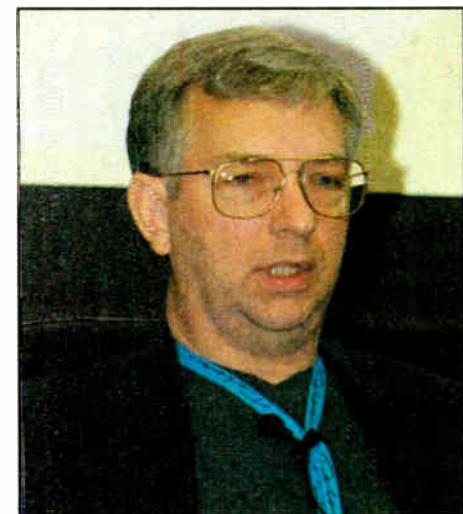
Bryant: But are they also the ones who are taking care of the laptops that are not used for on-air?

Masiello: They certainly could, but they don't. There are people in the I-T department that take care of corporate I-T.

Bryant: That's kind of the way that we have. We have an I-T department that takes care of the desktops and all that. And the engineering department is responsible for anything on-air.

Masiello: Anything that's broadcast related. Absolutely.

McCoy: Could this eventually result in a turf dispute over the LAN?



Clear Channel's Al Kenyon

more than play with ones and zeros and do board-level replacements on things.

We've brought them in to broadcast engineering because they get to play with RF systems and big pieces of copper that they don't really relate to. People who find that part of the I-T discipline confining are the broadcast engineers of the future.

You definitely do not want to keep training from your people. Research has shown that people will develop more job loyalty and more job satisfaction when they have more training opportunities.

— Al Kenyon

Masiello: Yes it does, but we set those priorities out early.

Baden: That's why it's better to seize control over the whole thing. You really don't want to be fighting over your LAN.

Bryant: There's another solution. All of our LANs from engineering are separate intentionally from everything that's I-T.

Masiello: Totally separate LANs on the broadcast floor. Broadcast is on the second floor of our building and we have 14 LANs dedicated to doing specific things that relate to air, totally apart from corporate I-T.

McCoy: That just eventually moves the dispute to the router. (Chuckle)

McLane: Now chief engineers have to be I-T-trained; but once we get them that training and we get them their degrees, they can double their money by working for some non-radio entity. Another problem is getting entry-level people interested in developing these special radio skills.

So how do we train people, keep them and compensate them well?

Kenyon: You definitely do not want to keep training from your people. Research has shown that people will develop more job loyalty and more job satisfaction when they have more training opportunities.

It's a better reward than dollars. It increases their flexibility. ... Yes, you may lose some of them to the I-T industry, but broadcast engineering offers things that I-T doesn't. And frankly, we've gone after some of the brighter I-T people who want to do

McLane: Do your organizations have a policy of helping to pay for employee tuition?

Masiello: Yes. We send our technicians for training on specific devices and systems. If that requires knowledge of NT or Windows 2000 or Cisco routers and switches, they are sent for that training.

Kenyon: (In Clear Channel) we have an I-T department. It's often said in technical circles that "things" happen and you can't spell that particular thing without "i-t."

We also communicate by e-mail. We have an e-mail list server. For some strange reason, just about all the engineers subscribe to the I-T listserver and all the I-T guys subscribe to the broadcast engineer listserver.

Frankly, in smaller markets, the engineer is the I-T person. A number of our regional I-T people are former broadcast engineers because they understand the aspect of the business that it has to be "up" 24 hours a day.

Masiello: There is, in a big organization, and even in a small one, this rivalry between the factions that have computer knowledge, I-T and broadcast-related.

But the real big difference is that most I-T departments are in support of the corporation and the business process. (But) I-T as it's used in broadcast is the business. We are carrying the signals. They are generating the audio and even the video. So there's a big difference. Everything broadcast does is "mission-critical." Most corporate is not. ...

That means that when you design a facility that uses a lot of computer infrastructure, it must be redundant. Because no matter what any salesman tells you, it's not reliable.

See ROUND TABLE, page 28 ▶

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World Radio History

Roundtable

► Continued from page 26

It will break. So you protect yourself by having multiple versions of same and a system for switching it in.

Question from the audience: It's all right you all to understand the difference between a broadcast system and an I-T system and what you need for broadcast. How do you express this to upper management when they're drawing up the budget, making priorities, when everybody's saying "World Wide Web is so important," but it might have an audience of 10 people while your broadcast system has an audience of 10 million?

Masiello: A strategy we've used is to present the purchase and the equipment in the light that it serves both masters; that you've purchased this equipment to upgrade the broadcast side and as a feature, this playout system knows how to do Web authoring, or it can put what's on the air into templates for Webs, etc.

Leverage the two. Most management sees the two differently, but actually it's the same because the content's coming off the same engine, the same creation, what's going to air, modified sometimes for Internet. One way to leverage that is to show that the same can be used for both sides.

McLane: Al, can you approximate how many facilities projects you have going on in Clear Channel now?

Kenyon: We've got about eight active builds going on at the moment, but the total list of projects either closing this year or in start-up phase this year is about 36. Those are projects that are large enough to require the attention of an architect and contracting.

One of the biggest things we're running into now is finding an architectural firm that has a strong enough MEP — Mechanical/Electrical/Plumbing — side, within the organization. ... It's important to have an architect that not only understands studios and inter-relationships in these larger complexes, but also has an MEP division to make sure all this other stuff works.

(At this point in the session, Masiello shows a short video about the new facility at XM Satellite Radio in Washington.)

Masiello: What made our facility come

together, and it is the largest in the United States, is planning. You can't design something like that without it.

We spent over half the time it took to put it together doing the planning. We used a software package called VidCAD to design the facility, lay out all the cabling, lay out all the racks, and since it interfaces with AutoCAD, which is what most architects use, the physical space was related to the technical space.

The ability to populate equipment racks on the screen in two different locations, push a button and it figures out all the cable lengths and all of that, was most useful in bringing the facility together.

McCoy: The narration (on the XM video) said 22 Terabytes and you said 27.

Masiello: They didn't count the index.

Baden: But I guarantee you'll be here in a year saying 22 Terabytes isn't enough.

Masiello: It's already not enough, and (we're) out of space. That's why we have the off-line storage, because program people want to save things.

The critical part was the planning and a decision early on to do the wiring in a very specific way, in that all the real-time or live audio would travel on fiber optics and any of the file transfers, compressed audio or audio shuttled between devices would be done on CAT-5 cable.

The only traditional audio wiring that you'll find is from the microphone to the input of the console, where it's converted to digital.

Question from the audience member: The (XM) facility looks very nice. In the old days broadcast facilities would last for years and years. With the new I-T paradigm, there rapidly has to be change.

How soon do you think your facility will be obsolete and is your management prepared to refurbish it at that point?

Masiello: The basic infrastructure won't get obsolete unless there is a complete change in the methodologies. What really changes is speed of processes, amount of storage, etc., and that you follow along.

All the drives in our workstations in the TOC for playout are removable. We can expand to larger sizes as the vendor does. They're all Compaq computers. The big storage system is an IBM storage area network. There are over 600 36-gig drives. They'll be coming out shortly with 72-gig and I'm sure it will go from there.

FEATURES

So the expansion within the existing model is there; it's scalable.

You need to have something on the horizon. We decided we're going to see light storage and something that's a hologram on a little cube. We're talking about something that could be way out, and that could be 10 years. If that changes, the whole paradigm is shifted. Then I think we have a problem.

We took pains to make it very broadcast-traditional. The Klotz work surfaces look like ordinary consoles, and they didn't have to. All they are are just control surfaces. There's an RJ-45 plugged in. There's no audio. It goes into a computer, which talks to the frame.

So if the presentation needs to change, change the work surface. What's behind it is still going to be there. We're still doing AES audio.

McLane: Other topics?

Kenyon: Digital audio consoles. I'm firmly in the camp that Tony jumped into, that a digital audio console needs to be more than just a specific little box you stick in a room.

All you're doing there is putting in a digital system that's a drop-in for an analog console that can, in many cases, meet the same audio specs. The power of the digital console is interfacing with a routing system and being able to control all these audio sources back and forth through the use of a wholly integrated system.

There's an interesting product being introduced by Telos. It's a Super Surface. They're making a control surface which they hope will drive a Klotz Vadis frame or will output control information that could interface with the switcher of your choice, should the manufacturers want to go that way.

I recommended that they contact someone like AudioPoint, that's a DSP-based routing switch. I was looking at consoles and I wanted to find somebody that would interface with a DSP router. The only one that was available was Klotz and it's working very well for us in Denver. It's a very good proof of concept.

Masiello: We made a conscious decision to go with Klotz. ... The reason for our decision was that having tried to do this before at CBS and CBS Radio Network, we had a digital router, then an intercom that you needed, an IFB system, to generate mix-minus. Nothing talked to anything.

And you had these little digital boxes, and we ran out and bought little outside relay boxes. I can tell you that at CBS we had more Henry relay boxes that were con-

trolling digitally outputted things.

The Klotz platform provided for us a way to keep it digital, but all of the control, everything was centralized.

Its work surface is a console. A panel that's set up to be an intercom, is an intercom. How many mix-minuses do you need out of this studio? One, two, 20? It makes no never-mind. Change the configuration.

All of it is inter-connected by fiber. It sends all the AES block around as well, so everything is locked in time. It's also a routing switcher. The facility is about 2,500 by 2,500 square, but it's a virtual router. Wherever there's a frame, it's part of the routing system. It can route RS-232 as well for some of my program-associated data.

The other benefit is from a maintenance standpoint. I could have a technician in the broadcast operations center looking on a computer that looks at all of Klotz frames. If there's a failure, it will point me to Rack 6, Frame 12, Card 2.

But more importantly, if the disk jockey in the studio hoses the setup big-time and gets all confused, I can reset the console. Or say I'm expecting a feed from our New York studio, a two-way interview, and the jock doesn't know how to figure it out. While he's still on the air talking, I just go a computer with a few clicks, and I can actually, right under his fingers, if you will, change the routing and put that feed from New York, set up the IFB, do all of that seamlessly.

So it's not just the audio, but the other control.

And there are situations that come up at a station that you need to attack and it's good to have a platform where you don't need to run around with punch down tools, relay boxes and the like to solve a problem.

But (this is) what vendors should be looking at, and the user should be insisting upon. Don't just sell me a digital console. It needs to talk to things. It needs to be able to address other problems within the facility. You really do need a digital engine as a backbone.

Baden: And please, when vendors put these things together, let's use some standards.

The panelists also discussed the impact of the Digital Millennium Copyright Act on engineering at digital facilities; the likelihood of success for satellite radio; how to cope with post-SEDAT network satellite technology; and the spreading use of CAT-5 cable.

The full session transcript is available at www.rwonline.com.

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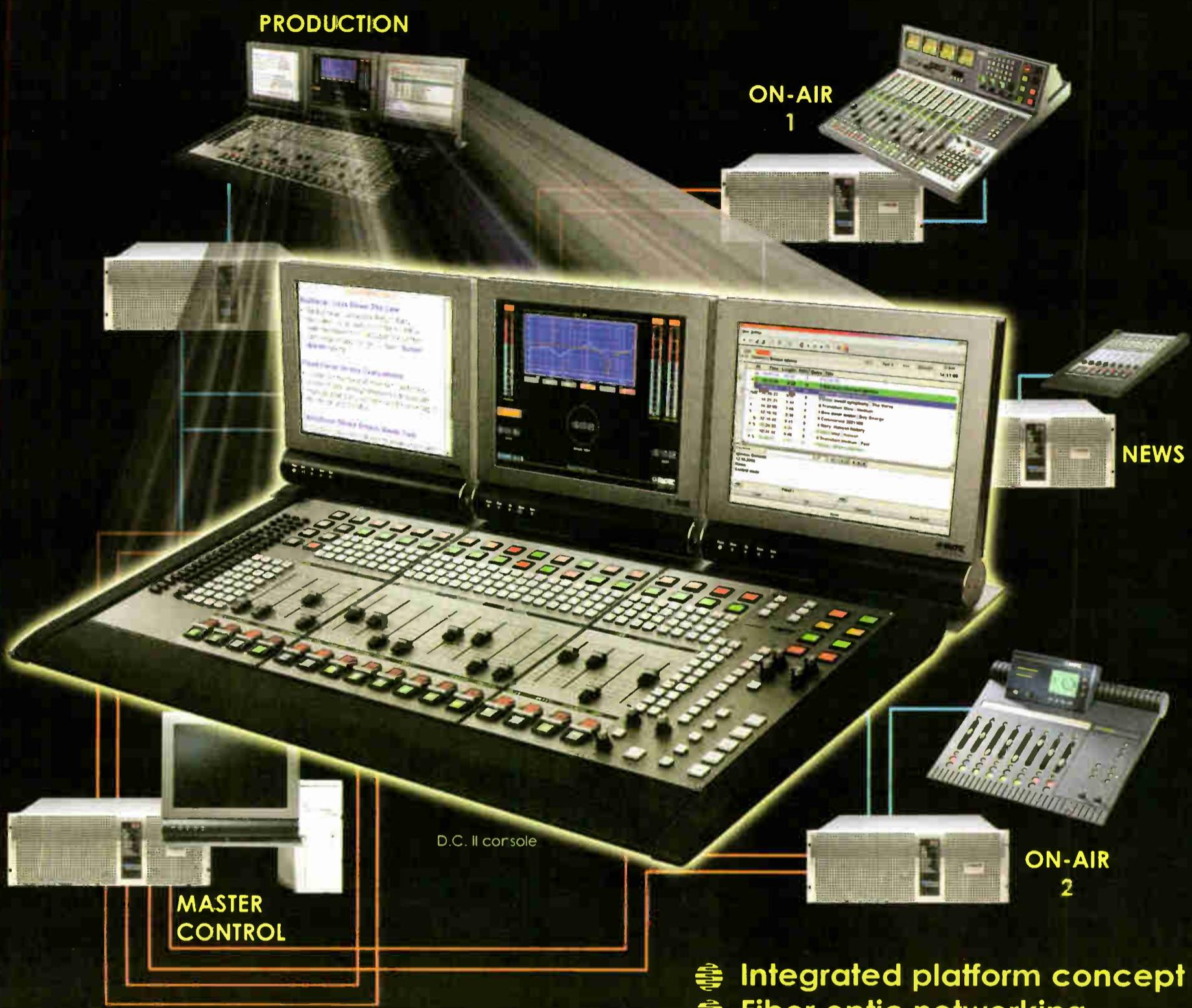
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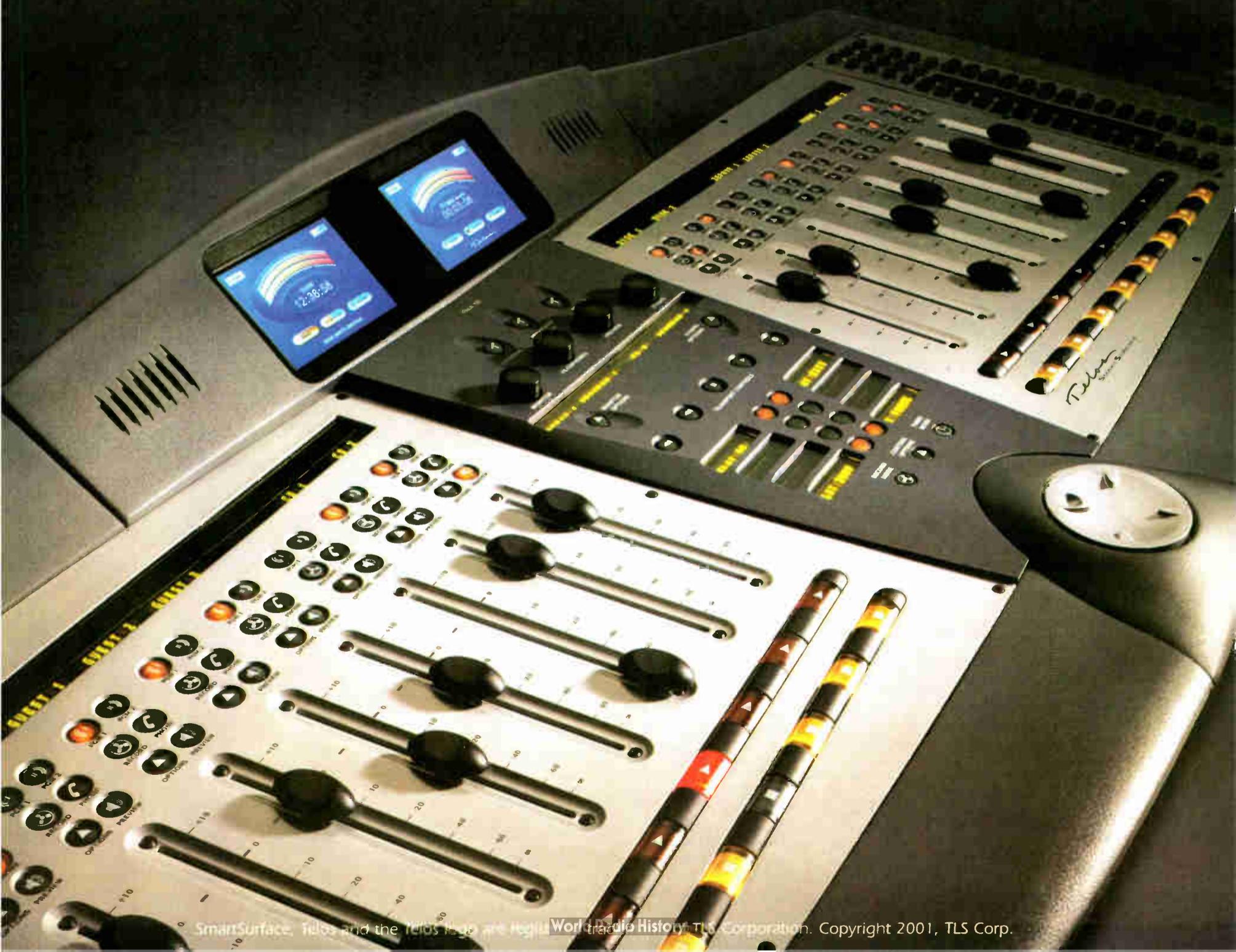
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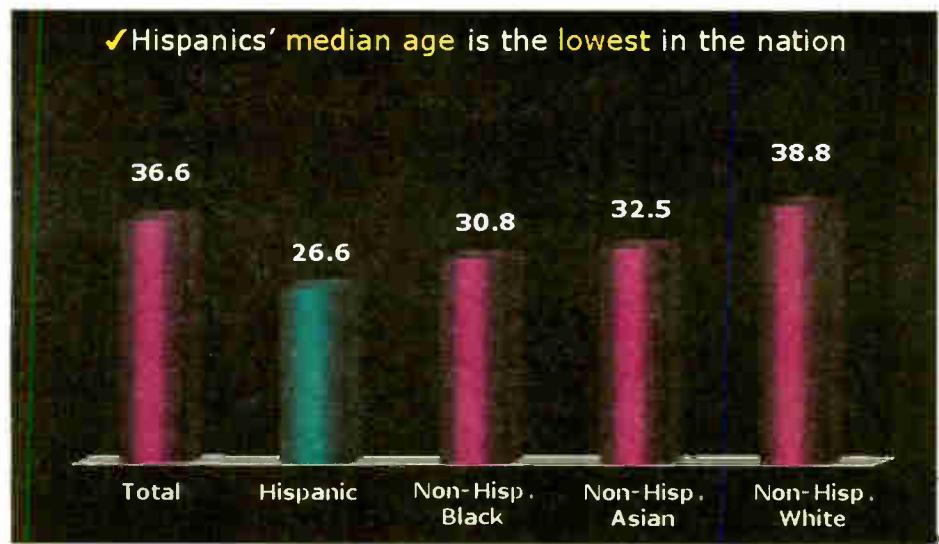
September 26, 2001

MANAGEMENT CORNER

Format Options to Boost Share

Vincent M. Ditingo

Memo to Select Station Group Heads — Congratulations! Now that you secured that fourth or fifth station in a geographically desired market, the time has come to turn around the sagging fortunes of the one money-losing station there.



With more stations in your local cluster portfolio, you can now leverage easily the right investment in a new format direction against the revenue streams of your more successful cluster stations.

The result will be to create new business dollars.

Two hot formats

Depending upon market needs, your programming alternative could well lie with one of two format approaches: Hispanic radio or the new '80s format model.

Spanish-language radio, although geographically specific, appears to be one of the fastest-growing format categories in the United States, according to Betina Lewin, marketing and research manager, Caballero Spanish Media, a division of Interep.

For general market group operators who want to shake things up completely, there's no denying that a

switch to a Hispanic radio format would be a significant upfront investment in personnel, music libraries, syndication and news, unless on-air services can be automated substantially.

However, the payoff in added revenues over the long term — anywhere from three to five years — should offset costs while increasing stock value.

The reason? This kind of vertical integration, in which you add a variety of formats to attract a range of demographic groups, will go a long way to attract new dollars from major ad agencies and advertisers alike.

Exploding growth

Still sounds like a far-fetched move? Some recent research makes a compelling case for Hispanic radio in 2001.

According to 2000 census data and a recent Hispanic radio report by Caballero, Hispanics account for 13 percent of the total United States population, which places our country as the fifth-largest for Spanish speakers in the world.

In just 10 years, the U.S. Hispanic population jumped nearly 60 percent from 22.4 million to 35.3 million.

During roughly the same time span, U.S. Hispanics registered the second-largest increase in buying power among all population groups (see chart page 32).

Today, U.S. Hispanics have the lowest median age, 26.6 years, of all population groups, which allows a longer consumer lifespan. Additionally, 91 percent of all U.S. Hispanics speak Spanish all or most of the time. And by 2005, Hispanics will become the largest ethnic group in the country.

The Caballero study shows that the number of

See FORMATS, page 32 ▶

Not Too Late for Holiday Promos

Ken R.

No need to ask for whom the jingle bells toll — they toll for thee if you can gear up quickly for some last-minute holiday promotions.



This summer, Radio World *Promo Power* whiz Mark Lapidus provided a number of ideas which called for a healthy lead time (RW, July 4). There is still enough time to create some great quickie promotions as the fourth quarter looms.

Ormond Beach, Fla.-based Broadcast Team is a direct marketing firm that combines station databases with new mail and phone technology. Kurt Steier, vice president of marketing, had a suggestion for a personalized Jan. 1 promotion.

"We have a service named 'RealCall' which is an automated way to phone every listener in your database and wish him/her a happy new year," said Steier. "It can be done for as little as 25 cents per completed call with a small setup charge."

Steier said the morning team could record a message or even a silly song and let RealCall deliver it. Another twist would be to have one of the station personalities tell your audience to listen at a particular time to hear their name on the air.

Another alternative: Have a visiting celebrity record a message wishing your listeners a happy holiday. Or allow your listeners to go to your Web

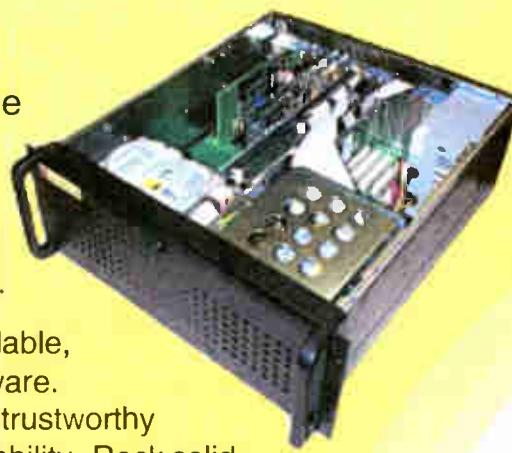
See HOLIDAY, page 42 ▶

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Formats

► Continued from page 31

Spanish-language stations in the United States has soared almost 700 percent during the past 20 years, from 67 in 1980 to 534 in 2000.

Such an explosive growth rate can be attributed to both a tremendous influx of Hispanics into the United States as well as the fact that they remain very loyal listeners.

Further examination of the Caballero Spanish Media analysis may convince remaining skeptics of the viability of Spanish-language programming and of the potential advertiser interest.

For instance, based upon a 2000 Roslow Research Group study, the Caballero report showed that, among Hispanic consumers, commercials in Spanish are 61 percent more effective at increasing awareness than in English, are 57 percent more likely to be recalled than those in English and are 4.5 times more persuasive than those in English.

As noted above, one of the principle drawbacks to Hispanic radio is that the

United States. However, other companies may consider undertaking such a format endeavor.

Group operators who run Hispanic radio stations must exhibit a "culturally sensitive marketing and programming strategy," according to the Caballero report.

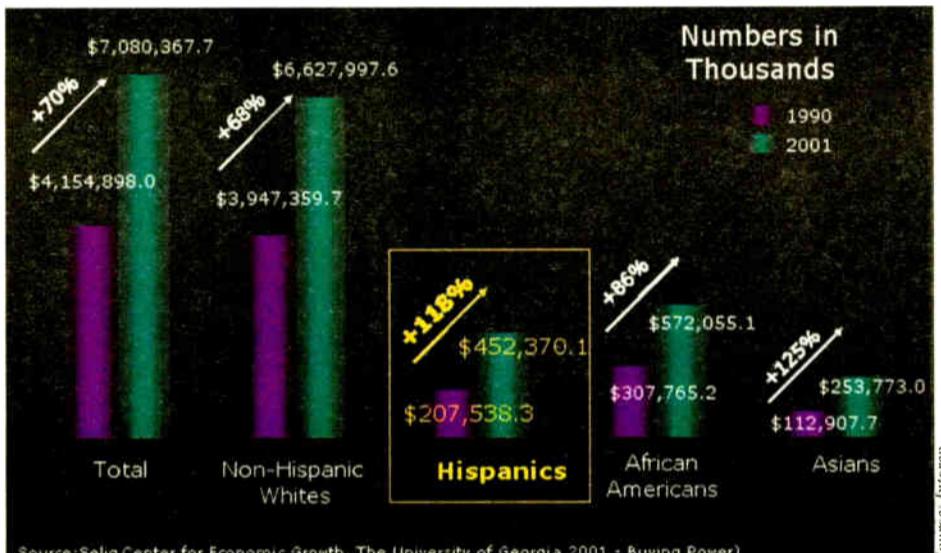
Several types of Spanish-language radio programming exist that reflect the inherent differences among Hispanics.

They include regional Mexican, popular in California, Texas, New Mexico and Illinois; Spanish romántica, an international mass-appeal format that covers a number of markets; tejano, mainly in Texas markets; Spanish news/talk; and Spanish rock for young urban Hispanics.

"Hispanic radio is not about language. It's about cultural ties," the Caballero study concludes.

Demographic power

Need a solution for a poorly performing FM station in a cluster of stations that already program some combination of adult contemporary, album or alternative rock or country music? The relatively new '80s format may hold the key.



U.S. Hispanics had the second-largest increase in buying power in the past decade.

format is geographic-specific, with some 85 percent of all U.S. Hispanics concentrated in 10 states: California, Texas, New York, Florida, Illinois, Arizona, New Jersey, New Mexico, Colorado and Massachusetts.

Influx

But there are several markets in other states witnessing an influx of Hispanics in recent years such as Las Vegas, according to the 2000 U.S. Census data.

Currently Hispanic media companies own about 80 percent of all Spanish-language radio stations in the

A switch to the '80s format should not be viewed as a quick fix, however. The strategy here is one of horizontal integration — that is, maintain your current audience while building an even larger stronghold on the highly coveted 25-34 demographic in the market.

Do this through complementary, if not competing, formats that attract a large segment of those listeners. The challenge for operators is to leverage the new '80s format listeners with those of the group's existing stations for advertisers.

As a narrowly defined programming

model, the '80s format offers a twist to pop music that should have its own appeal to the broad 25-44-year-old demographic. Indeed, it offers some of the more popular and prolific pop music artists of the last 50 years, including U2, John Cougar Mellencamp, Madonna, Prince, R.E.M. and Pat Benatar.

According to a report from Arbitron on the '80s format, nearly half of its audience falls in the 25-34 age group, with all format listeners split virtually in half among women (48 percent) and men (52 percent).

According to the Arbitron report, '80s stations attract a smaller number of listeners than other formats, but their listeners stay tuned for a longer period per occasion.

The format gradually will develop its own following as more listeners sample the product.

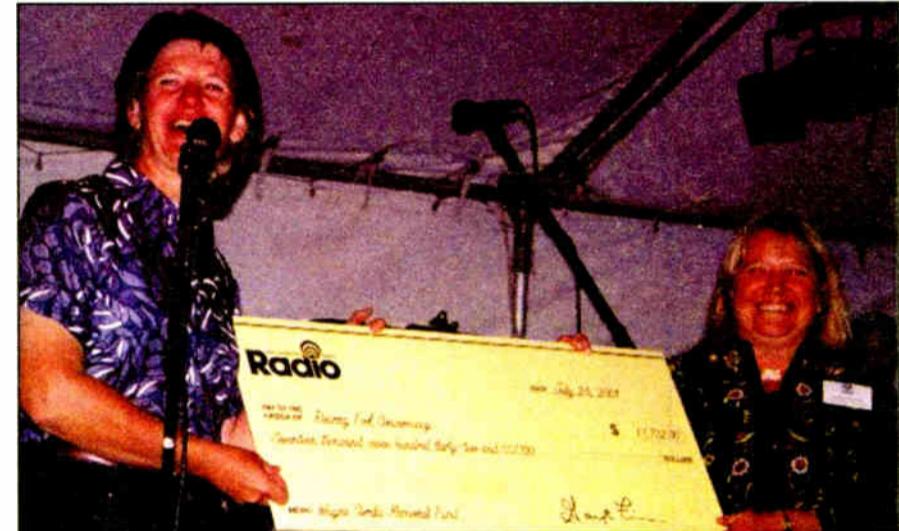
Vincent M. Ditingo is an assistant professor of communication arts and coordinator of the radio program at the New York Institute of Technology.

Contact him via e-mail to vdingo@aol.com.

Radio Wayne Inspires Generosity

The Roaring Fork Conservancy, a nonprofit organization that seeks to protect and preserve the rivers and streams of the Roaring Fork Valley in western Colorado, recently received a matching gift that almost doubled a donation raised by the Radio Wayne Silent Auction last year.

The auction was created in memory of the Radio Advertising Bureau's long-time Executive Vice President Wayne Cornils. It is held each year at the RAB conference. The proceeds benefit organizations that "Radio" Wayne supported: the Roaring Fork Conservancy and the Broadcasters' Foundation Endowment Fund.



It was a happy day for all when RAB's Wendy Green, left, handed over the proceeds from the Radio Wayne Silent Auction 2000 to the Roaring Fork Conservancy's Jeanne Beaudry.

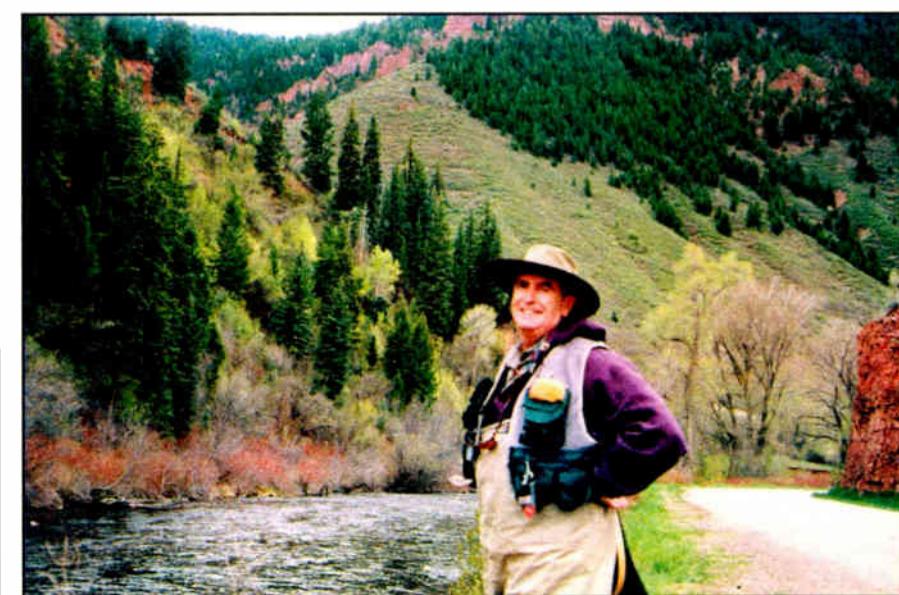
Cornils enjoyed fishing and relaxing in the Roaring Fork Valley, according to Jeanne Beaudry, executive director of the Roaring Fork Conservancy, so it was natural that his friends would support the Conservancy.

"An individual donor contacted us with a challenge: If we could raise \$20,000 this year, this person would match that amount with a \$20,000 gift to the Conservancy."

The \$17,732 from the first Radio Wayne Silent Auction, plus individual contributions that have come in, enabled the group to meet the challenge.

RAB's President and CEO Gary Fries said he was delighted to learn that the value of the auction's gift to the Conservancy virtually doubled.

"This is just one more example of how Wayne's influence continues to spread like a ripple on the water. His spirit certainly remains with us," Fries said.



Wayne Cornils is shown on the shore of the Frying Pan River in the Roaring Fork Valley, Colo.

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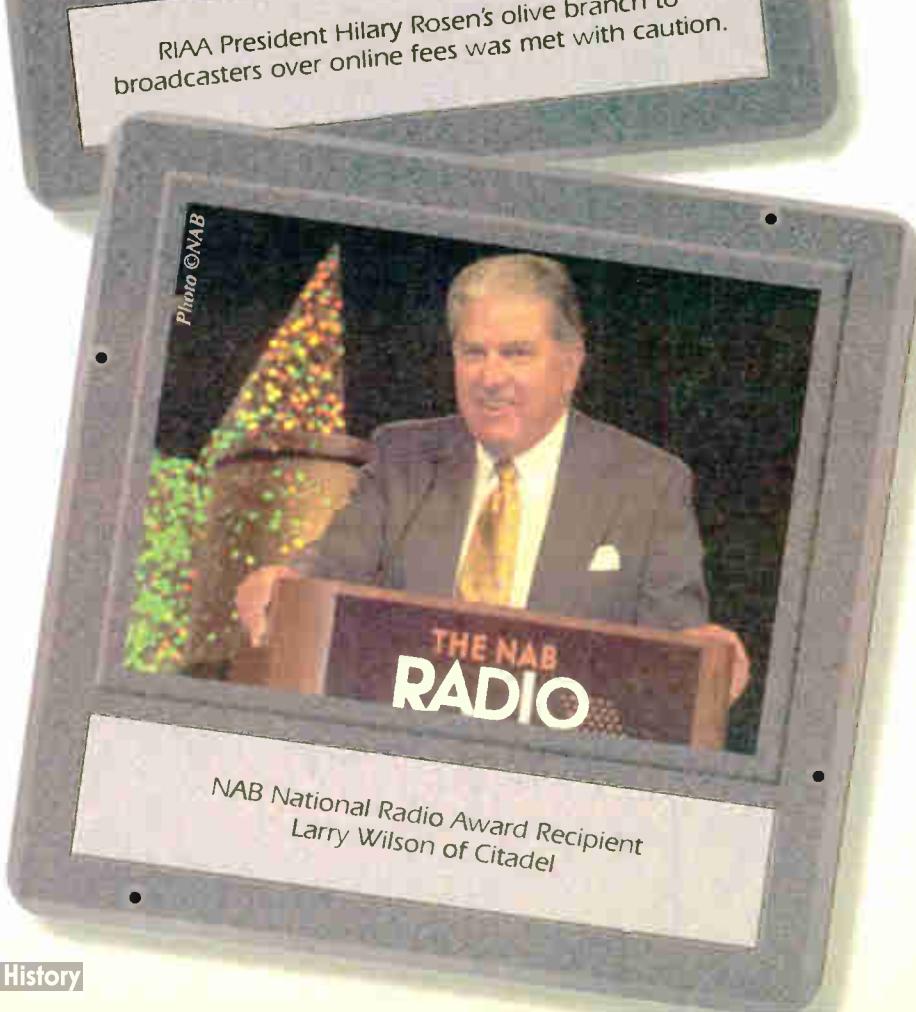
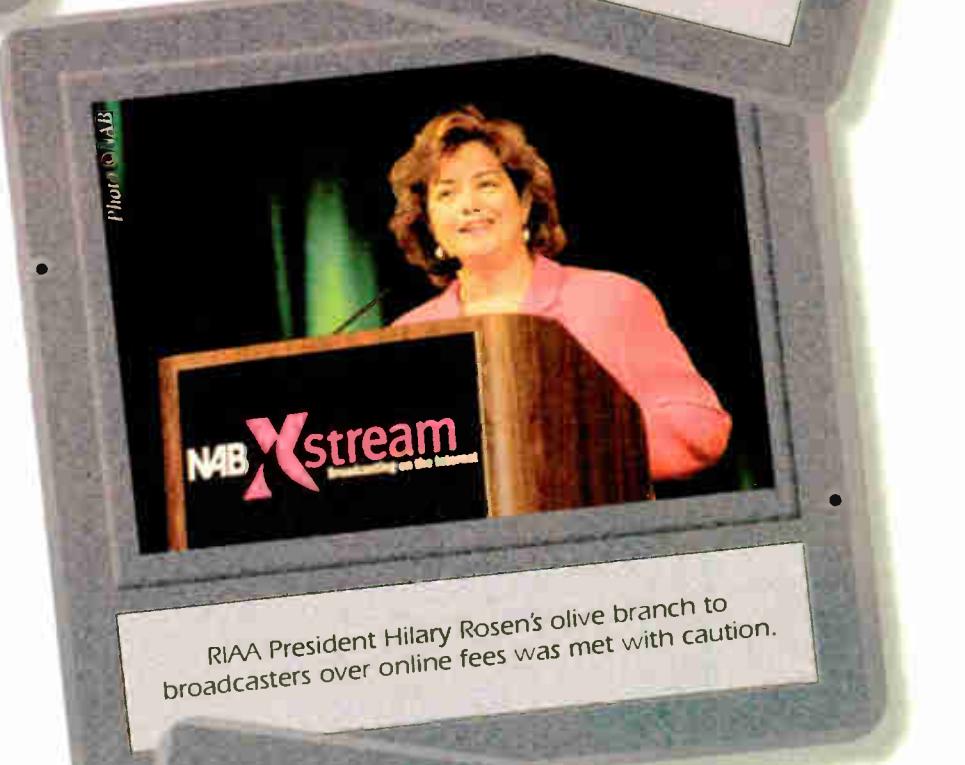
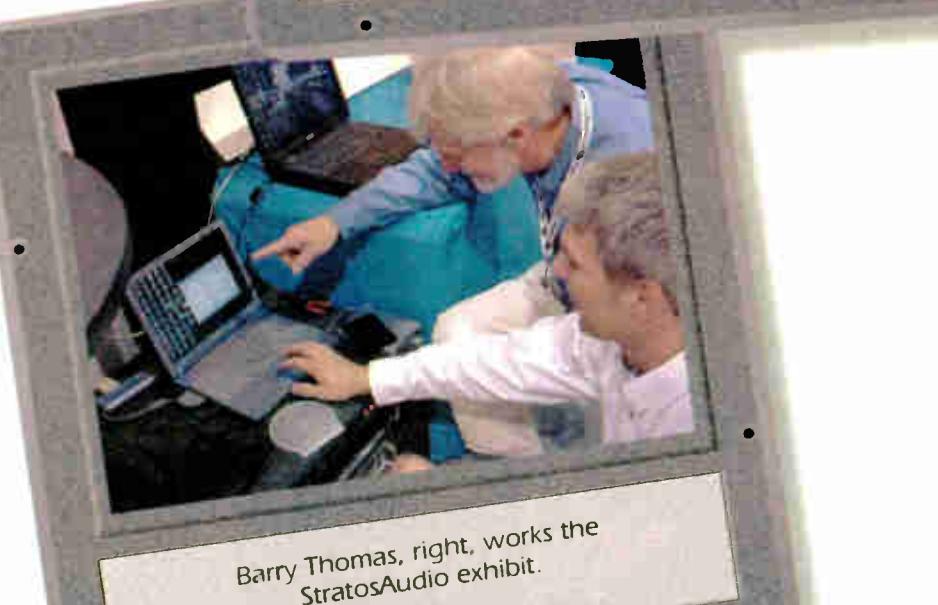
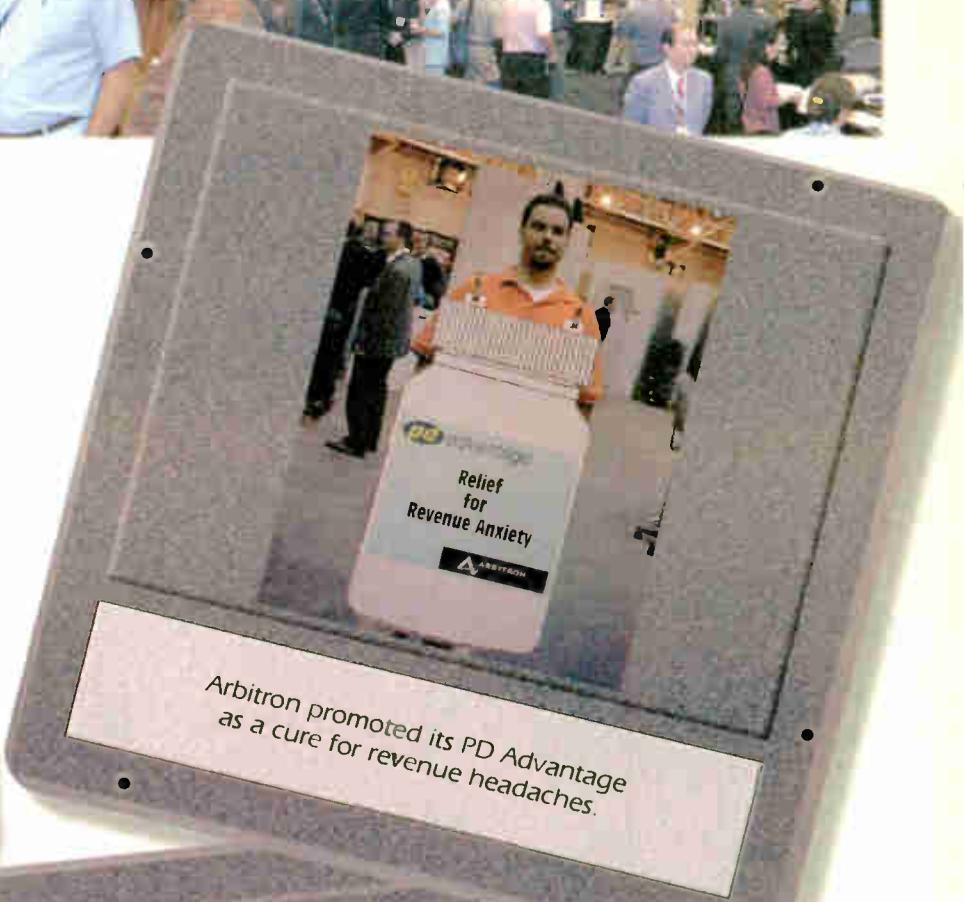
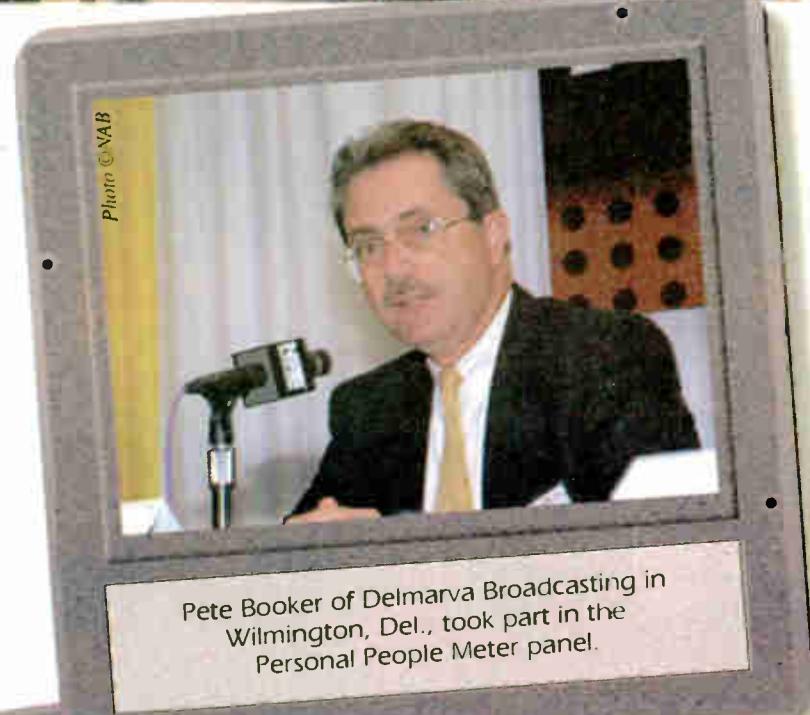
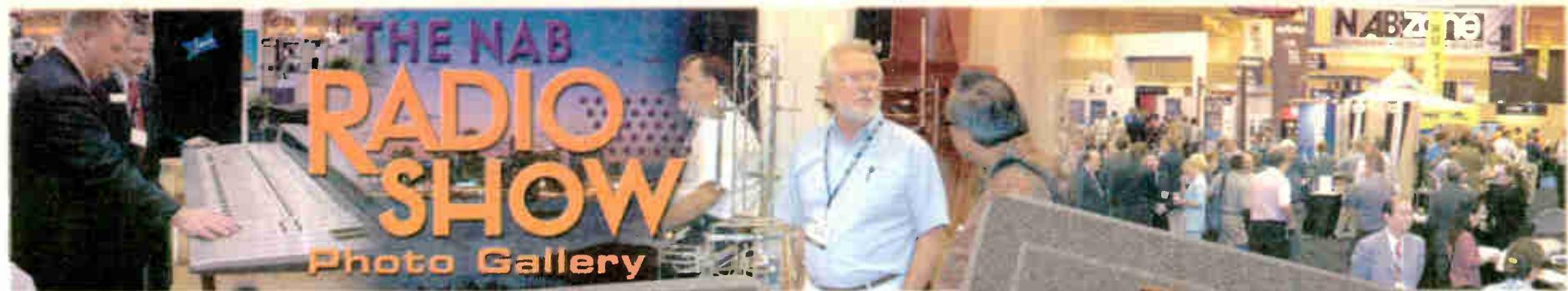
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ABC Gives Mark Halperin Double Time

"Here's the Point with Mark Halperin" is now a one-hour show.

Halperin, ABC News political director since 1997, hosts big names in politics and entertainment in the weekly radio show.

Formerly a 30-minute show, the new expanded time slot will allow more in-

depth interviews and feature stories, according to Chris Berry, vice president of radio for ABC News.

Early guests to join Halperin on the longer format show included Jason Alexander and Sens. John Edwards, John Kerry and Joe Lieberman.

Halperin is a native of Bethesda, Md., and received his college degree from Harvard University in 1987.

He started at ABC News as a desk assistant shortly after graduation and has moved up through the news division's ranks.

— Laura Dely

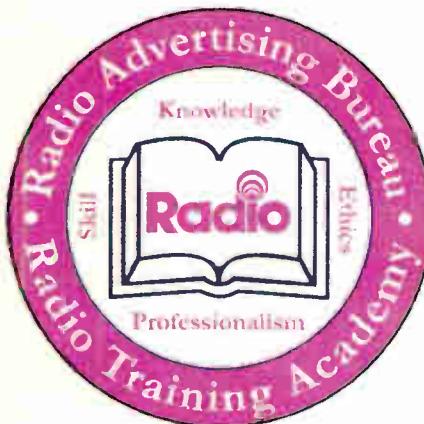


Halperin joins Naomi Judd at the ABC Radio Studios in New York. Judd was recently a guest on 'Here's the Point with Mark Halperin.'

RAB's Academy Hits the Road

The Radio Advertising Bureau will make its Radio Marketing Professional Interactive Sales Course available in markets outside its home base in Dallas.

According to the RAB, the three-day extension course is an intense, interactive program to help radio companies train their salespeople.



"The current economic climate demands that our industry maintain a highly professional, exceptionally knowledgeable sales force to remain competitive and increase revenue," stated RAB president and CEO, Gary Fries.

Following a stop in Brazil last year, the RAB found that it could teach the Academy's courses away from its Dallas headquarters. Kippie Romero is RAB's vice president of educational services and director of the Training Academy.

"As more radio companies asked if we could come to them, it seemed like a natural progression for the Academy," Romero said.

The Academy's tour stopped in Columbus, Ohio, at the end of August, where the course was offered in association with the Ohio Broadcasters Association. The next stop will be Hershey, Pa., where the three-day extension school will be presented in cooperation with the Pennsylvania Broadcasters Association.

A minimum of 15 registered students is required for the Academy to travel to a specific market. Stations or groups interested in learning more about the Academy, either in Dallas or in their market, should call Kippie Romero in Dallas at (800) 232-3131.

— Laura Dely

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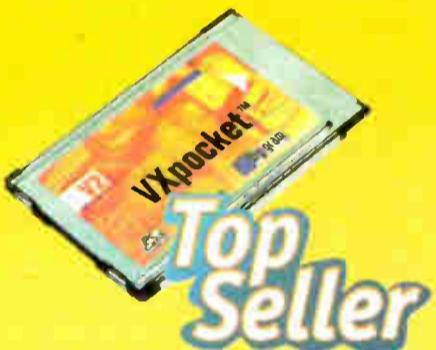
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AUDIOARTS® ENGINEERING

Emmis Joins Net and Radio Sales

Steve Sullivan

Many radio groups are developing the confidence and resources that allow them to say, "Hey, we can do our Web sites ourselves — we don't need third-party vendors."

Among the most active of the groups that have recently announced that they have launched or soon will roll out their own aggressive home-grown Internet strategies is Emmis Communications.

Emmis Chairman Jeff Smulyan was the visionary behind last year's formation of the Local Internet Media Venture, a consortium of four of the

top 25 radio groups in the United States, along with Canada's largest radio station owner.

On the heels of the LMIV announcement, Emmis made another significant move in late 2000 when it named Deborah Esayian to be vice president for integrated sales, a new position at Emmis.

Sales development

In introducing her, Emmis Radio President Doyle Rose said, "This new position was created to further expand Emmis' leadership in sales development and to help prepare our stations for a new world of integrated selling

as we converge our stations with our Web sites through the Local Media Internet Venture."

Esayian shares space in Chicago's Merchandise Mart with other Emmis properties, including WKQX(FM). She has three key people on her integrated sales team, one based in New York, one in Chicago and one in Los Angeles.

"They all have dual radio/Web backgrounds," Esayian said. "One has been with Emmis before; but they've also spent time outside the company with other radio and dot-com ventures.

"They are assigned to work with station staff to bring in local sales via the



Deborah Esayian

Internet. However, what I think we're going to find is that most of the opportunities may branch out farther than just the local market. Hence they have the capability to do whatever they need to do to bring in the business."

Esayian said that on average, Emmis' three AM and 20 FM stations carry about 12 to 14 salespeople each. That means that either directly or indirectly, she will orchestrate the efforts of more than 200 salespeople nationwide.

Steep learning curve

Dave Casper, senior vice president for Internet services for the Radio Advertising Bureau, thinks that for Esayian to succeed, she will have to make sure both the terrestrial sales teams and her Internet salespeople understand each other's medium.

The learning curve on the Net is straight up and down and it goes on for a mile.

— Dave Casper

"I'm fond of saying, 'The learning curve on the Internet is straight up and down and it goes on for a mile.' It really does represent a big challenge," Casper said.

Not only is there new terminology with which to become familiar, according to Casper, there are new marketing concepts that apply only to the Internet.

"It takes a lot of effort and energy and patience to get your hands around it because there's a lot of stuff to know. And not only do the salespeople have to understand it, but they have to understand it in such a way that they can explain it to a client," said Casper.

Other analysts agree that salespeople must have a strong understanding of the similarities and differences between radio and the Web.

"There are different currency models for each medium," said Kevin Noonan, vice president of Internet and media strategies for The Yankee

See EMMIS NET, page 39 ▶

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Emmis Net

► Continued from page 38

Group, a Boston-based consultancy.

"You've got a cost-per-thousand for online, while in radio you talk gross ratings points, cume, reach, frequency and so on," said Noonan. "So you've got to educate the sales team and advertisers about all that as well. You're going to have to look at your log files closely and track those people to really tie in these two opportunities."

Esayian is aware that everyone has a lot to learn.

"This is still a new concept. It's going to take a concerted effort on the part of our radio sales teams to understand what works on the Internet and the best way to package opportunities for our advertisers."

New opportunities

Esayian sees the potential to create new revenue streams far outweigh any challenges.

"We'll look at up-selling our current advertisers, as well as bringing in some new ones. Because LMIV creates a nationwide network, this allows us to attract national advertisers, something the local stations haven't been able to do on their own."

Esayian said her group is focusing



Brad Fuhr, Interactive Account Manager, Emmis, Chicago, and Deborah Esayian

ket size, format and other variable expectations.

Currently, none of the 23 Emmis stations are streaming.

"We want to stream, but right now there are a few obstacles, access and some regulatory issues with AFTRA and the RIAA, that prevent us from doing so. It's not part of our business model right now, but it will be," Esayian said.

interested in building a success with our content and our advertising inventory."

While the Web can be a moneymaker, at this early stage, it is unlikely to match what its broadcast counterpart brings in, according to many industry analysts.

"I don't think if a particular radio station bills \$10 million with their terrestrial signal they expect to get \$10 million online," said First Union Securities' analyst Jim Boyle.

"This is a line extension that happens to have different distribution, not a second radio station. But in terms of margins, I would imagine they would expect comparable margins to what they would see in their core business."

Esayian brings to the job a successful background in radio and Web ventures. Most recently she served as director for Emmis' jobcityusa.com minority recruitment Web site.

She will continue to oversee jobcity.com in addition to her new duties, but has moved her point of operations from New York to Chicago so that she is centrally located to all of Emmis' properties.

Prior to joining Emmis early in 2000, Esayian spent two years as general sales manager for then-Capstar station WJBR(FM) in her hometown of Wilmington, Del. (NextMedia is the current owner.)

In that role, she not only increased sales but also helped develop one of the first radio sites to explore life on

the Web fully.

"We were one of the beta sites for the Internet experience," Esayian said. "We did streaming and audiovisual interactivity."

"We had a vision for radio and the Internet long before most of the industry caught on to the opportunity. We boldly went forward with beta testing because we were in an Internet-savvy part of the world and we felt that we had to try it and had to understand it."

Building a sales organization from the ground up is nothing new for Esayian. When she joined WJBR, the station was undergoing a change in ownership that resulted in a complete restaffing of the sales department. Michael Waite was general manager and program director for the station at the time.

"Deborah Esayian is the hardest-working woman in show business. She did a great job here not only as the sales manager but in rebuilding the whole sales group pretty much on her own," said Waite.

The natural

Waite, now vice president of operations for WJBR, said Esayian's talent with Internet properties began to emerge while she was at the station.

"We had a site, but it didn't have many bells or whistles and it wasn't very interactive. Through a couple of key partnerships, including one with RadioWave.com, we were able to build a very respectable site for a station in the No. 76 market."

Esayian is pragmatic about what she expects to see as a return on her group's early efforts. She said it is important not to over-promise in the first year of a project, such as the launch of her integrated sales team.

"We're expecting to be returning some money in about a year to 18 months. We anticipate it will represent between 1 and 10 percent of a station's overall revenue, dependent on format."

"You have to accept that this is a build and that there are people dedicated on the interactive things and that there are account executives learning to add this to their skill sets. That doesn't happen in just a couple of months. It's a year-long to two-year-long process to get it up to where it really needs to be."

Steve Sullivan, co-founder of the Advanced Interactive Media Group, LLC, lives near Austin, Texas.

We'll look at up-selling our current advertisers, as well as bringing in some new ones.

— Deborah Esayian

on three primary areas of revenue opportunities.

She said Emmis will offer sponsorships of Web events and presentations of interactive features.

"And we'll have the chance to package our direct mail or e-mail lists for advertisers," said Esayian. "The pricing of any of these packages will vary based on what an advertiser wants."

Esayian said she has set monthly sales targets, but that they differ from market to market, based on the mar-

The LMIV provides infrastructure support to more than 160 radio station Web sites in mid-sized North American markets. When the project was announced at The NAB Radio Show last year, Smulyan said the venture would return stations' Web sites to local control for stations that joined.

"This represents the first Internet solution designed for local media that serves the interest of the local broadcaster rather than that of a third party

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RTNDA Presents Unity Awards

Ken R.

American influence in Mexico's "Day of the Dead" celebration. The challenge that public schools face with an influx of students from around the world.

These and other radio stories that won Unity Awards from the Radio-Television News Directors Association. The Unity Awards' ceremony was held at the RTNDA International Conference Sept. 15 in Nashville, Tenn.

The Unity Award winners are news organizations that demonstrate a commitment to cover the cultural diversity of the communities they serve. This is the second annual award to be granted to radio and TV organizations.

Chris Berry, vice president of ABC Radio News and the RTNDA diversity task force chairman, helped develop the criteria for the awards. He believes newsrooms have to recognize cultural diversity in their communities.

"The people who listen to and watch our stations come from very different backgrounds," said Berry, who was host at the presentation ceremony. "If we are to program to them effectively, both those who determine what is covered and those in the field must represent this diversity."

If we are to program to listeners effectively, both those who determine what is covered and those in the field must represent this diversity.

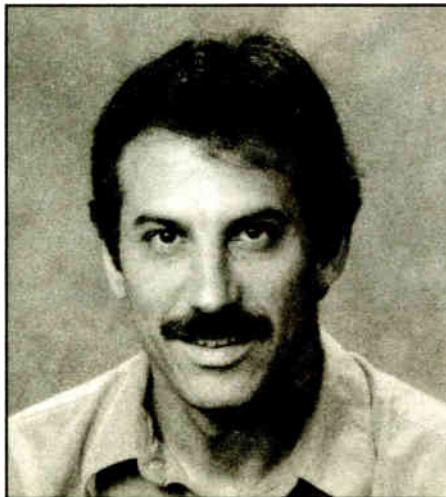
— Chris Berry

Berry believes in mentoring and said anyone in newsroom management has a responsibility to develop minority talent.

KPCC(FM), a public station in Pasadena, Calif. was recognized for sev-

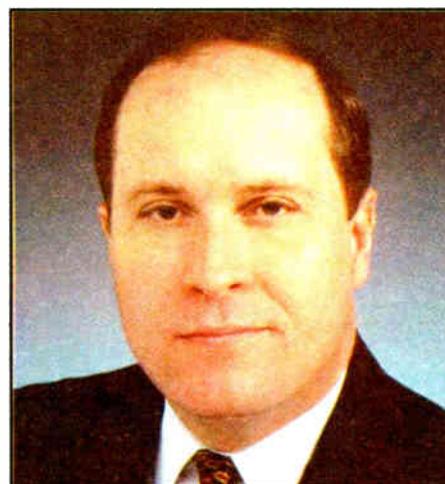
en stories dealing with the diversity of the greater Los Angeles-Orange County region served by the station.

Paul Glickman, KPCC's news director and senior editor, accepted the award on behalf of his staff of 13. Glickman said he likes to take his audience into worlds they would not normally inhabit.



Paul Glickman

"That's the only way they're going to begin to understand the social, political and cultural priorities of their fellow Southern Californians," Glickman said.



Chris Berry

project, accepted the award on behalf of his staff for a series of three reports on Bailey's Elementary. The school in Falls Church, Va., where 92 percent of students are not native English speakers, became a big project at NPR.

"We heard from the school's parents, teachers and kids to get a lot of different voices," Katz said.

Neva Grant, a producer for NPR's "Morning Edition" daily news magazine, "was the one who got everyone excited about this school," Katz said.

Grant, who knew one of the teachers at Bailey's Elementary, said the school has experienced rapid change.

"There are kids from 40 countries in that school, in a town that had once been homogeneous," Grant said. "The school had all kinds of challenges like how to teach refugees who barely speak English."

Grant said a sign posted in the school also hangs in many other Northern Virginia schools.

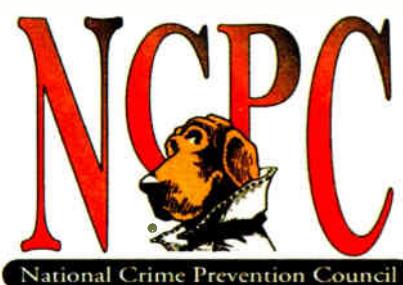
"It said 'welcome' in seven different languages."

A list of the Unity Award winners is available at the RTNDA Web site, www.rtnda.org/news/2001/unity.shtml.

Crime PSAs Released at Radio Show

A new series of radio public service announcements was launched at The NAB Radio Show. The National Crime Prevention Council (NCPC) and The Advertising Council announced the venture as a part of the National Citizens' Crime Prevention Campaign.

The 30-second spots are part of the campaign's "Investing in Youth for a Safer Future" initiative. The effort urges adults to get involved in kids' lives to help prevent crime.



National Crime Prevention Council

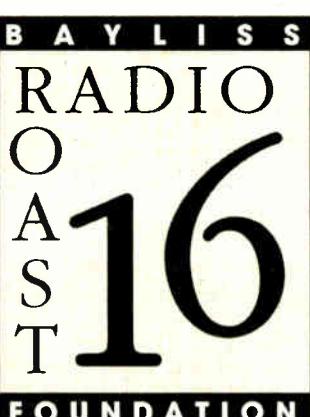
"By being involved in even the smallest aspects of a young person's life, we as adults can set good examples and be positive influences," stated Peggy Conlon, Ad Council president and CEO. "The NAB's strong support of these PSAs helps to deliver that message and show adults the important part they can play in keeping young people away from crime."

The PSA spot entitled "Stairs" begins with audio of four quick thumping sounds, ending with a loud "thud," then sounds of running footsteps and children's laughter. The voiceover talent then says, "Going down the stairs on your butt. Just one way to really impress kids. Even better, just one of the many ways to spend time with them."

A second PSA called "Fries" begins with the sounds of people eating, followed by an unintelligible sentence uttered by a teenager with a mouthful of food. An adult answers in agreement, also with a mouthful of food. "Scarfin French fries," the voiceover talent says. "Just one way to really impress kids. Even better, just one of the many ways to spend time with them."

The PSAs were created *pro bono* by volunteer ad agency Deutsch Inc. as part of the larger umbrella of the National Citizens' Crime Prevention Campaign. The effort is managed by NCPC jointly with the U.S. Department of Justice, the Crime Prevention Coalition of America and The Ad Council.

For more information on the Ad Council's efforts, visit the Web site at www.adcouncil.org.



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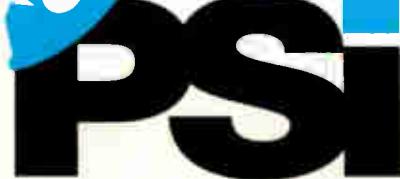
What do Clear Channel, CBS/Infinity, Sirius Satellite Radio, and the largest private group of stations in Mexico have in common?

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World Radio History

Holiday

► Continued from page 31
site and send each other messages to wish them a happy holiday.

Broadcast Team can deliver 3.2 million calls per day and has worked with databases as large as 90,000 names.



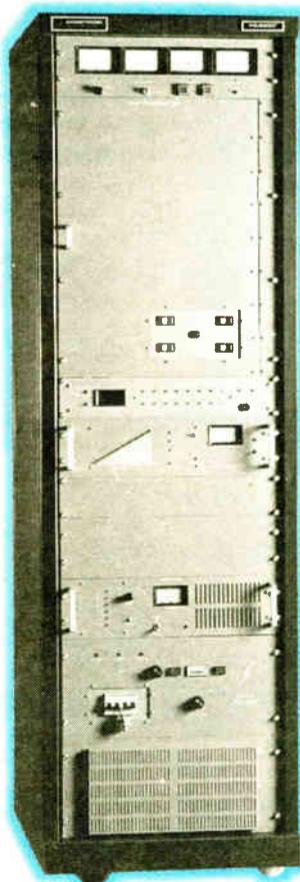
Mobile Media Enterprises' inflatable Santa visits two sponsors' sites per day.

Mobile Media Enterprises is an Atlanta-based company that develops branded promotions for holidays and other occasions. Bob Lewis, its president, suggested a vendor-based program that is run with grocery stores or

state Powerball, Publisher's Clearing House, McDonald's \$10 million prize games and more, how can a radio station get listeners excited about prizes anymore?

One radio promotion trend is the

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GM JOURNAL

drug stores.

"Our concept has a live Santa being placed in two stores per day on a Wednesday to Sunday basis," said Lewis. "We can utilize a specialized trailer or van with an inflatable Santa as the key identifying event landmark. The concept could be cross-sold to vendors of the client store."

Competing for attention with multi-

insured contest. In this scenario, a station pays only a small portion of the grand prize, usually five to 10 percent.

If a listener hits the jackpot, the insurance/prize fulfillment company writes the big check. The station itself guarantees to award a host of smaller prizes.

One such supplier is American Media & Special Promotions, based in Buford, Ga.



through on-air and online promotions.

Any contestant who scratches off six Santas without scratching any of the wrong boxes wins the grand prize, which may be a \$1 million credit card



The Stocking Stuffer Card Game From American Media & Special Promotions

"We're actually an insurance company on the back end," said Scott Meach, director of marketing. "On the front end we're a promotions company that specializes in creative ideas for radio stations."

Some of the Halloween chance-based contests that the company created include "Crack the Crypt," in which listeners try to win \$10,000 or a new car by guessing the combination to a digital lock on a Plexiglas safe.

or shopping spree. Again, the sponsoring stations pay only a fraction of the grand prize cost.

Big time

For New Year's, American Media has two quick and easy ideas. The first is called "Licensed to Sin." If the last six digits of any contestant's driver's license match the predetermined winning number on display at your event, your contestant wins an all-expense

There is still enough time to create some great quickie promotions as the fourth quarter looms.

Another contest ominously is named "The Grave Robber Money Bag Grab."

"In that one, we fill a hearse or casket with a display of 100 money bags," said Meach. "Ninety-nine bags are filled with consolation prizes such as small amounts of cash or gift certificates. One bag has a certificate for the big prize."

For Christmas, American Media's Stocking Stuffer Scratch Cards are distributed at sponsor locations, which listeners are encouraged to visit

paid trip to Las Vegas.

Or you could try a "Champaign Bottle Pick." Let a selected finalist pop the cork of just one of a number of identical champagne bottles on display at your participating advertiser's store. Only one bottle contains the grand prize.

Tell us your creative promotion ideas at radioworld@imaspub.com.

Ken R. celebrates the holidays by curling up in front of a fire with his trusty dog, Kayla and watching reruns of "The Three Stooges."

Some New Chestnuts To Roast

Some holiday music never loses its magic.

People will always love Nat King Cole's version of "The Christmas Song," but other tunes, such as the dogs barking "Jingle Bells" and the ever-popular "Grandma Got Run Over by a Reindeer" may have outstayed their welcome.

Perhaps your station would like to air some of the lesser-heard holiday classics. Each is guaranteed to make your listeners wonder what the heck they have stumbled into.

The following list is courtesy of Night Owl Radio. Found on the Web at www.thenightowl.com, this site has musical downloads, critical reviews and contests for fans of various genres of sounds.

Esquivel — "Jingle Bells," from the CD "Merry Xmas"

Pat Benatar — "Please Come Home For Christmas," from the CD "True Blue"

Stuart Hamm — "Sleigh Ride," from the CD "Merry Axemas Vol. 2 — More Guitars for Christmas"

Louis Armstrong — "'Zat You Santa Claus?" from the CD "What a Wonderful Christmas"

Vince Guaraldi Trio — "Skating," from the CD "A Charlie Brown Christmas"

The Randy Bachman Band — "Takin' Care of Christmas," from the CD "The Randy Bachman Songbook"

Elvis Presley — "Santa Claus Is Back In Town," a live cut from the CD "Tiger Man"

David Bowie & Bing Crosby — "Peace on Earth," from the CD "The Little Drummer Boy"

Clockhammer — "Here Comes Santa Claus," from the CD "A Lump of Coal"

Greg Lake — "I Believe in Father Christmas," from the EP of the same name

Big Rhythm — "It's The Most Wonderful Time of the Year," from the CD "A Swingin' Christmas"

Eddie C. Campbell — "Santa's Messin' With The Kid," from the CD "Blue Yule"

Southern Culture On The Skids — "Merry Christmas Baby," from the CD "Just Say Noel"

Spinal Tap — "We Three Kings," from the CD "The Holiday Collection Vol. 3"

Rubber Band — "Rockin' Around the Christmas Tree," from the CD "Xmas! The Beatmas"

David Benoit — "Linus and Lucy," from the CD "Happy Anniversary, Charlie Brown"

John Lennon — "Happy X-mas —

GM JOURNAL

"War Is Over," from the CD "Superstar Christmas"

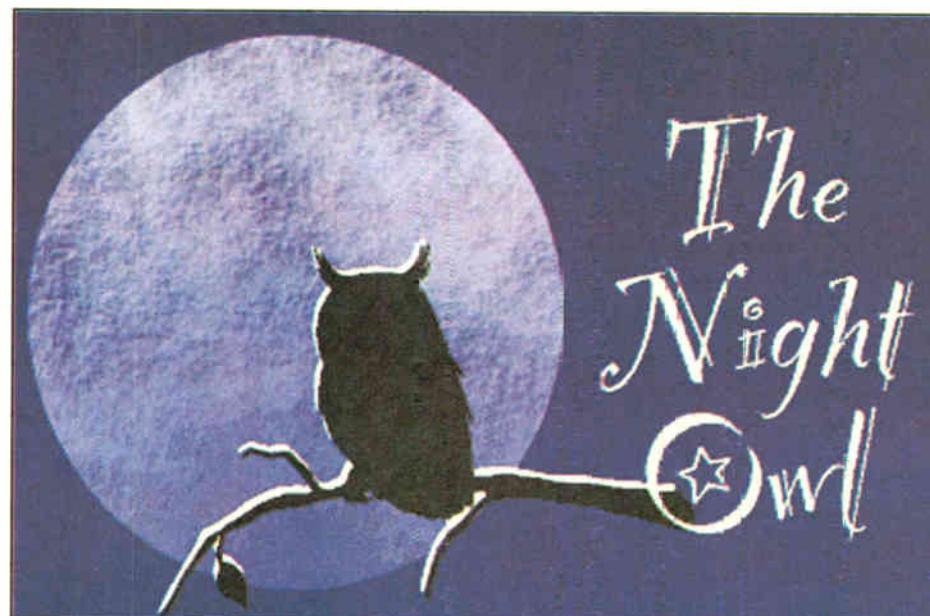
Michelle Malone — "Santa Baby," from the CD "A Swingin' Christmas in the Attic"

Root Boy Slim & The Sex Change Band — from the CD "Christmas at K-Mart"

Trans-Siberian Orchestra — "Christmas Eve," from the CD "Sarajevo 12-24"

The Waitresses — "Christmas Wrapping," from the CD "Dr. Demento: Holidays in Dementia"

Gary Hoey — "Auld Lang Syne," from the CD "Ho! Ho! Hoey"



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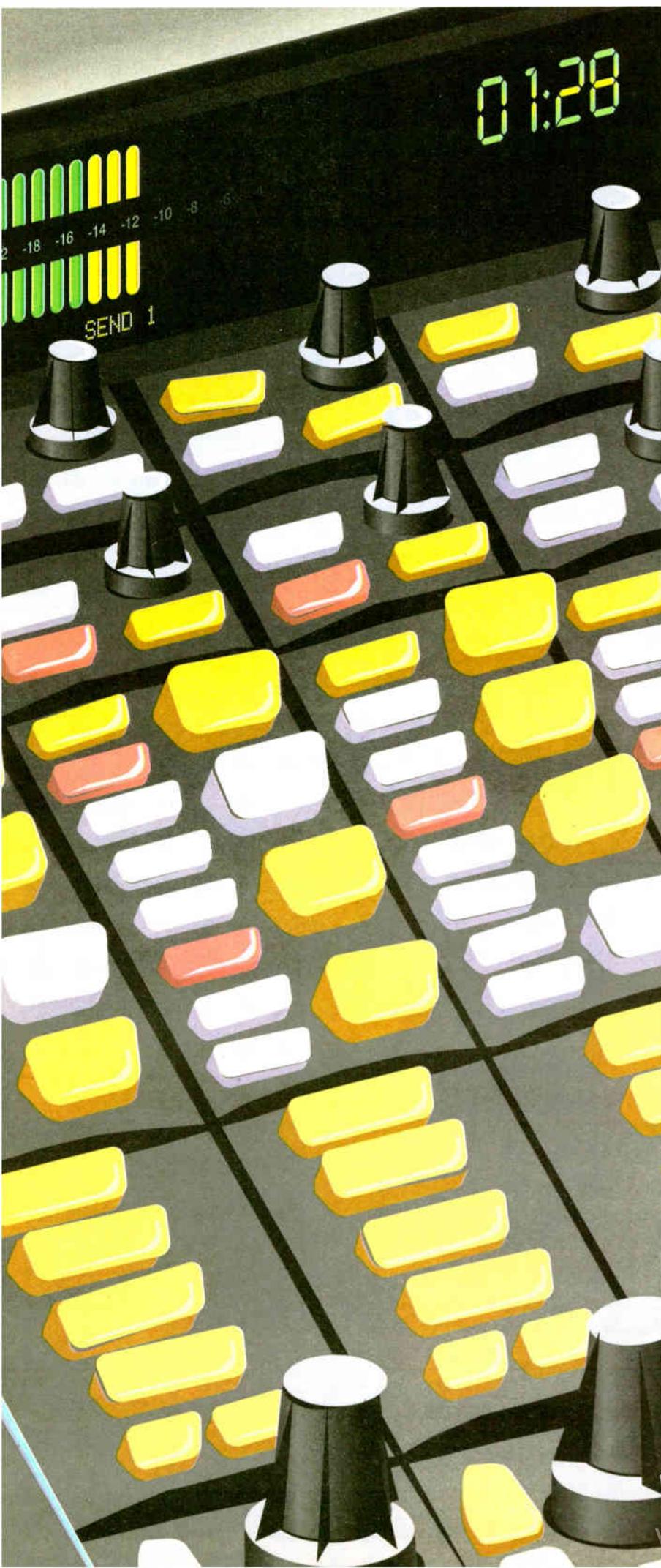
Dual, uncompressed AES streams — one STL — and the reliability and quality of Moseley.

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Pacific BMX*digital* has everything you need to win the digital revolution. Whether it's the number of output buses, mix-minuses, off-line mixes, stereo sends, direct IFB's, monitor inputs and outputs, inter-communication paths or logic interface, BMX*digital* offers more.



Incredible Flexibility including all input modules accommodate analog and digital signals without reconfiguring, swapping, or even removal from the mainframe.

Amazing Adaptability with easy storage, recall and reconfiguration of set-ups for various day parts, and built in connectivity to routing switchers, digital storage systems and other networked sources.

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September 26, 2001

PRODUCT EVALUATION

Blue, Blue, My Console's Blue

Alan R. Peterson

While many broadcast gear manufacturers are cranking out the latest, greatest and largest digital doodads, LPB Communications has held sway to its original mission: provide affordable and well-built transmitters and consoles for licensed and license-free low-power broadcast applications.

The LPB acquisitions of Fidelipac and Omnitronix gave the company a high profile in new areas. But LPB still banks much of its reputation on college broadcasters, post-sunset authorizations, leaky coaxes and newly established Webcast and LPFM markets.

Last year I reviewed the LPB AM-2000 Part 15 AM transmitter, and checked out the \$99 WebJockey

automation software package, soon to be renamed JockeyPro.

The latest must-see gadget is a Radio World "Cool Stuff" winner from NAB2000: the Blue 5C broadcast mixer, offering the microbroadcast, Internet and educational communities their very own dedicated broadcast console, with the functionality and features of larger boards in a unit not much larger than a loose-leaf binder.

And yes, it certainly is blue.

What were they thinking?

One might wonder why offering such a mixer was necessary in the first place. Couldn't microbroadcasters simply and inexpensively rehab old consoles?

Secret stashes of retired and obsolete Ramko, Gates and McMartin con-

soles are everywhere. Well-worn Yard mixers can be obtained practically free. I myself own a Sparta rotary five-



pot mixer, purchased for less than \$50 and now the core of my Part 15 neighborhood radio operation.

Those bad boys were overbuilt, too, with solid-steel chassis, harnessed wiring, discrete components and huge, sturdy telephone program/audition

See LPB BLUE, page 49 ▶

DIGITAL DOMAIN

Networked Topologies For Radio Stations

Mel Lambert

For several years within my Radio World columns and feature articles, I have been considering the operational advantages of integrated and networked audio systems for radio.

The formula is pretty simple: an array of mixing, processing, editing and transmission modules interconnected via a high-speed data highway that allows exchange of information between editorial and music-preparation stations and the main replay area, as well as interrogation of data files from any authorized location.

The impractical dream

Until recently, that all-encompassing topology was an impractical dream.

Sure, there were devices that would allow the sharing of data via a high-speed twisted-pair of fiber-optic Ethernet connections, or others that could pipeline files from one location another using networked SCSI- or FireWire-based interconnects, but they suffered from several drawbacks.

One is the inability to deliver any byte of digitized data to any other location in real time (or better transfer rates), and the other was the oft-dismissed aspect of expandability.

All too often, a system would work with a small number of access

workstations, but become impractical when there was a need to accommodate the needs of a busy news operation linked to several automaton systems, for example.

A major consideration, of course, is that the elements of such a sophisticated system often are manufactured by a number of vendors; ensuring that these myriad components continue to interface reliably and efficiently can be a logistical nightmare.

Solution is at hand

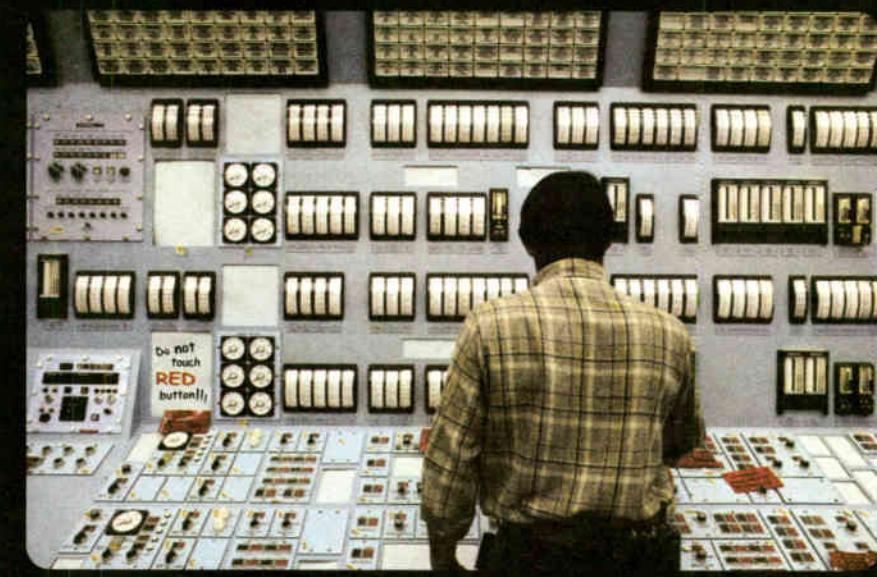
I have, however, come across a system from a manufacturer whose identity I would prefer to keep anonymous — simply because it will look like an endorsement if I named them. This innovative design concept and practical implementation makes me wonder where everybody else has been hiding.

The system I have been examining accommodates any number of digital mixers of user-definable complexity — and control-surface design — interconnected to storage media via a high-speed TDM bus using fiber-optic interface modules. (TDM is a technique for splitting a data-transfer channel into discrete time "slots" within each sampling period and which carry a single DSP channel.)

Using time division multiplexing to route multiple channels of digitized audio via fiber-optic, the

See DIGITAL DOMAIN, page 54 ▶

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THE NAB RADIO SHOW

Photo Gallery



Microphones were at the forefront for PMI Audio Group.



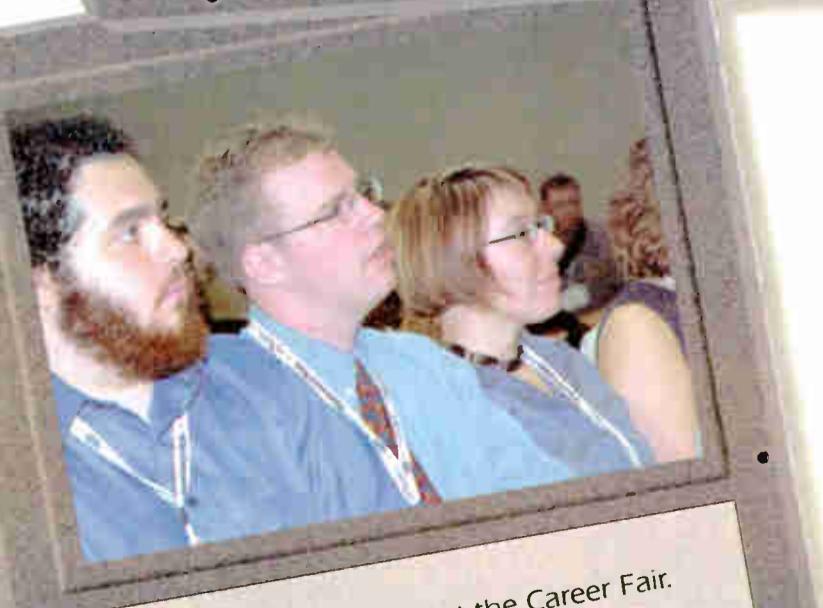
For ENCO, Patrick Campion demonstrates DADpro32 Version 3.4a.



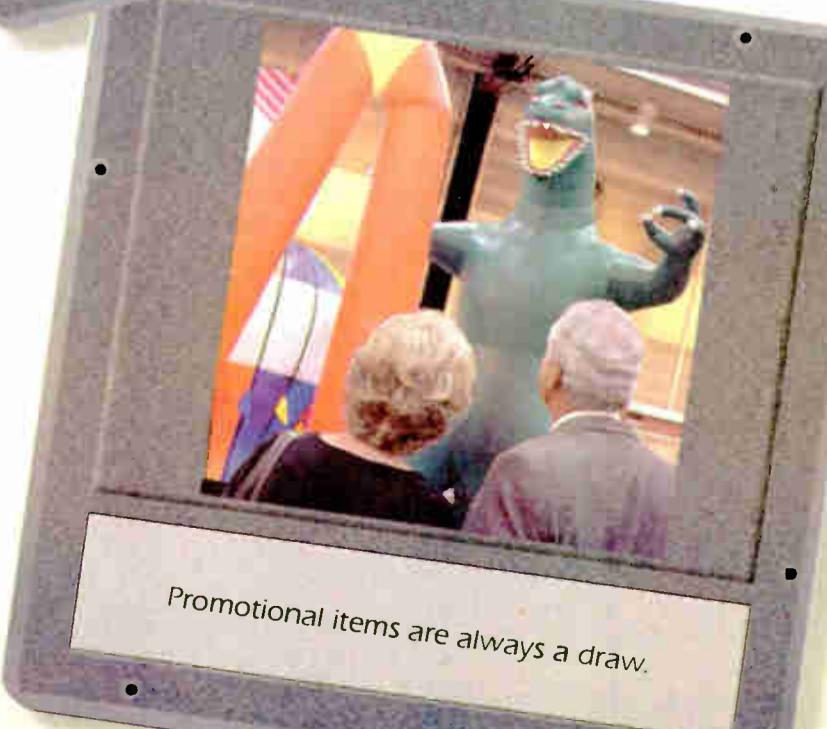
Elaine Jones pitches the Logitek digital console line.



Citadel's Rebecca Breeding, Mary Bennett of RAB and Dwight Ellis of NAB urge students to consider a radio career, particularly in sales.



Students listen closely at the Career Fair.



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World Radio History

Tips for the New Voiceover Demo

Travis

An exciting thing happened to me a couple of weeks ago. Someone finally hired me off my "new" voiceover demo.

I say "finally" because it has been more than six months since I started distributing it.

I have no idea why this is the case, but it always seems to take six months to a year before people start hiring me from a new demo tape or CD.

"My demo always needs to age, like fine wine," I explain to those who ask.

Even clients who know me well and who recommend my talents to their

customers, always manage to play my older demo to their clients. They always seem to forget that they have my brand new "oh-so-much-better" CD on hand.

I've even gone so far as to demand my old demo in exchange for the new one, but they never seem to be able to find the old one — until they are ready to play it for their client. Then they can't seem to find the new one.

Demo delay

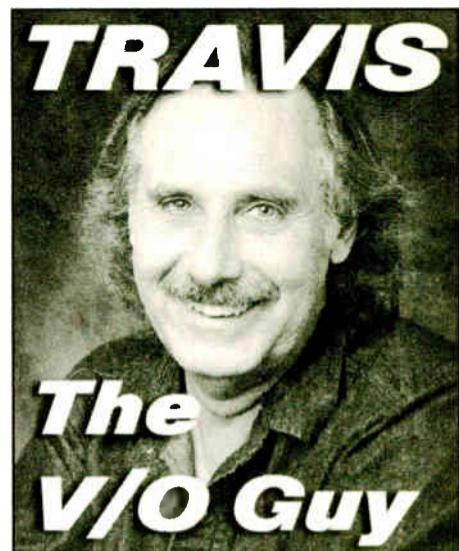
Over the years, I've gotten used to this, and I understand that a new demo really won't do me any good for at least a half a year. I have no idea why

this is the case. It might simply be that it actually takes quite some time before a sufficient quantity of new demos make their way into my market.

In my initial rush to get the new demo out, it certainly seems to me like I am sending out quite a few all at once.

Sending 50 in a two-week period requires a lot of work. Sending or giving away 20 or so every month seems like no work at all but, of course the numbers, over time, actually are much greater.

To those new to the voiceover business, the experience of creating and sending out voiceover demos is not



rewarding. When you first get into this business, you really want to believe that every tape or CD you distribute will result in tens or hundreds of voiceover jobs.

The real world is seldom so kind.

In Southern California, where I compete with several thousand other voice professionals, I need to distribute dozens of CDs for each job I get.

It ain't cheap

I figure that it costs me about \$5 to distribute each CD, considering the cost of the CD, postage and packaging, not including my time.

You can see how this becomes a major business cost for the voiceover professional.

Last year, in an experimental attempt to use the Internet to save money on voiceover distribution, I sent postcards to potential clients, inviting them to listen to my demo on the Internet. Out of about 300 cards I sent out, not one job, or even one inquiry, resulted.

While the Net is a valuable tool for the voiceover professional, it is not a replacement for a cassette or CD demo.

My conclusion: While the Internet is a valuable tool for the voiceover professional (you really should have your v/o demos on your Web site), it is not currently a replacement for a cassette or CD demo.

I quickly realized why this is so. People lose or throw away a postcard or printed advertisement they receive, but folks won't throw away CDs; they seem too valuable.

People who are considering getting into voiceover work also are dismayed at the cost of producing a voiceover demo. While those who have worked for a while, who already have copies

See TRAVIS, page 53 ▶

25th Anniversary Silver Sweepstakes

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IMAS Publishing is celebrating 25 years of serving you and the radio broadcast industry. To mark this significant milestone, 25 of radio's leading equipment suppliers have teamed up with **Radio World** to express their appreciation.

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It's your chance to celebrate our Silver Anniversary with these fine **Radio World** supporters ...



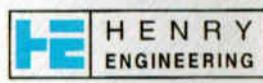
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Contest Rules: To enter the drawing, simply register online at www.rwonline.com/sweeps. 25 drawings will be held throughout the year. Contest ends December 19, 2001. One prize per winner. All contestants MUST reside in the United States and have a valid mailing address. Winners should receive prizes within 30 days of notification, however, actual delivery time may vary and is not guaranteed by IMAS Publishing. Federal, state and local tax laws may apply to prizes and are the sole responsibility of the winner.

LPB Blue

► Continued from page 45
switches. Such works of art are worthy of return to active service, right?

Following that logic, the same can be said about old cannons dotting town squares and memorial parks across America. Sure, they were built well, but would you really want to shoot one off today?

Many retired consoles are seriously worn and parts are a pain — have you priced those wacky bat-handle rocker switches the Urei Mod One console used?

Dependable sources for replacement circuit cards and step attenuators are scarce. Who carries Raytheon CK722 germanium transistors anymore? What undocumented modifications were made by past parties unknown?

Is there room in the studio to place such a large mixer? Did I mention many of those old jobbies are monophonic?

The Blue 5C fulfills many needs of the modern small-studio broadcast environment: the features of larger mixers, fast and nearly brainless installation (thanks to an assortment of innovative prefab connector/adapters), stereo operation right out of the box, tally logic and mix-minus.

And it does it now, not in three months when you have finished gutting and repainting that Cetec 10-pot special you dug up from the bomb shelter.

Up close

The LPB Blue 5C audio console features five stereo channels, each with two inputs. Each fader is a 40 mm linear slide pot, and each channel has On, Off, Send and Cue switches.

Each pointed horn sports its own headphone jack, each with its own level pot and Program/Cue membrane switch selector. A nifty little "on air" indicator lights up on the console surface when a mic is keyed.

All indicator lights and LEDs run on DC. Your eyes don't experience annoying flicker or light trails in the air as they would with LEDs strobed by a system clock.

The audio specs of the Blue 5C also put those retired consoles to shame. Can a 1979 Gatesway 80 boast better than 0.03 percent THD up to 20 kHz, or line noise better than -80 dBm?

Audio inputs are on RJ45 modular connectors, making console setups as easy as plugging in a telephone or computer Net connection. Although simple, it does add one more type of audio connector to be concerned with.

Don't concern yourself too badly. Both the manual and a legend on the underside of the mixer itself show in detail how to wire up RJ45 plugs and T568B cable for your purposes.

In fact, it is through the RJ45 connectors that the Blue 5C gains its coolness factor, due to its innovative use of Beissels.

Beissels, named for their creator, are passive and powered in-line adapters that convert real-world balanced and unbalanced connections to an RJ45 plug. With the prefabricated and inexpensive Beissels, you need not cobble up a single RJ45 plug: just order and connect the proper adapters

between the audio sources or destinations and the Blue 5C.

Beissel selections include active mic preamps, active IHF-to-pro level converters with RCA plugs, active PC soundcard preamps, direct balanced XLR-to-RJ45 input cables and balanced RJ45-to-XLR output cables. Power is provided by the 5C's power supply, on Pins 7 and 8 of the RJ45 plug.

The 5C is intended for uncomplicated broadcast or Webcast mixing: A microphone, perhaps a CD or cassette deck and a computer for audio storage and playback. A more elaborate rig might consist of two mics, two CD decks and the addition of a phone for live calls.

A handful of Beissels hook the 5C up to the external audio sources. An inexpensive phone coupler, such as the

STUDIO SESSIONS

emerge at NAB2002.

Some may object that the Blue 5C doesn't look as "serious" as a broadcast mixer should. I dig the blue plastic case myself, but it may come across as a little toy-like to a few folks.

A more obvious objection from broadcasters I have spoken to may be the list price: \$1,295. It can be argued that a Mackie 1402 mixer and a Broadcast Tools Console Controller could be purchased to create a formidable live on-air mixer with durable steel construction and numerous insert/aux possibilities, and for less money.

Valid argument

Frankly, the argument is a valid one. An administrator at a broadcast school where I teach noted the 5C "would be a great \$895 mixer."

Product Capsule:

Blue 5C

Broadcast Mixer

Thumbs Up

- ✓ Extreme flexibility for a console this size
- ✓ Clean audio specs
- ✓ Separate headphone feeds
- ✓ Simplified Beissel connectors
- ✓ That cool blue case

Thumbs Down

- ↓ Cost vs. that of a Mackie-style utility mixer

For more information call

LPB Communications at (610) 644-1123 — after Oct. 10, call (610) 825-4100 — or visit the Web site at www.lpbinc.com.

and muting capabilities are needed.

High schools and other educational institutions with broadcast curriculums would do well to budget for some 5C consoles than to repair and maintain hand-me-down boards with questionable reliability.

Wide appeal

Even the "big boys" are paying attention. WINS(AM) in New York and the Bible Broadcasting Network have placed orders for the Blue 5C. Evidently, it's not just the "micros" that this board appeals to.

Frankly, if you can lay your hands on a restorable console and you have money and six months to spare, knock yourself out. But if you need a mixer now, or your Webcast or LPFM operation had to be up yesterday and you want some immaculate specs on your audio, the Blue 5C is the mixer to go with.

Lay it on the table and click on some cables. Presto, you've just wired your on-air studio.

Alan Peterson can be reached at alanpeterson@earthlink.net. 

High schools and other educational institutions with broadcast curriculums would do well to budget for some 5C consoles.

Excalibur HC-1 Handi-Coupler will take care of getting calls on the air.

With more sources than these coming in, it is necessary to use both inputs on each fader. As on many other boards, both sources cannot be engaged simultaneously.

The Blue 5C handles speaker muting and warning lighting via an array of DIP switches on the rear panel. Set the appropriate DIP-switch to its on position and the speakers will mute when the proper channel is keyed.

An open collector connection for a tally light relay can be found on a D-25 connector on the back panel. You will also find continuous closure contacts on the D connector for remote starts of external equipment.

Closure

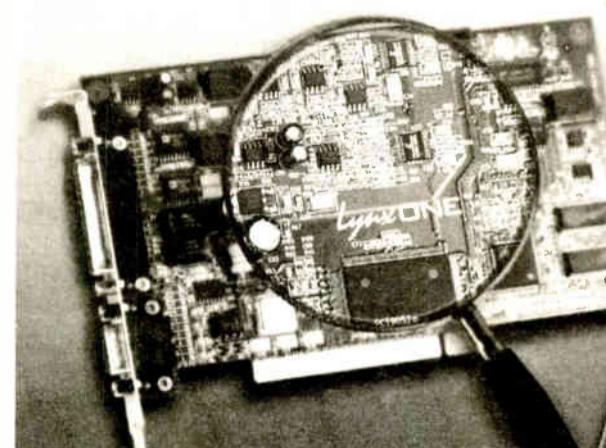
Some CD decks and turntables require momentary closure for remote starting. LPB customer service can offer technical assistance in this regard, or if you don't mind waiting, LPB will release a new remote start interface at NAB2002. This will allow both momentary and continuous closures for each input.

Telephone capabilities of the Blue 5C are limited. Pressing the Send membrane switch above a fader assigns that channel to a mix-minus output to feed a phone hybrid. As the mixer has no Audition or Utility busses, it is not conventionally possible to record a call off-air through the board while a song is playing. But because the Cue line is a dedicated stereo bus, you can assign the caller to Cue and record the call from the Cue output RJ45 jack.

The 5C currently lacks a remote multiple-input selector on Input 10 (Fader 5). This is offered on larger consoles and even exists on my cheesy little Sparta. But if you don't mind the wait, watch for such a multi-array to

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Building Studio, Working at Home

Alan R. Peterson

"Gee, if only I could roll out of bed and be at work. Wouldn't that be great?"

How many morning show hosts haven't had that thought one time or another? No more waking up at 3 a.m., no more lunches at 10 o'clock when the local beanery around the corner is still serving breakfast, and no more 20-mile commute to the station. And no face time with the program director until it became absolutely necessary.

"If only I had my own home air studio," the overwrought host would think, "I could hop out of bed just a half-hour before showtime, pull some prep material off the Net and crack the mic while still in my jammies. Now that's living."

In theory, I suppose. In practice, it might be an entirely new kind of animal with its own snags. No matter, I am about to find out as I undertake my latest why-on-earth-am-I-doing-this project: slamming together a home broadcast studio for the syndicated Greaseman show.

Ever so humble ...

Throughout my own career, I have always had a home studio at my disposal for creating comedy routines and music bits. Some have been better than others, but none have ever been the way I wanted them.

The earliest one was in a spare upstairs bedroom in a Massachusetts farmhouse I rented during the early 1980s. A TASCAM 234 four-track cassette deck, a TASCAM 22-2 reel deck and an almost classic Teac 2A mixer, all mounted precariously in what used to be called a "computer desk;" a cheap, particle-board setup with a top-mounted hutch design that would draw guffaws today.

Affordable digital reverberation was still five years off, so I was obligated to use the reverb can in my old Fender guitar amp.

During quiet passages on my recordings, it was possible to hear squirrels chattering in the trees outside the window. The rig was nowhere near perfect, but it got the job done.

With a few additions, this ensemble followed me around the Northeast for a few years. Yamaha and Alesis processors displaced my old Fender, and a BSW Christmas clearance sale allowed me to purchase a Sennheiser 421, replacing an E-V "golf ball" mic I picked up at a music store some time prior.

The worst it got was the mess (Fig. 1) in my living room — yep, my *living room* — during my tenure at WLAD(AM) and WDAQ(FM) in Danbury, Conn.

Synthesizers from Casio, Yamaha, Moog and Roland were tripping over each other competing for space, a tangled homemade patchbay strung the mixer and decks together, and the whole aggregation was held up by homemade keyboard stands and equipment racks, fabricated from 2X2 lumber. In 1991, this was the Apartment of Doom.

All the while, one overriding desire burned within my heart: to finally be

able to afford an eight-track reel-to-reel deck. Then I could do all the things I was hearing inside my head!

A funny thing happened along the way, though. By the time I could afford my precious reel deck, it was obsolete.

At WNNK(FM), Harrisburg, Pa., in 1994, I encountered the Roland DM line of digital recorders and realized the studio of my dreams needed a serious reevaluation. And when I heard that the original four-track version of SAW would run on a 386 PC, well, I just didn't want that deck anymore.

And without input from my PD or from visitors, I would just as probably keep the same voice tracks loaded for eight months at a clip. Imagine being able to reliably set your watch each morning for a year by listening for the time I'd say, "Heyyy, g'mornin' evvabuddy!"

Alert status

Soldiers and firefighters are constantly on alert status and have to spring immediately to life out of REM sleep, so they are expected to fall out of bed and be at work. Probably a



Fig. 1: A Feng Shui Nightmare: Al's 'Apartment of Doom' in His Connecticut Living Room, Circa 1991

Now, I have a room in my basement dedicated to my audio work. It is subject to HVAC noise and a pre-teen girl's stereo upstairs. The air conditioner coolant pipes sound like a sluiceway during the summer and the gas jets on the furnace whistle like a leaky circus organ during the winter.

At least I have the gear I want. The rest will soon come my way.

Up and at 'em

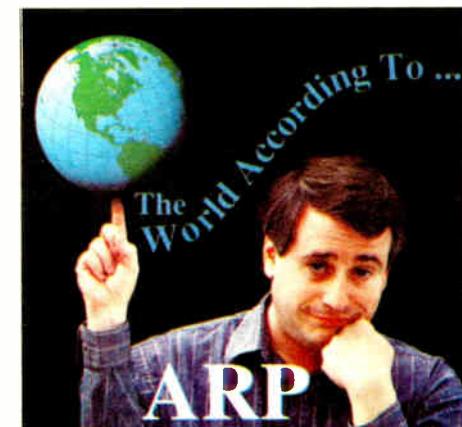
But I digress.

While a domestic recording space has always been a dream, I never really wanted a home studio where I could do a live radio show. I preferred the company of coworkers and contest winners who "just wanted to wave through the glass."

I liked having engineers nearby who could free up jammed tapes and replace the bulbs under the on/off buttons. I enjoyed the free-flowing cascade of promotional T-shirts, sport squeeze bottles and autographed guitars.

It is not just radio. I am not sure I have the discipline to fall out of bed, toss on a shirt and right away be at work in any occupation. If I were a fulltime free-lance writer like my Radio World buddy Ken R., I probably would not change out of my bathrobe at all the whole week. More power to him.

If I had a home broadcast studio, I would likely automate the first two hours of my show just to sleep late.



but a vast amount of the music, effects and vocal drops used on The Greaseman Show are still committed to cart. Rough estimates place his cart count at several thousand.

Interestingly, we encountered a small anomaly in time where *used cart machines were momentarily less expensive than new computers!* The purchase of two or three cart decks for the show is actually feasible.

We can still transfer lots of inventory to a PC or to the two Instant Replay units he owns, but Tracht still prefers media he can grab from a rack and hold in his hand.

Then there is the discipline that comes from 30 years of performance. Evidently, Greaseman can do what I cannot: fall out of bed and be ready for work.

Advantages

Lastly, there is the single most advantageous aspect to owning your own broadcast studio: the chance to design it in a way that is strictly one's own.

No more must a performer wrestle with a studio that impedes one's performance. In spite of great strides made in cabinetry ergonomics and instant console reconfiguration, there will always be compromises.

A left-handed jock wants the touchscreen to be mounted on the left side of the console. Some engineering whiz-kid once demanded the *bottom* CD deck should be No. 1, while the *top* one is No. 3. The standup console is mounted too far back on the work surface to comfortably accommodate the five-foot-three midday talent.

Putting together your own studio is like the old Burger King spot: Have it your way. The touchscreen is *this* close, the mic pot is *this* pot, the cart deck is *this* far from the phone.

The trick is pulling it off inexpensively (remember "first and foremost" just a few paragraphs ago?). And who better to attempt this than the King of Cheap Studios: me.

Who spent a whole summer building a public access radio studio for free three years ago? Who has been working for The Greaseman for free for six months? Who was so frugal, he made a keyboard stand and gear rack out of 2X2s rather than drop a whopping 80 bucks to purchase the same? Hint: Refer back to Fig. 1.

So, will I do it for a modest buck? Yeah, I'll do it. Maybe I'll get some ideas for how I want my own studio to be. I'll keep you apprised.

Alan Peterson splits his time between the Connecticut School of Broadcasting, WAVV(FM), Arlington, Va., and the syndicated Greaseman Show.

Reach him via e-mail to alan.peterson@earthlink.net.

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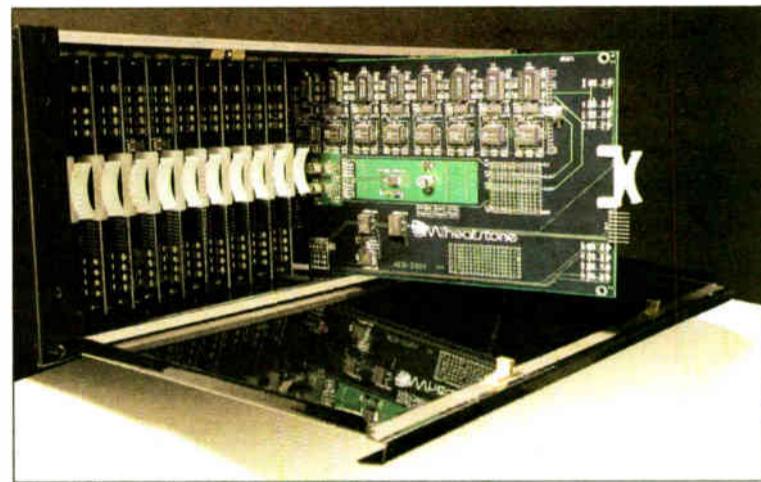
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Travis

► Continued from page 48

of projects they have done, can save a lot of money simply by piecing together snippets of those projects, someone new to the business must create all new material for a demo.

Unless you have a good friend with an audio studio who is experienced in producing the kind of material you want to do, it is not unusual to spend upwards of a thousand dollars for a decent first-time demo.

Cost reduction

Of course, there are ways to greatly reduce these costs. For example, if you work at a radio station and you have access to the production facility for such projects, you can produce a demo for close to nothing. Whether you get something that is worth the cost depends on your own ability and creativity.

In Hollywood, it is not unheard of for experienced, professional voice talent to spend literally thousands of dollars on a voiceover demo.

I know one woman who recently paid more than \$6,000 to have a company that specializes in high-end voiceover demos work their magic. She can afford it — and she believes her new CD already has paid for itself.

I answer the question "What should I have on my tape?" rather simply: "Something that demonstrates to a potential customer what you have to offer."

That said, there are some things to keep in mind when preparing a voice-demo.

Your demo should be as short as possible. Remember, most of the time, if you are being considered for a project, others are also in the running. You are lucky if a potential client devotes more than 30 seconds to your demo — so that 30 seconds had better be your best work. Two to three minutes is considered the industry standard.

Make sure you can do everything on your demo with ease. If you spend all afternoon on a demo spot creating the "just perfect" voice style, and you can't recreate that in a half-hour session when you are under pressure, you will be in big trouble if you were hired based on that snippet.

Preparation

As an example, I do a fairly good Walter Cronkite-style of news read that I have been hired for several times. But to pull that off, I need time with the script beforehand and a lot of takes in the studio. If a sample of that was on my demo, producers would expect me to do that with ease, which is not the case.

When my agents get a request for someone sounding like Walter, they explain that to the producer, who can then decide if that works for them. Before I put one of those on my demo, I'll need to improve my skills in this area.

Whenever it is possible, use snippets of actual jobs. I am convinced that there is energy to an actual production that isn't matched when recording a spot for a demo.

I knew one producer who believed

STUDIO SESSIONS

that a great deal of communication in a commercial is on a subconscious level, and that a desperate "pleeaze

believe I have heard (or more correctly, felt) what he is talking about.

Of course if you don't have copies

reproduce what the client hears on your demo at a recording session.

My demo consists of about half actual productions; the rest are recreations or snippets I produced to showcase styles I don't have recordings of. Several items on my demo are from auditions, where I didn't get the part, but should have (don't get me started ...).

If you have an agent, you'll probably also need to edit an abbreviated, one-minute version of your demo for inclusion on the agency CD and Web site.

There have been a lot of recent changes and issues to voiceover demo production and distribution, and we'll be discussing that in an upcoming article.

You can hear my new demo at www.voice-guy.com.

My demo consists of about half actual productions; the rest are recreations or snippets I produced to showcase styles I don't have recordings of.

hire mee!" actually comes through on voiceover demo recordings. I don't know if this is true, but at times I

of actual productions, you'll need to create your own. This is perfectly acceptable, so long as you can easily

Why 3,832 Stations Use Scott Studios' and Computer Concepts' Digital Audio Systems Including New York, Chicago, LA, and ALL of the Top 10 Markets

Every 17 Hours, Another Station Installs a Digital Studio from Scott Studios or Computer Concepts

There are countless reasons why the most popular and best selling digital systems come from Scott Studios. In fact, more US stations use Scott Studios' than the #2 and #3 digital systems combined!

Easiest to use

Scott's user-friendly intuitive touch screen is the simplest for announcers to use. It always shows six log events. Color codes show which are spots, promos or songs. Jocks choose whether the event on the air is always at the top, or whether the decks match console faders.



Jocks get 30 sets of 30 Instant Play buttons, the day's log, 10 cart walls or live copy. A second touch screen can display of any 4 of these 5 areas at once. Cart walls can play song requests within a second or two, and even display the time and date when the song played last and when it's scheduled to play again.

Scott Studios' phone recorder with graphic waveform editing and audible scrub is an available option. Announcers who try Scott Studios' digital system like it so much, they wonder why anyone would ever want to work without it!

Internet ad substitution is easy. Mark "Don't Play on Internet" on a spot and our Scott Sub option takes care of it automatically!

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With Scott Studios' systems, stations in all market sizes are voice tracking some shifts! Announcers hear themselves and everything else in context. Our Voice Tracker has one button operation, auto-post and our exclusive automatic level fixer.

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Scott Studios' systems are the most bullet-proof in radio. Server failures don't take down any stations! Scott's exclusive Double Drive networking means every recording can play immediately from at least two hard drives for the ultimate in redundancy at no extra cost. Scott hardware is the most robust in the business. We also offer an Invincible option with duplicate systems that auto-switch over in a split second, picking up where the first left off!



Jon Rivers, Morning Host at K-LOVE stations in 38 states loves his Scott System

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Scott Studios uses Microsoft compatible audio files that allows office and sales people to audition spots or promos from their PCs or laptops. Your PD never has to leave his or her desk to fine-tune segues or digitally rip music into the system.

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Scott stations benefit from the biggest and best service and support staff in digital audio, with 105 people at your service. Technicians are in our buildings answering our toll-free support lines live day and night. Supervisors are always available by cell phones.

For details: Call 888 GET SCOTT

Scott Studios
13375 Stemmons Freeway, Suite 400
Dallas, Texas 75234 USA
Internet: scottstudios.com

Digital Domain

► Continued from page 45

manipulation of levels, dynamics and EQ — plus system commands — via the assignable mixing control surface, is really nothing more than a by product of the fully integrated digital audio network.

Transmission

Fiber-optic cable provides transmission of 64 audio channels with word lengths up to 30 bits (24 audio bits plus six information and two internal message bits) over distances up to three miles.

As well as being insensitive to RF and EMF interference, fiber-optic

cable provides electrical isolation between stations (and hence eliminates ground loops); parallel connection of workstations also is possible.

Each workstation on a fiber-optic network can access up to 64 channels of output via analog/digital interface units. In addition, by providing high-speed gateways with other, application-specific networks connected to hubbed workstations, the system's TDM network can forward targeted signals, to provide access to an unlimited number of local channels. These local networks can be set up a ring or star configuration, or a combination of the two.

A single TDM bus can accommodate multiple receivers, which then receive signals from different trans-

mitters. To increase operational reliability — both manual and automatic switchover are possible in the event of a malfunction — multiple receivers can be connected to the same stations.

The operational elegance and flexibility can best be illustrated when the time comes to add a second on-air production studio, with its own local inputs and outputs. The addition of a second transmit/receive pair means that the central DSP area can access any of the signals running on the Studio "B" bus highway, for example, while Studio "A" now has access any of the inputs or outputs from Studio "B."

The addition of a return link from the central DSP area not only provides Studio "B" with access to all centralized sources, but also access to any of the signals or mixes originating in Studio "A."

Extra studios can be added using additional fiber cables between local frames and the central DSP area; supervisory software maintains information about which signal is located where, and dynamically allocating and re-allocating channels on an as-needed basis.

PC-based modular control surfaces linked to their associated frames via a conventional Ethernet link offer a selection of panels housing switches, displays, faders and rotary encoders; LCD buttons identify assignable (or "soft") functions. (In simpler applications, control surfaces can be connected to interface frames via a serial link; in some cases, a number of control panels can share a single frame.)

In a typical studio design example, this system might accommodate the following components:

- Two similarly equipped on-air studios.
- A similarly equipped production studio, capable of going on-air.
- Two news production/presentation studios.
- Three office workstations (with editing but not mixing capabilities).

Each studio might provide record outputs to local machines; clean feed outputs to local telephone hybrids; monitor outputs for presenter and guests; inputs for local replay sources, both analog and digital (up to four microphones, for example, with EQ and dynamics processing).

Replay system

A centralized hard-disk replay system might provide the following simultaneous audio streams: two music feeds and a jingles/commercials feed to each studio, plus a record feed from each studio back to the server.

The central DSP area might need to provide access to six stereo ISDN/Real-Audio/MPEG2 codecs (assuming for example, stereo AES outputs and a mono analog cue input); six analog outside sources (assuming a similar I/O); six analog stereo off-air feeds; two transmission outputs (with the ability to add two more at a later stage). Each studio and the central DSP area would enable monitoring of outputs from any other area, plus access to outside sources and transmission outputs.

On-air and production studios might be identically equipped, while news studios would feature less inputs. (All studios can access all outputs from all other areas, as well as the playback system feeds, outside sources, codecs and off-air monitoring.)

Office workstations would feature a user-definable selector panel, with dedicated switch panels or assignable LCD-type selectors. (Audio to each workstation would be delivered via dedicated AES-format interconnects, with source/output selection control via a serial link.)

Obvious advantages

The operational advantages are obvious: dynamically-reconfigurable control surfaces where each presenter can store and recall their own preferred and ergonomically optimized fader layouts, together with preconfigured EQ and dynamics, plus appropriate sources needed for each radio show and output routings (including clean feeds etc.).

Vocal sub-groups can also be created with specific EQ and dynamics settings.

Complex control sequences can be stored as part of single-button operations, offering a high level of transparency to non-technical operators. Users can also set up frequently used background recording mixes, automatically controlling routing of sources from program to record buses, with appropriate clean-feed and communications switching.

Summarizing the cost savings of such a fully networked design approach, I can identify reduced installation time; reduced inter-area cabling, courtesy of fiber-optic links; easier implementation of redundant/standby cabling; easier expansion and change of system infrastructure; significantly smaller control surfaces with dramatic savings in studio construction costs; multifunctional, reconfigurable studios that remove a need for specialist areas and provide greater efficiency of use and sharing of centralized equipment. What more could one ask?

AuxPander Provides More Aux Connections

Shure's new AuxPander insertable matrix mixer is an auxiliary send expander for mixing consoles.

AuxPander increases output capabilities. It lets users turn any mixer into an eight-bus console and is a solution for users who need more aux sends.



In multi-mic sessions, each mic can be separately processed by turning up its associated aux send.

The AuxPander is expandable, both vertically and horizontally, connecting two units, creating an 8 x 16 or 16 x 8 matrix.

Price: \$990.

For more information contact Shure at (847) 866-2200 or visit the company Web site at www.shure.com.



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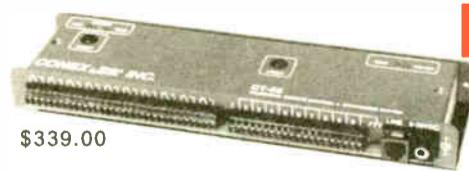
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◆ PRODUCT GUIDE ◆

Products for Radio Air & Production Studios

Mail info and photos to: RW Product Guide, P.O. Box 1214, Falls Church, VA 22041

Maxxstream Improves Net Audio Quality

Waves Maxxstream product suite is touted as an integrated solution for poor-quality Internet streaming audio.

It is intended to address problems with streaming audio including harsh, unintelligible speech and music streaming in limited bandwidth, which forces compression.

Maxxstream was designed for radio stations developing online broadcasting and for dedicated Internet stations to capture audio from the console and stream to the Internet. It can support multiple concurrent encoding applications and bit rates.

The system has on-board DSP for conditioning, leaving the station's computer free for encoding tasks. The nonproprietary system is compatible with popular streaming media formats.

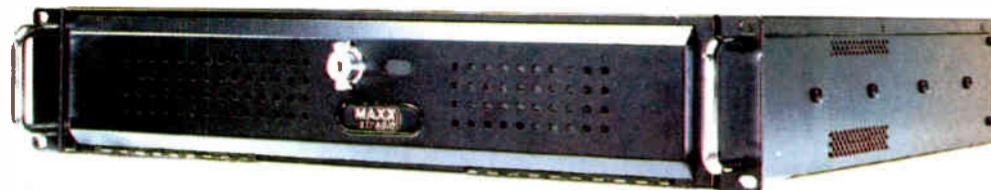
Flexibility is provided by approximately 80 factory presets, which meet most content and bandwidth requirements, as well as unlimited user presets.

Maxxstream can help reduce costs by maintaining broadband sound

quality in a reduced bandwidth, and a single system can simultaneously encode to multiple target resolutions and formats.

Price: \$4,000 to \$9,000 for a complete system.

For more information, contact Waves in Knoxville, Tenn., at (865) 546-6115 or visit the company Web site at www.waves.com.



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When it comes to portable recording, the HHB PORTADISC has it all.

The PORTADISC uses a tough, precision MD drive for maximum durability - not a flimsy, consumer mechanism. And with a frequency response of 10Hz - 20kHz and a dynamic range greater than 96dB, you'll be making recordings of exceptional quality.

Despite its surprisingly affordable price, the PORTADISC is packed with the facilities you need like ultra-low noise balanced mic inputs, coaxial and optical digital

I/Os, flexible powering options and a comprehensive range of accessories supplied as standard.

And the PORTADISC is the only MD portable to feature a USB interface so you can stream audio to and from your workstation.

For full information on the portable recorder that gives you everything, talk to HHB about the PORTADISC.



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Juggling Too Much? Harris Can Help!



Taking care of today's broadcasting needs while moving toward a digital future is a tough juggling act. You need to maintain and, perhaps, upgrade current systems. Maybe you're even contemplating complete station makeovers. Fortunately there's a company with the resources and dexterity to help you maintain your balance: Harris.

Automation

Whether you need single-channel, multi-channel, or news solutions, Harris has a scalable automation solution to fit your precise requirements.

Transmission

Harris has everything from replacement parts for your current transmitter to a new analog or digital transmission system.

- TV - UHF, VHF, DTV, DVB-T
- Radio - AM, FM, IBOC, DAB
- STL - single to multiple site linking

Systems

Who but Harris offers everything from a single console to the design and installation of entire radio, TV, and mobile studios? Come see our line of DTV products to help you manage your entire system.

Service

Harris installs, maintains and repairs everything it sells. And our broadcast training centers are available to make your team as self-reliant as possible.

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Let us show you our newest solutions. Come to our booth to discuss your particular balancing act. You'll find us in booth L5023, ready to help.

next level solutions

SERVICE

SYSTEMS

AUTOMATION

TRANSMISSION

Buyer's Guide

Radio World

Audio Recorders, Portable Recorders and Distribution Amps

September 26, 2001

USER REPORT

ATI Multiplies Digital Audio

by Andy Butler
Director of Engineering
PBS National Operations Center

ALEXANDRIA, Va. When I have a prejudice, I try to admit it up front. In this case I have to admit to a great fondness for ATI.

For more years than many of us care to remember, the company has been building straightforward, no-frills devices that work. The simple limited warranty it issues on each piece is a good example of the company's philosophy.

ATI warrants that:

- Your MicroAmp will work when you take it out of the box. (It did.)
- Your MicroAmp will do what our published specs say it will do. (It did even better.)
- Your MicroAmp will continue to do



coverage, but you may spend a week digging through a stack of legalese before you understand the terms.

to AES3-1992 and IEC 958 standards).

The group includes single-channel (one input to six outputs) and dual-channel (two inputs to 12 outputs) units. The DDAXXX-XLR models operate from and drive 110-ohm balanced twisted-pair lines per AES3-1992. The DDAXXX-BNC models operate from and drive single-ended 75-ohm coaxial systems per AES-3id-1995.

The BNC units can also be used with S/PDIF (consumer)-formatted audio with the appropriate cable adapters. All the units are in a 1 RU enclosure with integrated power supply.

All the units accept sample rates from 27 to 96 kHz. A front-panel rate display shows the first two digits of

standard sample rates 32, 44.1, 48, 88.2 and 96 kHz. Other front-panel displays include status and error LEDs for clock lock and data validity.

A trim pot on the front panel adjusts the input equalization to compensate for extremely long cable runs.

The data is reclocked and regenerated in the unit to reduce jitter. Inputs are transformer-isolated with a loop-through and switchable termination.

The 110-ohm models offer six balanced, transformer-isolated outputs per channel. The 75-ohm models offer 12 unbalanced, capacitor-coupled floating outputs.

In use

I evaluated a single-channel 110-ohm XLR unit. On the bench it exceeded the applicable specifications easily. Installation in a small off-line workstation was straightforward.

Input cable equalization in particular was easy with the front-panel control and simple yes/no LED indicator.

As I was checking out the unit, I started noticing a strange noise. After a little head-scratching, I realized that I had violated one of the installation guidelines by mounting the unit right next to a power amplifier with a switching power supply. A little rack shifting and a power filter on the power line solved that problem. The unit performed with no further problems.

All and all, this is a fine little unit. Out of the box it performed as advertised.

For more information contact Audio Technologies Inc. (ATI) in Pennsylvania at (215) 443-0330 or visit the company Web site at www.atiguys.com.

The DDA series is designed to regenerate, isolate and distribute AES/EBU digital audio.

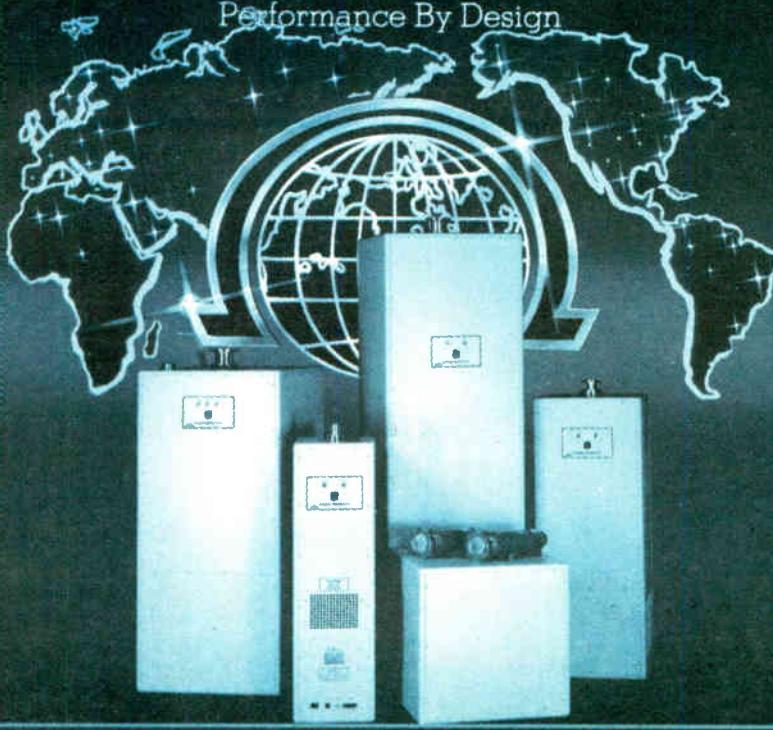
the above for at least one year. (I don't know about this yet.)

Most manufacturers offer similar

The DDA series is designed to regenerate, isolate and distribute AES/EBU digital audio (conforming

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BUYER'S GUIDE

USER REPORT

Marantz's PMD690 Delivers

**by Michael LeClair
Chief Engineer
WBUR Group**

BOSTON Marantz Professional's new PMD690 flash recorder represents what I consider to be a great technological step forward in field recording.

The PMD690 has no moving parts, no whining motors, and no failing belts. It's a stereo recorder that records digital audio files to a removable compact flash memory card. You can record to standard PC cards (PCMCIA) or to compact flash and IBM Microdrives (with a PCMCIA adaptor). Using it is like recording straight into a computer, except this recorder is designed well enough to handle work in the field.

Sound-rich productions

WBUR Group purchased the PMD690 to capture stereo field sound and interviews for our new documentary program, "Inside Out." Each hour-long program involves sound-rich productions that explore interesting and timely topics. It's often necessary to gather 20 or more hours of field sound to produce one show. The reporter will often interview and record field sound at the same time.

We wanted a package that was easy to use, very reliable, and produced high-quality sound. We also bought a Shure VP-88 stereo microphone and a pair of Sony 7506 headphones to

round out the kit.

The PMD690 features dual XLR input connectors that can be switched between microphone and line-level input sensitivity. It also has dual-RCA unbalanced audio outputs, a stereo headphone jack and a large dual-input level control on the front panel. It

and got about three hours out of the battery.

Therefore, pay attention to the blinking battery failure light (or optional audio warning) — if the deck turns off without writing the table of contents information to the flash card, the files will not be retrievable.



comes with an AC adapter and a removable battery carrier. A carrying case and rechargeable battery are also good options to consider.

Because the unit will deliver only two hours of recording using eight AA alkaline batteries, we purchased the optional rechargeable Nicad battery. I ran the machine in a combination of recording and playback modes, stopping periodically to change settings,

The PMD690 offers a wide range of recording formats, including full stereo or mono wav and MPEG-2 compression at 384, 256, 192, 128, 96, 64, 48 and 32 kbps (the last two are mono only). Users can select among three of these formats using a switch on the top control panel. We opted to use MPEG-2 compression with stereo 384, 192 and mono 128 kbps. With a 440 MB compact flash card we got approximately three hours of recording time at the highest data rate.

My test recordings and listening tests revealed that, at the 384 kbps rate, the PMD690 makes beautiful stereo recordings. I heard an open, clean and bright sound similar to DAT recordings. I was also pleased with the sound of the internal microphone preamps in the PMD690 when used with the VP-88 microphone.

Full, deep sound

While some portable recorders suffer in the low bass response in their microphone inputs, the PMD690 delivered a full, deep sound. Stereo imaging was precise and wide. While listening on headphones it was possible to clearly position sounds coming from left and right, above and below, and even behind your ears in reproduced audio files.

The various microphone input settings on the PMD690 top panel were useful. The high pass filter does a good job of removing hand-held noise from the cable if you have to move around while recording.

The band pass filter is a good addition for gathering sound in noisy ambient conditions, though with audible loss of overall sound quality.

The product uses three automatic gain control (AGC) settings. For interview recording, I found the internal limiter setting sounded good. While it is still possible to overdrive the recorder with the limiter on, it provides an additional 8-10 dB of protection limiting before clipping with a smooth and relatively inaudible action.

**Did you see
these
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[NRSC Looks to
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from the editors of

Radio World

TECH UPDATES

Denon Unveils CD Recorder

Denon debuted its new DNC550-R dual drive combination CD player/recorder at the AES convention as the company targets the CD-recording market.

The machine uses both analog and digital inputs for two-channel stereo. The balanced analog XLR inputs use 24-bit A/D conversion, and the unbalanced analog input and output have RCA jacks.

The S/PDIF digital coaxial I/Os with defeatable SCMS are unbalanced, and the digital optical I/Os are balanced.

The model uses the internal digital sampling frequency converter to convert 32 kHz and 48 kHz rates to the CD standard 44.1 kHz.

Using 24-bit D/A converters allows the digital and analog outputs to utilize several recording and playback options. Recording modes are Scan Rec



Dubbing Mode, Disc Dubbing Mode and HDCD dubbing.

Dubbing can be done in real time or at 2X speed. Playback modes include Repeat, Relay Play, Mix Program Play and Mix Random Play. Relay and Mix can be performed from Drive 1 to Drive 2. Playback from both drives can utilize independent outputs.

The dual drives sport several features. Drive 1 can be used as a dedicated playback deck for pro and consumer CDs, CD-Rs and CD-RWs. It also supports playback of HDCD-encoded discs using a built-in HDCD decoder. Drive 2 can work as a second playback device with the same features, and can also be used as a CD-R/CD-RW recorder. Both drives are PC/data disc compatible.

The DN-C550R uses a text input feature for entering disc and track names on display. It takes up 2 RUs and uses a smooth and stable linear-type transformer for power.

For more information contact Denon in New Jersey at (973) 396-0810 or visit www.denon.com.

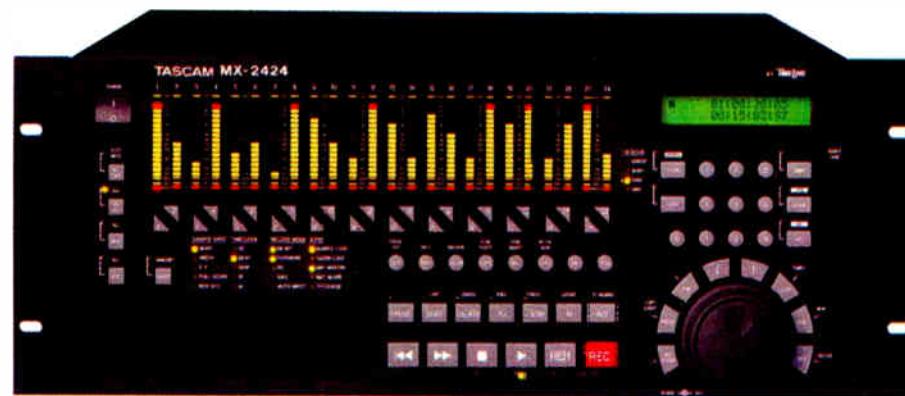
USER REPORT

TASCAM Recorder Goes Classical

by Jeff Buettner with Jeff Mac
Chief Engineer
WGUC(FM)

CINCINNATI WGUC, Cincinnati's Classical Public Radio, was founded in 1960 by a group of citizens who saw the need for a radio station devoted to cultural and public affairs programming. Today it is the largest and oldest public radio station in Cincinnati, specializing in the broadcast of classical music.

One of the many demanding roles placed on The Corbett Studio at WGUC is the production and preparation for broadcast of the Cincinnati Symphony and several chamber music series concerts. I am responsible for



to surround recording and studio multitrack recording and mastering. This requires a recorder with exceptional sound, flexibility and reliability.

I needed a system that would allow fast and dependable transfer between field recording and studio production units.

recording and preparing this material for broadcast.

The type of recording ranges from stereo and multitrack field recording

The Corbett Studio had previously been recording to a digital tape-based format, but my experience with computer-based recording made me feel

that a hard disk-based format would be a superior choice.

Taking a computer system in the field for recording is daunting, so I decided the most appropriate choice would be a dedicated hard-disk recorder, for portability and dependability in highly demanding recording environments.

I record on location with an array of microphones from B&K and Neumann and I needed a machine capable of capturing their subtlety and power. I needed a system that would allow fast and dependable transfer between field recording and studio production units.

The TASCAM MX-2424 and its features met these criteria, so I chose two units, one for studio and one for location recording. Removable hard disks

make the transition from field to studio and to PC editing fast and simple.

A typical day on location or at Corbett Studios includes plenty of time in front of the machine, with highly trained professional musicians playing for long periods of time. This can be difficult if the equipment can't keep up the pace, but I was impressed with the ease of use of the MX-2424.

Sensible combination

The MX is a sensible combination of computer capabilities and tape machine logic. The musicians in the studio were impressed with how smooth, comfortable and efficient a session with the MX-2424 can be. So far we have had no audio problems. It is a solid machine and I am pleased with the audio quality.

I currently edit with Samplitude on a PC but I look forward to using MX View software for editing and setting up projects. The capability to record to hard drives in standard formats makes interchange with audio editors like Samplitude or ProTools as simple as removing a drive and attaching it to a computer.

Widespread use of the MX-2424 is resulting in a strong network of support for answers, solutions and recommendations. I am thoroughly confident in the quality of the audio I record with this equipment.

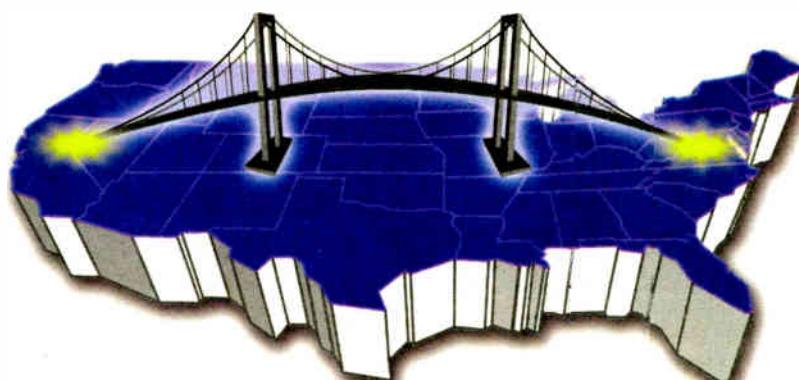
For more information contact TASCAM in California at (323) 762-0303 or visit the company Web site www.tascam.com.

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Would you believe that you can visit a dozen markets in an hour without leaving your desk?



If you have the TeleRadio from CircuitWerkes at your stations, you can listen to every radio station in each of your markets.

Old-fashioned air-checks are okay, but they have some real drawbacks. Among them are:

1. You have no control over what is recorded on an air-check. You may be hearing only what someone else wants you to hear.
2. Your own air staffs usually know when they're being recorded and react accordingly.
3. By the time you get an air-check in the mail, it may be too late to respond to the competition.

The TeleRadio beats those problems by letting you listen to both your station *and* the competition in *real-time*. If you have a TeleRadio, you simply dial it up from any phone. As soon as it answers, the internal radio begins playing down the phone line to you. You can control the radio by using the buttons on your phone. It's just like being there!

The TeleRadio even has a DTMF selectable external audio connection so it can be used as a standard telephone coupler too. An optional call progress decoder is available for using the TeleRadio on PBX analog lines and in areas that don't support CPC.

CircuitWerkes - 3716 SW 3rd Place, Gainesville, FL 32607
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The **X-Plosive** is the solution for vocal plosives and obstructed sight lines to scripts/copyboard. It attaches directly to the shockmount ring of side-firing mics such as the Neumann U87™ and AKG C414™, which means there's no need to readjust once it's attached. The **X-Plosive** is made of durable ABS plastic and uses 2-ply nylon/spandex mesh. Buy now at:

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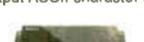
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TECH UPDATES

360 Systems Upgrades Short/cut

The Short/cut 2000 Hard-Disk Recorder/Editor from 360 Systems is a portable personal audio editor suited for two-track editing in news, production and on-air applications.

The audio format comes as stereo, and can be used as two independent channels using a 16-bit quantization and broadcast standard 48 kHz sampling frequency. The analog inputs and outputs are +4 balanced XLR-3 connectors and the digital I/Os are AES/EBU (XLR and BNC) connectors. The kit weighs 12.5 pounds and has an external power source.

The Short/cut uses hard-disk technology and operating controls that combine a tape machine with a word processor. Users can cut, copy, insert, cross fade and gain change both stereo and single-track operations. The console uses a weighted jog wheel to simulate tape reel scrub editing and an LCD waveform display to provide information.

The Short/cut's Hot Key features can access 10 stored segments and can be used as a copy/paste clipboard. For accessing other cuts the console can use up to 10 directories and a name-finding feature. An included ASCII keyboard allows naming of all files and audio cuts.

New features for 2001 include expanded storage of up to 12 hours of

stereo audio on the hard drive. The new operating system enables faster execution of all user operations. The upgrade also allows the console to interface with most DAWs and write in several file formats using an optional external parallel Zip drive. Optional gear includes a padded gig bag and an SCSI expansion port for interface to external drives. All older units may be upgraded.

For more information contact 360



Systems in California at (818) 991-1360 or visit the company Web site at www.360systems.com.

Marantz

► Continued from page 58

Most of all, I was delighted with how easy it was to transfer recordings from the PMD690 into a computer for editing. A card reader connects to a computer via the USB connection. We copied 250 MB of audio files onto the local hard drive of the computer in just three minutes. Once on our computer network, sound files could be copied or moved at will between workstations.

It's often necessary to gather 20 or more hours of field sound to produce one show.

It is impossible to equal this transfer speed with other recorders that use real time to dub analog or digitally into a computer. The reporter time saved in just this area will pay for the machine in less than one year. And all sound files are transferred without the need to undergo any digital-to-analog or analog-to-digital conversions on low-performance computer sound cards, preserving audio fidelity.

Overall, I found the recorded sound on the PMD690 to be superior to cassette decks or MDs. With a proper review of the manual it is an easy-to-use and reliable recorder.

Marantz included a good group of selectable options on the top panel to handle typical field recording situations. Finally I think that the best aspect of the PMD690 is its easy compatibility with computer audio editing.

In my opinion, the PMD690 from Marantz is truly the ultimate solution for field recording.

For information contact Marantz Professional in Illinois at (630) 820-4800 or visit www.marantz.com.

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Coming Standard

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Crown designs, scheduled for release in the fall, build on this history with new features for new market requirements, as well as options that can fit current Crown transmitters for new applications.

New Crown FMX Series transmitters, with Crown's Digital System Management (DSM) design, make system monitoring and control faster, easier, and more complete. The four-line display details transmitter operation at a glance, and provides full menu-driven control.

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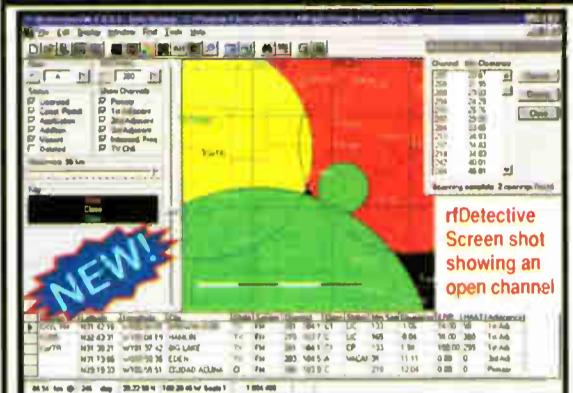
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TECH UPDATES

HHB Offers MiniDisc Recorder

At NAB2001 HHB debuted its Portadisc MDP500 portable MiniDisc recorder for professional use.

The Portadisc takes advantage of the MiniDisc format's capacity for sound quality, random access and straightforward editing. The product records on standard MiniDiscs using the ATRAC 4.5 algorithm. Eighty minutes can be set down in stereo or 160 minutes in mono.

The two-channel recorder has a sampling frequency of 44.1 kHz and the whole package weighs 4.5 pounds with batteries.

The balanced microphone input circuits feature switchable phantom power and limiting which can be stereo-linked. The balanced mic/line analog input uses XLR 3 connectors, while the digital I/Os, whether coaxial or optical, are S/PDIF. A type B USB port allows laptop connectivity for editing so work can be finished in the field. Some basic editing functions are included and can be used through a software-controlled menu system.

The Portadisc uses an illuminated display and a built-in monitoring speaker. Other features include a six-second prerecord buffer, an auto start/cut function with an adjustable threshold, automatic gain control and a memory buffer for glitch-free recording. Power is provided using eight AA-size batteries or the universal 100 V-240 V charger. It comes with a carrying case.

For more information contact HHB in California at (310) 319-3111 or visit www.hhbusa.com.

**Sony Offers Two Recorders**

Sony is shipping its CDR-W66 CD and CDR-W33 recorders.

The former is designed for mid- to high-end broadcast production and recording studios, while its lower-priced sibling is for project studios and home-recording applications.

Both recorders have selectable DSP functions such as parametric EQ, limiter, Super Bit Mapping and 24-bit AD/DA conversion. The DSP circuit can operate through the analog on both units and on the AES/EBU digital inputs for the CDR-W66. The units offer CD Text support for entering and displaying disc/track names.



Control can be maintained through a remote control, a PC keyboard or the front-panel AMS controller. Remote transport control can be accessed via Control-S or a PC keyboard. The recorders come with a wireless/wired remote unit.

The W33 uses a 32-48 kHz sampling rate converter; has coaxial digital, optical digital and analog unbalanced phone jacks; can record CD-R, CD-RW, CD-R (DA) and CD-RW (DA) formats; and fits in 2 RU.

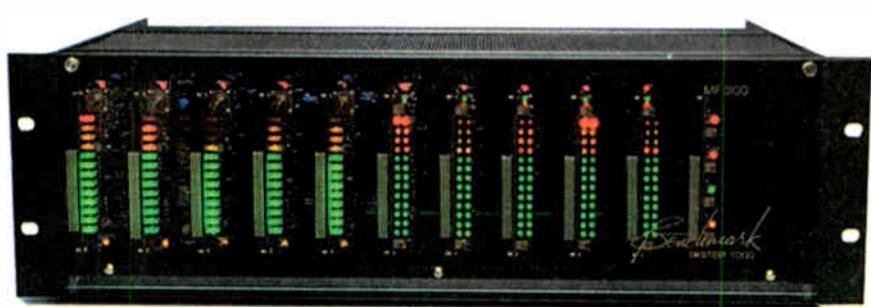
The W66 has the same features but adds a 32-96 kHz rate converter; digital and balanced XLR analog I/Os; RS-232C and parallel (GPI) control ports; and a 2X speed dubbing link to a second CDR-W66.

For more information contact Sony Electronics in New Jersey at (800) 930-1000 or visit www.sony.com.

Benchmark Upgrades DAs

Benchmark Media Systems released its newly redesigned System 100 card frame distribution amplifier package and upgraded its DA-101 and DA-102 DAs.

The System 1000 now uses three connector options at the motherboard. Two new options are the plug-in WECO HSL series three-pin screw-down connectors with an integral tie-wrap tab, and the EDAC 556 family of three-pin connectors. The unit already has Molex latching and polarized SL series connectors. A BNC connector module plugs into the rear of the motherboard.



The frame's backplane now has a self-shielding motherboard that permits line-level analog DAs, mic-preamp DAs and digital modules to occupy the same frame without crosstalk. The frame can now use 17 different modules, four power supply options and numerous controllers and accessories, making it extremely flexible.

The mono DA-101 has two inputs and a signal routing switcher for selecting either output or a mix of both. It uses 15-turn gain pots, front-panel test points and 13 segment LED meters. It can be used as a 10-output mono DA, a 40 W mono monitor amplifier or a time code DA without crosstalk to other modules. The stereo DA-102 is the same except that it uses dual meters and does not have the 40 W output.

For more information contact Benchmark in New York at (313) 437-6300 or visit www.benchmarkmedia.com.

Sonifex Portable Recorder Uses USB

The newest version of Sonifex's Courier portable recorder is enhanced with a USB connection. The product can use the connection for fast downloads to the PC. The USB port works in addition to the RS232 serial port and the optional ISDN connection.



The new version has a USB B connector supporting USB 1.1 and enables downloads to the PC of up to 40 times real-time speed.

Integrated software enables connections to Windows Explorer in Windows 98 and 2000. The connection allows the Flash card or hard disk used for recording to be permanently stored in the Courier without the need for removal. Files can be downloaded to a PC by USB, the disk wiped and recording started again quickly.

For more information contact Fraser Jones of Independent Audio in Maine at (207) 773-2424 or visit www.independentaudio.com.

TECH UPDATE

Ward-Beck Produces Signal Distribution Gear

With the arrival of AES digital audio signals, Ward-Beck augmented its product line to include digital distribution amplifiers.

As convergence continues to blur the lines between radio and TV signals, the company offers products to distribute serial digital video signals with embedded AES audio.

The company promises cost-effective broadcast signal distribution for installations of various sizes.

Small-scale distribution solutions are offered by the POD product line. POD8, POD12, POD17 and POD20 may be employed to distribute one analog

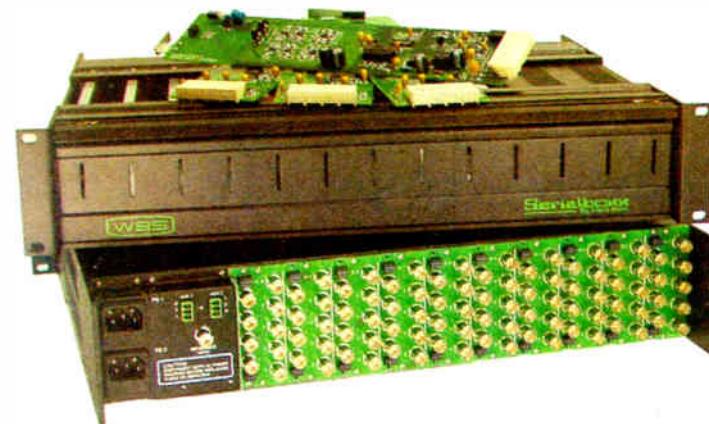
BUYER'S GUIDE

stereo, an AES or SDI signal, respectively, to six locations. The established 8200 Series and new Serialboxx card systems can address needs of small to large systems.

The 8200 series and Serialboxx have multiple distribution amplifier cards in a 2 RU package with common dual-redundant power supplies. The card system allows mixing of different types of distribution amplifiers within the same frame.

The company has two types of audio distribution amplifiers. The first is the analog model with 1 x 8 mono with remote gain control and 1 x 4 stereo distribution amplifiers.

The AES digital version uses 1 x 8 in both 75- and 110-ohm versions, 1 x 8 with remote control and sample rate conversion and 1 x 4 AES with onboard D to A conversion providing two analog stereo outputs. Other cards in the 8200 Series and Serialboxx families provide A-D, D-A and sample



The Ward-Beck Serialboxx Card System

rate conversion.

For more information contact Ward-Beck in Portland, Ore. at (866) 771-2556 or in Toronto at (800) 771-2556 or visit www.ward-beck.com.

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TECH UPDATES

RDL Makes Compact DA

Radio Design Lab's RU-DA4D distribution amplifier offers a range of inputs and outputs in a compact housing.

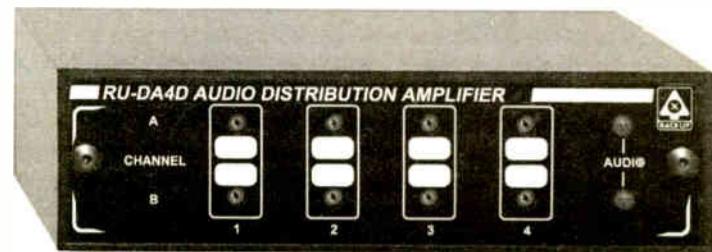
Part of the Rack-Up product line, the DA uses two separate line-level inputs. Each can connect balanced or unbalanced and high- or low-impedance audio lines. Connections use full-size barrier block terminals on the rear panel.

When using a stereo source the DA connects one channel to each of the inputs, providing four isolated outputs. Otherwise, eight outputs can be fed using a mono audio source. The rear-panel jumper feeds the audio source through input A to all of the A and B outputs.

Each output uses a front-panel screwdriver gain control. The gain potentiometer allows an adjustment range from 15 dB loss to 18 dB gain. The outputs can drive balanced and unbalanced audio lines.

An LED indicator for each channel helps with monitoring by showing when an audio signal is present for a given channel input. The unit takes up one-third of a rack space unit and requires an external power source.

For more information contact RDL in California at (805) 684-9316 or visit www.rdlnet.com.



Otari Offers Audio DDR

Otari produces the DX-5050 for use as a two-channel digital audio disk recorder.

The DDR uses ISO 3.5-inch MO disks as storage media with a capacity of 640 MB and 60 minutes of stereo recording time. Stereo recording is at a 44.1 kHz rate with 16-bit resolution and uses the Microsoft WAV file format. Most PC-based DAWs support this format; audio can be transferred from the DX-5050 to a DAW and vice versa.



The main unit's basic editing functions enable cut-and-paste editing at the same speed as a quarter-inch analog tape machine. Complex editing can be performed on a PC-based DAW.

An advantage is the lack of an audio delay at startup, as with a DAT or MD machine.

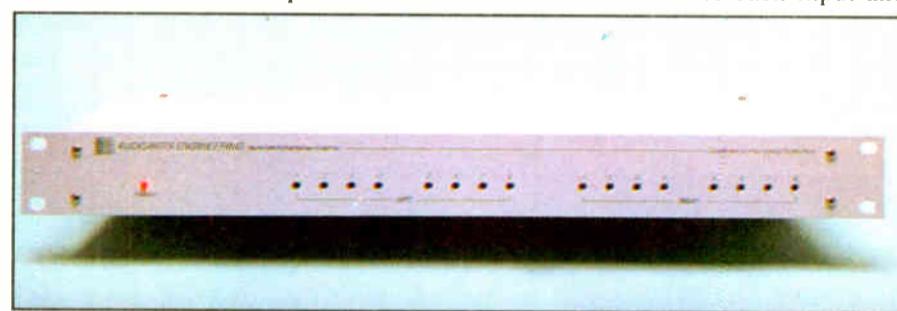
The DX-5050 can be installed in a 19-inch rack using the optional rack mount adaptor. An input sample rate converter is optional.

For more information contact Otari in Tennessee at (615) 255-608 or visit the company Web site at www.otari.com.

Audioarts Uses Dual-Channel DA

The DA 8400 from Audioarts Engineering relies on its multiple configurations to provide dual-function use as a distribution amplifier.

The two configurations of the 8400 are as an eight-output stereo unit or as four 1 x 4 DAs using rear-panel jumpers, which provides 16 outputs total. The model also uses separate three-conductor connectors for each input and



output, which helps with in-field wiring changes and troubleshooting.

The model's 15-turn output gain trims for calibration. It uses a regulated DC power supply with a protected current and a low magnetic field power transformer. The circuit boards are FR4 glass epoxy with solder mask coating to reduce foreign particle damage.

The 8400's performance specifications include a flat frequency response from 20 Hz to 20 kHz.

For more information contact Audioarts Engineering in North Carolina at (252) 638-7000 or visit www.wheatstone.com.

Nagra Recorder Edits, Transmits On-Site

The Nagra Series-C recorder/editor machine with ISDN codec is a digital recorder with the ability to edit recordings on the spot.

The solid-state Series-C is capable of recording MPEG 2 audio, mono or stereo in bit rates of up to 192 kbps. It is available with an ISDN codec able to deliver 64 kbps, G.7.11, 7.22 or MPEG 2 down a single B channel.

The digital editor is non-destructive and can be used directly after recording. The ISDN feature can record and play files through the PCMCIA Flash card-recording media. This allows news stories to be gathered and delivered to remote destinations.

The Series-C uses an on-board DSP that provides conversion of recordings made in different compression modes and allows bit rates higher than 64 to be converted prior to transmission.

Prices start at \$5,650 for the C-PP rack-mount version.

For more information contact Nagra in Tennessee at (615) 726-5191 or visit the company Web site at www.nagra.com.



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Shure M-267 mic mixer, mount, \$300/BO. Al Wodel, ILCC-Telecom, 300 So 18th St, Estherville IA 51334. 712-362-7939.

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Autogram IC-10, 10 channel stereo, very good condition, \$1000. Tom Toenjes, KJTY, 6120 Riley Circle, St Marys KS 66536. 785-437-6549.

BE 55/50A Series used for light recording, can email photo, BO. Michael Raley, Bible Broadcasting Network, Charlotte NC. 704-523-5555.

Harris Executive, 10 channel stereo, \$750. Tom Toenjes, KJTY, 6120 Riley Circle, St Marys KS 66536. 785-437-6549.

LPB Signature III, 10 channel board in good condition, picture available via email. Michael Raley, Bible Broadcasting Network, Charlotte NC. 704-523-5555.

Peavey Unity Series 2002 console, 16 channel stereo mixer, new, \$595. George Wilkes, WSOC FM, Charlotte NC. 704-227-8101.

Radio Systems RS-18 with power supply in A+ condition, very little use, extra engraved buttons, lamp & connectors, \$4000. Casey, Iron Dog Productions, 620-727-1177

Ramko DC38-10S & 5S, 4 inputs each channel, 10S has upgraded input cards, both units in good condition, manuals for both, \$1300 for the 10S, \$800 for the 5S. Duane or Reid Ashbaucher, WPOS, 7112 Angola Rd, Holland OH 43528. 419-865-5551 or radio@wposfm.com.

Russco 5055 audio board, needs work, \$250. Eric or James, Adelman Communications, 731 N Balsam St., Ridgecrest CA 93555. 760-371-1700.

Shure M-267, 4 input mike/line mixer with rackmount accessory, \$225. David Meyer, D. Meyer Production, 1123 Del Mar, Santa Barbara CA 93109. 805-962-8273.

Want to Buy

Western Electric 25A. Paying up to \$7500 for this console & always buying WE mics, tubes, catalogs & turntables. Larry Drago, WEI, POB 85, New Haven CT 06501. 203-230-5255.

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

Collins 26U-1 limiter for parts or just the meter. Tim Coffman, 858-571-5031.

Urei, Universal Audio, dbx, Collins, RCA, Gates. Tim Coffman, 858-571-5031.

MICROPHONES

Want to Sell

Electro Voice RE-20, \$375. Phil Cibley, Studio C Music Library, 166 E 35th St, New York NY 10016. 212-481-8141.

Sennheiser 441 in box with papers, \$300. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

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Neuman, RCA, Shure, AKG, Beyer, others 1950-1990. Tim Coffman, 858-571-5031.

RCA 77-DX, 44-BX, KU-3A's, WE-639's, On-Air & recording lights wanted, top dollar paid! 615-352-3456, FAX: 615-352-1922. E-mail: billyrantmgmt@yahoo.com.

RCA 77DX/44BX. Will pay \$1000 for these mics. Call anytime. Larry Drago, WEI, POB 85, New Haven CT 06501. 203-230-5255.

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Arrakis 1100A audio routing switcher, 16 input stereo, 4 output stereo, some spare IC's, manual, \$450. Duane or Reid Ashbaucher, WPOS, 7112 Angola Rd, Holland OH 43528. 419-865-5551 or radio@wposfm.com.

Broadcast Tools PBB-24 programmable button boxes with power packs, like new, two units, \$125 each. Duane or Reid Ashbaucher, WPOS, 7112 Angola Rd, Holland OH 43528. 419-865-5551 or radio@wposfm.com.

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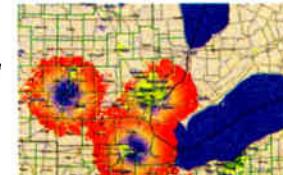
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Vertex FTH 7009 6 channel UHF 5 watt hand holds with CD4 charger, can program, 6 @ \$75 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Vertex FTH-2009 6 channel VHF 5 watt hand holds with CD4 charger, 5 @ \$75 each. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Bear or similar FM mod & stereo monitor. Clarence Jones, Educational Radio of St. George Inc., 106 Carolina Ave, St George SC 29477. 843-563-7097.

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Audi-Cord 126 & 146 cart recorder/reproducer, also mod-quad with remote. Remote in need of repair. Manuals, test tape, some spare parts, \$400. Duane or Reid Ashbaucher, WPOS, 7112 Angola Rd, Holland OH 43528. 419-865-5551 or radio@wposfm.com.



Marantz PMD-360 for parts, \$50. Peter Russell, Bowdoin College, Sills Hall, Brunswick ME 04011. 207-725-3066.

Otari MX50 r-r. Dozens that are in perfect working condition, BO. Michael Raley, Bible Broadcasting Network, Charlotte NC. 704-523-5555.

Tanberg 15-21 Series 15 reels (2), like new, need belts, \$50/pair. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Tascam #32 in excellent condition, used very little, rack mount, \$800/BO. Curt Marker, WHWL, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

Tascam BR-20 r-r recorder in excellent condition, BO. Michael Raley, Bible Broadcasting Network, Charlotte NC. 704-523-5555.

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Wegener Jones JDAR digital satellite receiver, picks up all formats of Jones Network, less than 2 yrs old, station changed format, \$1200. Art Morris, KSWM, 126 S Jefferson, Aurora MO 65605. 417-678-0416.

Zephres 4 cards #304, excellent condition, BO. Curt Marker, WHWL, 130 Carmen Dr, Marquette MI 49855. 906-249-1423.

Zephyrus 300 Series satellite receivers, one has relay card, 3 receivers, manuals, BO. Duane or Reid Ashbaucher, WPOS, 7112 Angola Rd, Holland OH 43528. 419-865-5551 or radio@wposfm.com.

**STATIONS
Want to Sell**

AM/FM COMBO in Southwest Missouri. 25,000 watt FM, 1,000 watt Daytime AM. Owner will carry note. 417-326-6445.

WESTERN NORTH CAROLINA FULLTIME AM in small growing market. Diversified economy, resort area and college community. Billed \$365,000 last year. Solid business, same ownership for over 40 years. Offered at \$450,000. Reasonable lease/combo operation. Reply to: Jack Appleton, 135 Mark Trail, Atlanta GA 30328. Email: jappleto@steelcase.com or phone: 404-614-6128.

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TEKTRONIX 1502 TDR, GR-1606 RF BRIDGE, POTOMAC AT-51, AM-19D. MUCH MORE TEST EQUIPMENT, CALL FOR LIST: PAUL WHITNEY, 972-772-9162.

Ampex 300E vacuum tube voltmeter, \$30. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Want to Buy

Wegner Unity 4000 used digital receiver. K Diebel, 1707 Louisa St, Rayville LA 71269. 318-728-2370.

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28	Kintronic Labs	www.kintronic.com
29	Klotz Digital AG	www.klotzdigital.com
64	LBA Technology	www.lbagroup.com
12	Logitek	www.logitekaudio.com
26	LPB Communications	www.blue5c.com
49	Lynx Studio Technology	www.lynxstudio.com/rw
33	MediaTouch	www.imediatouch.com
60	MMR Services	www.x-plosivefilter.com
43	Moseley Associates	www.moseleysb.com
8	Nautel	www.nautel.com
39	Netia	www.netia.net
22	Neutrik USA	www.neutrikusa.com
35	NPR Satellite Services	www.nprss.org
9	Omnia, a Telos Company	www.omniaaudio.com
27	Orban	www.orban.com
38	Orban	www.orban.com
11	Prime Image	www.primeimageinc.com
41	Prophet Systems Innovations	www.prophetsys.com
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2	Wheatstone	www.wheatstone.com
52	Wheatstone	www.wheatstone.com

OPINION**♦ READER'S FORUM ♦****Amber plans**

As noted in the July 4 issue ("Amber Abduction Alert Likely for EAS"), the FCC has issued a Notice of Proposed Rule Making proposing changes to the EAS Rules.

The focus of the article was on the proposal to add an alert code for a missing child, in response to the "Amber Plan" now in use in certain parts of the country.

We oppose the addition of new codes to the system. As long as EAS remains a "daisy-chain" system, where stations must automatically air emergency messages, we believe EAS alerts should be limited to events that create an immediate hazard to the general public.

Too many alerts, especially when they interrupt regular programming, can irritate, rather than inform, the public.

The FCC, in the NPRM, noted that some stations removed NWS radio from their systems for this very reason. Missing-child alerts and similar time-critical information is better distributed either by a closed-circuit relay system or by other means of communication, such as broadcast fax.

Our full comments are available at the FCC Web site at www.fcc.gov. Go to "Search," then "Search for Filed Comments." At the search screen enter "01-66" for the proceeding to bring up the list of all comments filed.

*Tom Taggart
Part Owner*

*Seven Ranges Radio Co.
St. Marys/New Martinsville, W.Va.*

MDO codec

I enjoyed the review of the MDO AudioTX Communicator software codec in the Aug. 15 issue ("Communication Via a Software Codec").

It might be good for your readers to note that AudioTX is available from Musicam USA or its authorized distributors, since Musicam USA is the exclusive distributor for the Western Hemisphere.

*Art Constantine
Vice President
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MW transmissions

It is historically bizarre, in context of European regulation, that radio stations on MW (AM) transmitting 100 kW+ aren't common in America.

The 50 kW MW "power maximum" is 60 years old. The 1960-1970s Mexican "border blasters" tried to "reverse" FCC regulations but never succeeded.

If you do a MW nighttime band scan in the continental United States, you will hear a barrage of noise on any nonlocal MW frequency. Multiple stations competing for reception in your receiver creates noise.

The MW band at night is "junk" broadcasting now. Listeners listen while driving to and from work only because MW overpowers engine noise better than FM.

The barrage of noise on MW has to be a side effect of the Cold War propaganda broadcasting "anti-jamming" techniques. The VOA/USIA/BBCWS/RIAS/R Liberty did use, as standard procedure, "barrage broadcasting" on SW/MW from roughly 1947 to 1990 to counter jamming from the Eastern Bloc.

A "barrage broadcast" is a program on two or more frequencies to a target area.

Maybe the FCC goal of MW station over-allocation from 1955 to 1985 was to make it impossible for any North American to ever hear any MW DX from Western and Eastern Europe. Radio Moscow/Tirana on MW and LW to Europe ran at ~2 MW. U.S. MW over-allocation may also have been an attempt to jam any signals from Cuba or Central America.

LW is now the only "workable" U.S. DX band. The only Europeans LW known to reach North America are BBC (Dortwisch) and Algerian Radio (Bechar).

Yet, I do not see the U.S. MW band being cleaned out any time soon. Nor do I see a rush to high power — day or night.

U.S. broadcasting ownership laws allow a station owner to possess many AMs and FMs in the same market. Owners can put the same programs on MW and FM at will. Yet simulcasting is rare. Cause: cheap station automation.

U.S. utilities have a ~4.5 percent Power Reserve Margin (PRM), save California and the Pacific Northwest.

Amber Deserves Green Light

Hagerman, a Texas girl who was abducted and killed in 1996.

The program has been credited with the return of 16 children, according to the Washington Post. For instance, it described an abductor who pulled his truck over and released a 9-year-old captive after he heard an alert with his description in 1999. In another incident, a two-month-old baby was recovered after a motorist listening to the radio heard a description and realized the suspect's car was right in front of him.

Four states and two dozen municipalities now use the Amber system, which relies on the voluntary participation of radio and TV stations.

Critics have pointed out that making broader use of the EAS system might weaken its effectiveness (see letter, far left) and invite many other deserving causes to demand EAS support of their own. And some broadcasters may be reluctant to open this communication channel to law enforcement agencies via the airwaves.

But we think this one is a no-brainer.

Defined guidelines will help prevent overuse of the system. Stations should work with their law enforcement agencies and Amber organizers to make those boundaries clear. But radio should take part.

In fact, broadcasters should *rush* to participate in a program through which they can help save young lives at such little cost to themselves. It's simply the right thing to do.

— RW

MW broadcasting with 100 kW+ needs PRMs of ~7 percent. There is not enough current to go around for such ventures, nor will there be in the future.

The purpose of U.S. MW broadcasting has been unclear for too long. FM/TV/DTH TV now cover underpopulated areas. Megalopolises don't need more RF pollution. DRM can be ignored because it is very backwardly compatible. Power levels and allocated frequencies are the kernel of station operation, not emission format.

*Max Power
Lynwood, Wash.*

was eating lunch while reading your article and happened to remember a pile of gels on a co-worker's desk.

I found one that seemed about right, cut off a corner, and solved the problem with this gel and two pieces of Scotch tape. I even shared credit with you, instead of being the hero myself.

Now the whole station knows why I always spend the morning I get my RW with my nose buried in it.

*Jim Dean
Production Assistant
Adelphia NewsChannel 4
Cumming, Ga.*

Remote controls

Just a quick note of thanks for including the tidbit about remote controls being affected by lights ("Now You See It, Now You Don't," July 4).

We've got a TV in the break room here at the television station that has misbehaved for as long as I've been around here.

I never paid much attention to it, since I don't use it that much, but I

Write to Us

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READER'S FORUM**

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Radio World (ISSN: 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966.

Periodicals postage rates are paid at Falls Church, VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church, VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Joanne Munroe, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966. Copyright 2001 by IMAS Publishing (USA), Inc. All rights reserved.

Printed in the USA

Radio World

Vol. 25, No. 20 September 26, 2001

Telephone: (703) 998-7600 • Business Fax: (703) 998-2966 • Editorial Fax: (703) 820-3245
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NEXT ISSUE OF RADIO WORLD OCTOBER 10, 2001

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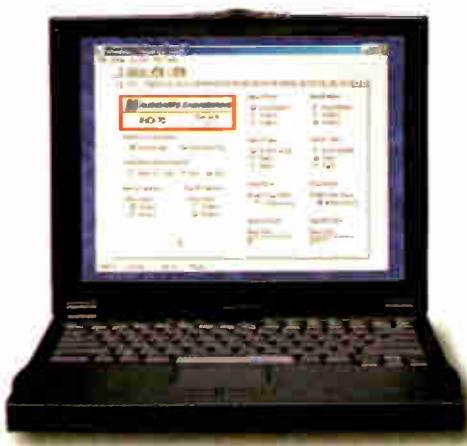
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