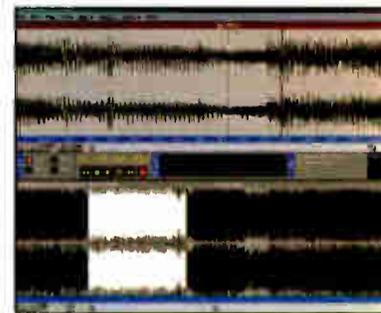


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**AM Digital at Night**  
 Glen Clark says the majority of 24-hour AMs should be allowed to go IBOC.

**Cut and Paste**  
*Buyer's Guide* looks at digital audio production tools.  
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# Radio World

\$2.50

The Newspaper for Radio Managers and Engineers

March 12, 2003

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RAB2003

### FORGING LYNX

▼ An Indiana engineer takes home a Lynx L22 PCI card.

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## Groups Centralize Technical Ops

by Randy J. Stine

Technical departments for many broadcast groups reflect a more centralized way of doing business — due to consolidation, but also because of tighter budgets during the recent downturn in the U.S. economy.

Practices continue to differ across the industry, however. Engineering managers at Clear Channel and Cumulus Broadcasting, for example, say they have fairly rigid structures in place. The top engineer at Hispanic Broadcasting Corp. says the company usually allows local engineers the freedom to purchase equipment within a certain budget.

Still, engineering management differs from how it was done just a few years ago, several sources said, from the way equipment is purchased to how engineers are hired.

Clear Channel's organizational ladder includes 11 regional engineering services managers, said Jeff Littlejohn, senior vice president for engineering services. An RESM has the same function as a VP of engineering would have in a smaller company.

"They manage capital and projects and assist engineers and market managers with day-to-day needs," Littlejohn said.

Some engineering decisions are made at the cluster level, he said; but capital purchasing decisions are managed from the corporate level.

"As much as we would like to allow

every engineer to buy from their favorite vendor, it's not the best approach. We still make sure the stations get what they want; but by purchasing in quantity, we saved several million dollars last year alone," Littlejohn said.

### Communication levels

Communication with and among Clear Channel's 1,200 stations and engineering departments is done via an internal Web site, e-mail and periodic conference calls.

Hispanic Broadcasting Corp. Director of Engineering David Stewart calls his company's approach to technical operations "very centralized and very top-

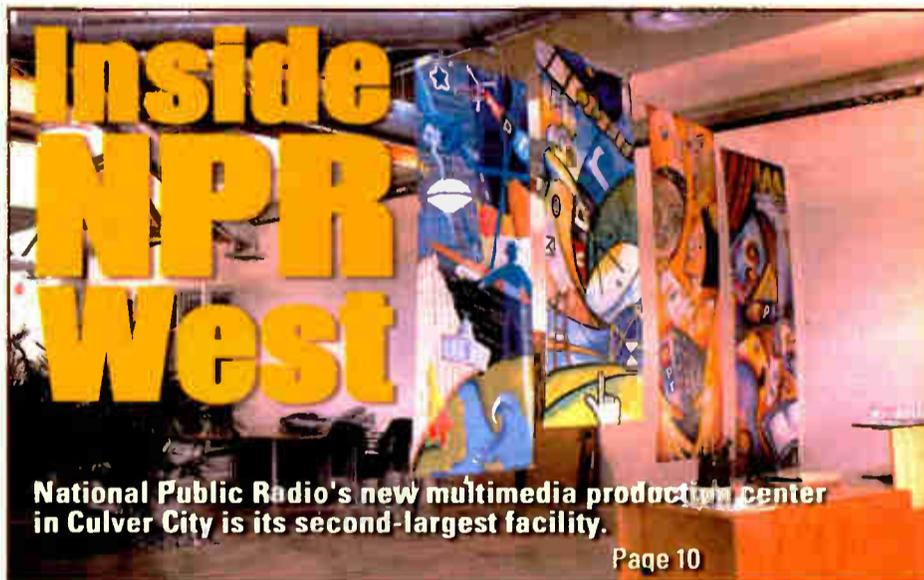
down." However, HBC has a local engineering manager in each of its 15 markets.

"My assumption is that the people in the trenches know a lot more that I'll ever know. We usually give them freedom to do their work within the operating budget," Stewart said. "The home team is not automatically wrong when it comes to purchasing."

Still, Stewart said certain decisions, such as when to roll out HD Radio in each market, come from the top. The group will have nine of its stations transmitting both analog and digital signals by mid-year.

"I usually need to mediate between

See CENTRAL, page 7 ▶



National Public Radio's new multimedia production center in Culver City is its second-largest facility.

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# Clark: Let AMs Go IBOC at Night

**PITTSBURGH** Glen Clark, president of Glen Clark & Associates, says the FCC has the capability to determine which AMs can use Ibiqity Digital Corp.'s digital technology at night without causing undue interference to their neighbors.

## Five-rule test

Clark is a communications consulting engineer involved in the study and development of digital transmission in the AM band. His company participated in an AM allocation study in 1997 and '98 that provided design guidance for the AM IBOC system. Engineers for what was then called USADR needed to know how tightly

packed AM stations are and what interference conditions existed to design a compatible IBOC system, Clark said.

He suggests a five-rule test to assess quickly which stations should go IBOC at night and plans to discuss his theory at the IBOC presentations on Sunday, April 6, at NAB2003.

Clark has asked the FCC to reconsider its ban on AM IBOC at night. The interference concerns that led to the ban can be addressed in ways that would allow the "majority" of 24-hour AMs to go IBOC immediately, he states in the Petition for Reconsideration.

It is true, he states, that "a minority"

of AMs would cause "significant interference" to their neighbors if they went digital at night; however he believes the number is small.

## Existing guidelines

The FCC already has a spectrum allocation guideline, the desired-to-undesired ratio, that can predict which AMs would likely cause interference to their neighbors with nighttime IBOC operation, so it is unnecessary to ban all AM nighttime IBOC operation, he argues. FCC rules require co-channel stations to have a D/U ratio of 20-to-1, meaning any interfering signal can be no stronger than 1/20th of

the strength of the desired signal. First adjacent channel stations are required to have a D/U ratio of 2-to-1 or more at the periphery of the primary service area. These rules, he states, do not change from day to night.

Expanded-band stations are subject to more-stringent nighttime allocation standards, a 2-to-1 D/U ratio for first-adjacent. He proposes authorizing all expanded-band AMs for nighttime IBOC operation immediately. He says it should happen soon.

He proposes the commission can identify AMs that could go IBOC at night with no significant additional first adjacent channel interference by asking: "What stations could satisfy the same standards at night as are implied to be adequate by the commission's approval of IBOC during daytime hours?" Or, "What stations could satisfy the current standards in Part 73.182 with reference to first-adjacent channel stations without drawing upon grandfathered radiation rights?"

NAB believes Clark's work is useful, but not, by itself, sufficient for the FCC to authorize AMs to go IBOC at night. NAB suggested the commission wait until Ibiqity Digital Corp. submits the results of further AM nighttime testing "to better examine the impact of AM IBOC at night."

Ibiqity hopes to submit such a report to NAB by the end of March.

Clark responded by saying NAB's position, to wait a short period for all data to come in, is reasonable. He stands by what he submitted.

"The five-step test is defensible. We're not going to withdraw the petition."

— Leslie Stimson

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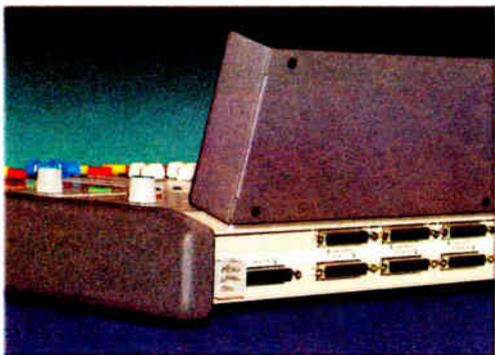


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# Iran Service Draws Scrutiny

*Radio Farda Hopes to Build on the Concept Already Being Pursued by Radio Sawa*

by **Naina Narayana Chernoff**

**WASHINGTON** The U.S. government continues to update its international radio offerings, recently aiming new programming at younger listeners in Iran in hopes of exposing them to democratic ideas — although not everyone involved is happy about it.

Radio Farda, which means "Radio Tomorrow," went on the air in December, replacing another U.S.-government-sponsored radio service, Radio Azadi, or Radio Freedom. A joint initiative of Radio Free Europe/Radio Liberty and Voice of America, the 24-hour Farsi-language station features pop music with hourly 12-minute newscasts and two half-hour daily programs of news analysis. VOA Farsi-language radio and television services remain unchanged.

**We consider ourselves to be local radio, but we follow the Western journalistic standards.**

— Ali Farhoodi

Union members employed by Voice of America news services have criticized the Farsi service. In a letter to the Washington Times newspaper, the local union argued that funds for proven VOA radio services are being diverted to create Middle Eastern television programs that only offend Muslim viewers instead of broadcasting world news and information about the United States.

The Broadcasting Board of Governors, the presidentially-appointed panel that supervises U.S. broadcast efforts abroad, "is dismantling VOA to create pet projects such as Radio Sawa in Arabic and Radio Farda in Farsi to Iran that skirt the charter," wrote Tom Shamble, president of Local 1812 of the American Federation of Government Employees in the February letter.

Other critics spoke up about a perceived strategy change by the BBG with respect to VOA and RFE/FL Middle East broadcasting. In a Wall Street Journal editorial, retiring Republican U.S. Senator Jesse Helms complained about the "top 40" music and youthful approach of Radio Farda.

The new service is broadcast on AM as well as shortwave, digital audio satellite and by the Internet. VOA and RFL/RE hopes to attract more listeners than its predecessor, which was tuned in mostly by older listeners. Radio Farda is modeled on Radio Sawa, another recent U.S. government-sponsored Arabic service. Radio Farda's creators decided to program the station

for listeners under 30, who make up 70 percent of Iran's population of about 66 million.

"We wanted the largest possible audience," said Norman Pattiz, president and founder of Westwood One and BBG member. "So we had to marry our mission to the market."

## Expanding outlook

The BBG launched the project in fall of 2002 after conducting a study of broadcasting in Iran, its public and the U.S. government's desire to promote freedom and democracy there. According to Pattiz, who serves as chairman of the BBG Middle East Committee and oversaw the creation of Radio Sawa, Radio Farda expands the amount of news and information Iranians have received from existing services.

Iranian officials have not welcomed Radio Farda warmly. Iranian Foreign Ministry spokesman Hamid-Reza Assefi called the broadcasts "fruitless and interfering" in a release by the Islamic Republic News Agency, the official news agency of Iran.

The BBG and other sources report jamming of shortwave transmissions. More than a dozen other foreign broadcasting services also transmit to Iran, including the BBC World Service, Deutsche Welle and Radio France Internationale.

The service is prevented from broadcasting on an FM frequency because of strict licensing guidelines in Iran. Radio Farda listeners tune in on the Internet, AM 1593 kHz and 1539 kHz; digital audio satellite services including AsiaSat 2, Eutelsat Hotbird 3, Arabsat and Nilesat; and, for 21 hours each day, on shortwave. For satellite listeners, a digital satellite receiver is required to receive the signal.

The station is operated from Washington and Prague in the Czech Republic, site of VOA's main European bureau. With eight reporters in Washington, the staff of RFL/RE in Prague and Iranian stringers in other parts of the United States, Europe and the Middle East, the service broadcasts 46 newscasts, including the two daily 30-minute news magazines and short news updates at the top and bottom of each hour, which feature analysis, reports from Iran, interviews and roundtables, said Ali Farhoodi, news director of the Washington bureau.

The Washington staff covers an eight-hour shift from 2:30 to 10:30 p.m. Eastern, and the Prague staff covers two shifts of eight hours each. The Prague bureau is led by News Director Marto Sorghum, former director of the RFE/RL Armenian service. U.S. consultant Bert Kleinmann, involved in the start-up of Radio Sawa, is the music consultant.

Until early December, Farhoodi and six of those reporters worked for the Washington-based VOA Farsi news service, which trimmed its hours of service on shortwave from five to four hours. After hiring two new reporters, the newly assembled Radio Farda staff began a two-week training period and went on the air Dec. 18.

Compared to VOA Farsi, Farhoodi said, Radio Farda "is a completely different operation. It's fast-paced and around the clock."

The launch of Radio Sawa also has brought a new approach to news broadcasts in Iran, where there are up to 20 other foreign radio broadcasters on the air, but none offering 24-hour service, said Farhoodi.

"At whatever time in Iran, listeners are no more than 28 minutes from a news update," he said. "They don't have to wait for the set times of other broadcasters."

Farhoodi said the two staffs share reports using an FTP server and the

digital radio operating system DigaSystem, created by German manufacturer Digital Audio Video Integration and Development Systems Inc., or D.A.V.I.D.

RFE/RL's bureau in Prague equipped its 25 language services with DigaSystem software last year.

The system features an adaptable, modular open architecture that enables Radio Farda's staff to access digital audio files over a standard networking environment with content management capabilities. Using the DigaSystem, Farhoodi said, reporters can exchange, record, edit and schedule items in the program folder from any computer workstation.

The music playlist is assembled at a separate location at VOA's headquarters in Washington. It also is accessible through the system, he said.

Similar to many American news format stations, Farhoodi said, Radio Farda broadcasts stories in an integrated manner, placing stories, interviews and stringer reports together during a newscast.

"We consider ourselves to be local radio," he said. "But we follow the Western journalistic standards."

## More offerings

On Feb. 19, the service expanded its offerings when Radio Farda launched the first of three planned 30-minute public affairs programs, each to be aired twice for a total of three hours per week.

See FARDA, page 8 ►

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# Fundamentally, Radio Matters

Every time a snowstorm or summer twister moves through, we are reminded of the relevance of radio.

But the importance of the medium was brought home to me in a new way during this winter's heightened terror warnings. Here in the Washington area, newspapers wrote articles, TV reporters blathered and governments issued detailed advice about how we should prepare for biological, chemical or other emergencies with duct tape, plastic sheeting, fresh water, canned food and candles.

Near the top of every emergency list was a battery-powered or wind-up radio.

We're not just in the business of selling commercials or playing music, honorable though these tasks may be. Should the worst happen, should electricity, water, food and infrastructure fail, society will turn to us in radio. This is a reminder of our continued relevance and our great responsibilities.

★ ★ ★

Another study affirms that listeners are

satisfied with their programming choices.

Arbitron said 79 percent of listeners feel they get from their local stations more or the same amount of choices than they did five years ago. More than one-third of listeners said choices are greater. More than two-thirds said local stations do a very good or good job of providing a wide variety of programming.

This bolsters what NAB has argued in recent months, and serves as a helpful counter to criticism aimed at radio during the FCC ownership rules hearings.

Arbitron said almost 80 percent listen to local stations for information on news, weather, traffic, sports and community activities at least once a week; and 85 percent said stations play an important role in providing such information.

"More variety in programming — not less — is available to radio listeners" following consolidation, stated Arbitron Radio Senior Vice President and General Manager Scott Musgrave in the announcement.

"Radio programming is as diverse as the American radio audience. Where there's a population base and a desire for a format in the marketplace, someone in the radio industry is going to meet the need because it makes economic sense for them to do so."

A Bear Stearns report in November found there were 7 percent more "core" formats available in the fall of 2001 relative to five years earlier. Bear Stearns identified more than 250 formats in radio's 200+ rated U.S. markets.

★ ★ ★

Our thoughts are with the family of Burt E. Stimson, who died Feb. 2 in Annapolis.

Stimson, 85, was the father of Radio World News Editor and Washington Bureau Chief Leslie Stimson. Until his retirement in 1981, he was in charge of repairing cameras for the photographers of National Geographic magazine.

★ ★ ★

A trust fund has been set up to benefit the surviving family members of Scott Beeler, the broadcast equipment executive who died last fall.

The fund benefits Beeler's pregnant wife Kim and five children. You can contribute by sending a check made out to "The Scott Beeler Memorial Fund," and mailing it c/o Tom Stout, 1200 Crosstimbers Drive, Louisville, KY 40245. Stout is Beeler's stepfather.

Beeler's employer, ERI, has helped spread the word about the fund and plans a private donation, according to COO Jim Meleski.

Separately, organizers of a golf benefit for the family at the upcoming NAB show continue to seek sponsors. The event is Saturday, April 5. For info, write to Cam Eicher at [cam@logitekaudio.com](mailto:cam@logitekaudio.com) or Brian McConnell at [brian@sasaudio.com](mailto:brian@sasaudio.com).

I know Scott Beeler would be deeply grateful to the industry people who have stepped up to remember him and to help

## From the Editor



**Paul J. McLane**

his family.

By the way, his son, due April 1, will be named Scott A. Beeler Jr.

★ ★ ★

Full Compass Systems is 25.

The Wisconsin-based supplier was founded in 1977 by Jonathan Lipp in an office next to Full Compass Sound Studios. He and his wife Susan have grown the company to a \$50 million business, according to an announcement by the firm. Susan Lipp now serves as president, Jonathan Lipp as CEO.

The couple threw an "ice fishing" party for employees, vendors, reps and other guests in December to mark the occasion.

"The Lippes, donned in flannel, along with their employees and another 200 ice fishing-ready invited guests, took over Madison's Essen Haus restaurant for traditional Wisconsin dinner — spaetzle, corn on the cob, taters, fish fry and lots more," the company said in a statement.

The parties also trekked to the Madison Repertory Theatre for a private performance of a show called — what else? — "Guys on Ice."

★ ★ ★

E-mail Pig update: I sent 1,690 e-mail messages in the month of January, or about 73 per work day, virtually none of it "bulk" — all individual messages. Time to join E-Mailers Anonymous. 🐷

Congratulations to Sam Rowley, staff engineer for HCJB World Radio in Elkhart, Ind. He wins an L22 PCI card from Lynx Studio Technology in Radio World's New Technology Sweepstakes.

The L22 offers two balanced analog inputs and outputs supporting 24-bit/192 kHz and 117 dB dynamic range by using proprietary circuit topologies with low-jitter clocking. Its features include AES/EBU or S/PDIF digital I/O with SRC, external clock synchronization and a 32-channel mixing processor. LStream expansion ports provide the option of 16

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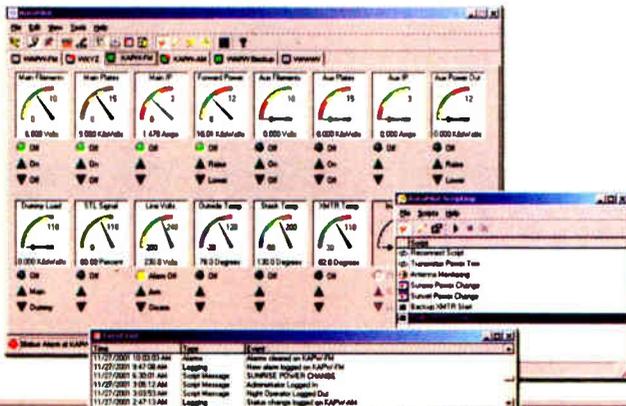


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# Limits, Market Definition Disputed

Here is a sampling of the thousands of comments filed with the FCC about media ownership. Chairman Michael Powell hopes revised rules will be issued in late spring.

Topics include whether to change the definition of a radio market, the effect of the 1996 relaxation of local radio ownership limits, cross-media ownership restrictions and how the agency scrutinizes potential deals during its anti-trust review.

"Regarding what approach ought to be taken in addressing local radio station combinations, let us make clear the FCC not only can but should consider public interest factors beyond mere compliance with the numerical limits. There is a wide disparity in the competitive effects between one possible grouping of stations that might, for instance, have less than a 25 percent share of the radio advertising market revenue and another group of the same number of stations controlling an 80 percent or more share. ...

"We are concerned that the commission more rigorously examine concentration specifically to ensure such independents an opportunity to remain viable and not feel forced to sell out or reduce service."

*Americans for Radio Diversity  
Hopkins, Minn.*

"North American Broadcasting Company believes that the extraordinarily high levels of radio and media ownership concentration — in Columbus (Ohio) and generally — have led to abuses by many large group owners. This abusive behavior has worked against the interests of advertisers, advertising agencies, other broadcasters in the market and the listening public itself. ...

"According to NABCo sales staff, every day one major group owner in the city, when a buy comes up from an agency, puts its stations together at \$15-20 per point below the 'cost-per-point' figure in the market to knock small groups and single-station operators out of consideration for the buy. ...

"NABCo sales staff has engaged in conversations with advertisers and advertising agency personnel who complain that the large group owners in Columbus will attempt to coerce an agency and/or advertiser to buy, or accept at no charge, a station that the agency/advertiser 'would never look at in the first place.'

"A typical comment of agency personnel is that, when they fax over an avail request for a particular station to fit the advertiser's target demographic, the two large group owners in Columbus will send back the request with the addition of stations in their groups. But, the agency representatives complain, buying advertising time on these additional stations 'makes no sense.' ...

"It is recommended that the FCC first

change the definition of radio markets to make it a more realistic measure. NABCo urges the commission to use Arbitron markets as the basic measure of a market. Once a revised market tool has been established, the FCC then should fashion a 'concentration factor' tool that can be used to govern and control the extent of multiple ownership by radio group owners in a market."

*North American  
Broadcasting Company  
Columbus, Ohio*

ing stations located in the Trenton (N.J.) market. Blind use of Arbitron's commercially driven market would cause the commission to arbitrarily ignore certain realities within a particular market. With overlapping contour analysis, the commission can more adequately assess the realities of the marketplace in which the proposed combination may occur."

*Nassau Broadcasting Partners LP  
Princeton, N.J.*

"The FCC's current radio/TV cross-ownership proscriptions ... have not real-

**Every day one major group owner in the city, when a buy comes up from an agency, puts its stations together at \$15-20 per point below the 'cost-per-point' figure in the market ...**

— NABCo

"The commission's review of economic concentration in the radio advertising market is wholly duplicative of matters that are fully within the purview of the Department of Justice and the Federal Trade Commission under federal antitrust laws. Indeed, the commission itself acknowledges in the NPRM that its current practice is to await the completion of any DOJ review of a radio transaction ...

"The commission should take the next logical step and acknowledge Congress' intention in the 1996 Act that the commission limit its review of local radio ownership to the numerical caps contained in the text ... and leave the analysis of economic markets to DOJ and FTC. ...

"If the commission implements a transaction screening process, such as the 50/70 transaction screen in the commission's interim policy, to determine when the commission will analyze the impact of the proposed transaction on economic competition, then that transaction screen should be a single threshold value for the market participant proposing to acquire stations in the transaction rather than the dual threshold of the current interim policy.

"Whatever the value of a single-value/single-party threshold for isolating transactions of potential concern, a second threshold does nothing but allow a dominant market player to entrench its position in the market by raising a regulatory barrier to lesser market participants who wish to improve their competitive position by acquisition or joint venture."

*Entercom Communications Corp.  
Bala Cynwyd, Pa.*

"Few commenting parties requested the use of Arbitron radio metropolitan areas as the relevant geographic market. Nassau, along with the clear preponderance of other interested parties, requested that the commission maintain its current market definition methodology, involving the use of overlapping contours.

"Nassau experienced complications when the commission used an Arbitron-defined market as a reference when analyzing its assignment applications involv-

ly had the chance to be fully evaluated. Buckley urges the commission to go slow in allowing further cross-media combinations; as such combinations can adversely affect the media marketplace, particularly in small markets. ...

"(T)he commission approved the transfer of control of Ackerly Media Group Inc. to Clear Channel Communications Inc. One of the results of this decision was the approval of a transfer of control of television station KION(TV), Monterey, Calif., as well as the transfer of an LMA with station KCBA(TV), Salinas, Calif., to Clear Channel, which already owned six radio stations in the small Monterey-Salinas, Calif. market.

"In that case, the commission failed to consider the effect of the combination of the dominant radio and television broadcaster in the same market, each enjoying nearly a 50% market share of the advertising revenue in its service. ... Such combinations can be anti-competitive, particularly in small markets. ...

"In the Monterey-Salinas market where Buckley operates two radio stations, radio and television advertising time during many dayparts sells at approximately the same rates. Thus, radio and TV advertising is interchangeable to advertisers, meaning that these different media are direct competitors for advertising dollars. The strong substitutability between radio and television advertising in smaller markets supports the continued limitation on radio/TV cross-ownership. ...

"The commission should not allow two players, with significant market shares in different media, to combine their media holdings so as to become a single, dominant player in the advertising market in a given area."

*Buckley Broadcasting Corp.  
Greenwich, Conn.*



**Millenium Consoles - The NEXT big thing**

by  
**Mark Stennett,  
V. P. Engineer  
NEXT Media Group**

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## Correction

A story on page 7 of the Feb. 12 issue incorrectly stated the call letters of WYGY(FM) in Cincinnati and the owner of Buckley station WOR(AM) in New York.

# NEWSWATCH

## AFTRA, SAG Prepare for Merger

The staffs of the American Federation of Television and Radio Artists and the Screen Actors Guild are preparing for the organizations to merge. Boards of the unions are developing a constitution, a business plan for the merged entity and a transition guide. Preparations are to be discussed at a meeting of the boards in Washington April 5.

At a videoconference meeting in February, the national boards of the unions approved a consolidation plan by a vote of 141 to 3. The plan calls for the creation of an umbrella union and three affiliates operating within that umbrella and dedicated to actors, broadcasters and recording artists.

Upon each board's approval, each union will send referendums for ratification to its members. Both AFTRA and SAG's constitutions and bylaws require at least a 60 percent majority of votes for passage.

## Clear Channel Extends Lobbying

WASHINGTON The Clear Channel Communications lobbying team in Washington is bigger. It has added two former congressional staffers, Robert Fisher and Brendan Kelsay.

Fisher comes from the Senate Commerce Committee, where he advised Chairman John McCain, R-Ariz., on telecommunications and mass media. He began his career with McCain in 1997 as a legislative liaison and worked on his most recent campaign before joining the Commerce Committee.

Kelsay joins from the House Commerce Committee, where he advised ranking member Rep. John Dingell, D-Mich., also on telecommunications and mass media.

He has held positions with the House Democratic Caucus, led by Rep. Vic Fazio, D-Calif., the Georgia state legislature and numerous political campaigns.

## HD Radio Orders, Installations Grow

HD Radio installations are picking up. WUSF(FM) in Tampa believes it is the first public station to go HD-R. The station is using Harris transmission gear.

Spanish Broadcasting System and Crawford Broadcasting chose Broadcast Electronics gear to transition their first digital stations. Harris Corp. said 10 more stations recently purchased HD Radio excitors, and the vendor made a group sale to Hispanic Broadcasting Corp.

SBS will use BE gear for Miami's WRMA(FM). The system will use high-level combining in a shared antenna system. BE said a new combining technique makes it possible for the group to inject HD Radio directly into the antenna combiner, instead of into the path of analog FM. Plans are to run polarized digital and analog signals in order to feed the top half of the master antenna with analog FM and the bottom half with HD Radio.

Crawford's WPWX(FM) in Chicago is using BE gear in a high-level, shared antenna configuration through an ERI directional antenna.

Separately, Harris Corp. sold \$725,000 worth of digital equipment to Hispanic Broadcasting Corp. for its digital transition. That sale enables HBC to convert nine stations.

It purchased excitors for WADO(AM) in New York, KTNQ(AM) in Los Angeles and WQBA(AM) in Miami. It purchased a DAX FM transmitter for WIND(AM) in Chicago.

The 10 stations that ordered Dexstar excitors recently are WCLV(FM) and

WNWV(FM) in Cleveland; WWFE(AM) and WRHC(AM) in Miami; WOWO(AM) in Ft. Wayne, Ind.; WJNA(AM) in West Palm Beach, Fla.; KZIA(FM) and KMRY(AM) in Cedar Rapids, Iowa; WASE(FM) in Elizabethtown, Ky.; and WXGI(AM) in Richmond, Va., Harris said.

## ATI's New Owners Outline Plans

HORSHAM, Pa. The new owners of ATI plan to expand the company.

Audio Technologies Inc. will conduct a "major expansion ... through a substantial investment in personnel, systems and facilities." New owner and President David Day bought the company from co-founders Samuel B. Wenzel and Edward M. Mullin, who remain involved as consultants. Terms were not disclosed.

Day said ATI will double production floor space and engineering staff by late spring. He hired a CFO, Ken Davis, and a marketing manager, Linda Reed, and will use the name ATI Group Inc.

In addition to founding Day Sequerra in 1989, Day's experience includes senior management positions at Acoustic Research and International Jensen Inc.

ATI has eight employees after the departure of Wenzel and Mullin, and is seeking to hire a few more.

"Sam and Ed" are familiar faces at industry trade shows. The company has shipped approximately 70,000 pieces of equipment since its beginning in 1979, according to its Web site; its line includes specialty amplifiers, consoles, distribution gear, switchers and monitors.

Wenzel said the decision to sell was "kind of tough, but we're getting up in years." Both are in their 60s. He said the next level of growth for the company would have required a large investment, and that the time was right for the change.

## HD RADIO Q&A

### Ibiquity Details New Fee Program

*This is one in a series in which Ibiquity Digital Corp. answers questions about how to implement HD Radio, its in-band, on-channel digital audio broadcasting technology. Broadcast Marketing Manager Stephen Wallace answers here. Past answers are posted at [www.rworld.com](http://www.rworld.com) under the tab "IBOC DAB."*

**Q:** HD Radio technology was launched to the consumer electronics industry this year at CES, and Ibiquity expects partner products on store shelves in 2003. What were the results of the push for broadcaster acceptance?

**A:** The commitment of broadcasters gathered great momentum last year. One hundred thirty stations spanning 26 states and more than 20 formats committed to begin broadcasting digitally using HD Radio technology. This broadcasting commitment exceeded our projections for the year.



**Q:** How does broadcaster adoption affect consumer adoption?

**A:** Broadcast equipment manufacturers are ready to meet the demands of broadcasters seeking to implement HD Radio systems in their stations. In response to high demand, Ibiquity has outlined a new incentive program for 2003. Coupled with the introduction of receivers in the marketplace, we expect that the consumer adoption will climb steadily over the next year.

**Q:** We hear that a new licensing incentive is in place. Why?

**A:** We feel that the new incentive will give those broadcasters who were interested in 2002 another chance to take advantage of the technology in 2003. This incentive program will continue the momentum that the initial broadcasters had begun.

**Q:** How is the 2003 incentive program structured? How does a broadcaster take advantage of the incentive?

**A:** The basics of the program and incentive are:

- The first 125 for-profit commercial stations to enter into a station license agreement after Feb. 1, 2003, will have the fee for the lifetime audio license limited to \$5,000.

- All non-commercial/non-profit stations that enter into a station license agreement on or before June 30, 2003, will have the fee for the lifetime audio license waived completely.

- All incentives are contingent upon the licensed station making its best commercial effort to: (i) commence digital broadcasting by June 30, 2003, and (ii) continue to transmit in digital until at least Dec. 31, 2004.

License inquiries should be directed to Stephen Wallace (410) 872-1554 ([wallace@ibiquity.com](mailto:wallace@ibiquity.com)) or Scott Stull (410) 872-1578 ([stull@ibiquity.com](mailto:stull@ibiquity.com)).

Send your IBOC questions to [rworld@imaspub.com](mailto:rworld@imaspub.com).

Radio World welcomes other points of view. 

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# Central

► Continued from page 1

what my local guys want and what we have to do as a group. There certainly is an 'HBC-ization' of new acquisitions. But there is some autonomy," he said.

HBC has a basic group plan in place when it comes to buying gear, Stewart said.

"Three bids are needed, one of them always from Harris. We receive rebates and extended warranties from Harris if we do a certain volume. We generally go with the low bid, unless a special package is involved."

Gary Kline, corporate director of engineering for Cumulus Broadcasting, said he's involved with nearly all of the group's engineering expenditures.

"Our workforce is centralized and our equipment is, too, giving us a higher degree of efficiency. Certainly through consolidation we have a lot more to manage, but you have added efficiency," Kline said.

**You simply can't run a group of a few hundred stations the same way you ran a group of 24 stations.**

— Jeff Littlejohn  
Clear Channel

The group's 260 stations have six regional engineering managers who report directly to Kline.

Engineer hiring decisions are Kline's responsibility. However, managers in the local market "must feel good about the hire or we won't make it," he said.

The size of a radio group sometimes dictates how functions are performed and by whom. For example, Littlejohn said Clear Channel has concentrated many functions in-house rather than outsourcing. Nearly all of the group's FCC applications are now handled internally. The group also recently appointed Scott Quitadamo to market and manage all tower leases, holding the title "director of vertical real estate."

"You simply can't run a group of a few hundred stations the same way you ran a group of 24 stations," Littlejohn said.

The delicate balance of buyer and seller relationships, especially the issue of direct buying, has generated a lot of discussion in the industry.

Clear Channel recently announced a "preferred vendor list" for its stations (RW, Dec. 18). However, several equipment suppliers say the importance of good relationships with local engineers cannot be underestimated.

"Sometimes the local engineers actually have more say because those still in radio tend to be very good and are more respected than maybe the average engineer of the past," said Dave Scott, president of Scott Studios Corp. "Local managers are setting bud-

gets but turning buying decisions over to the good technical and operational people."

Denny Sanders, managing director for Telos Systems, said it depends on the situation, but usually regional and national engineering executives will listen to a local engineer's preferences.

"I think local engineers still often have the final say, subject to budget considerations and other factors," Sanders said.

Kris Bobo, vice president of development at Comrex Corp., said, "We have not changed our sales model to this point. We like the traditional methods of selling. It is still very important to get in front of the person who makes buying decisions, that hasn't changed. You still have to find the right people," she said. 🌐

**NEWS WATCH**

## NPR Hires Director Of Diversity Management

**WASHINGTON** Are NPR's programs appropriately diverse? Is the NPR workplace itself inclusive?

The policies and practices of National Public Radio are closely watched by its employees, critics and funders. Now, calling it a significant management step, NPR has created a position called director of diversity management and appointed Walt Swanston to the post. She will "shape diversity strategies in staff development" for NPR.

"Ms. Swanston will head a Diversity Initiative with the overall goal of ensuring that NPR is an inclusive, productive workplace, so that NPR programming can reflect and attract listeners from the increasingly diverse American population," NPR stated.

Swanston is a former TV and print journalist and director of diversity, education and international programs for the Radio and Television News Directors Foundation. She is former executive director of UNITY: Journalists of Color.

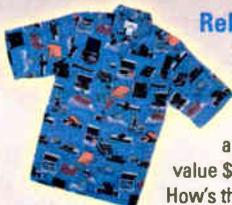
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# Farda

► Continued from page 3

Also planned for broadcast are a democratic and human rights roundtable; a review of Iranian politics and news events; and a show targeted to youth focusing on Iran culture. If the United States were to go to war with neighboring Iraq, Mower said, Radio Farda would add more news and information to keep people in Iran informed of developments.

To expose listeners to Western forms of democracy, Mower said, Radio Farda will air one- to two-minute features in which Iranians call into the station to express their opinions.

The BBG plans to spend \$8 million

on the first year of Radio Farda operation. "From a budget point of view," said Mower, "we did not ask Congress for any more money for Radio Farda — we simply took resources from VOA and RFE/RL."

Start-up costs for Radio Sawa were \$35 million, which included one-time capital expenses for a new medium-wave transmitter in Cyprus, FM systems in six locations and the office/studio complex in the Dubai Media Center in the United Arab Emirates.

Though Radio Farda is modeled on the jazzy format of Radio Sawa, which also seeks to expose Middle Eastern under-30 listeners to U.S. policies, culture and society, Mower said Radio Farda is not taking a "one-size-fits-all approach." Realizing that the station is reaching educated listeners, many of

whom are pro-democracy activists, the service is trying to fill the need of "people who desperately want news and information."

The BBG could not yet say how many people are listening. Mower said survey research is a challenging task in Iran because of the regime's repressive nature and the potential danger to survey participants. Under Iranian law, survey questions must be approved by the government.

Pattiz said the BBG hopes to establish a research component to improve programming, which will include surveys conducted in Iranian communities outside of Iran.

Radio Farda can be heard on the Internet at [www.radiofarda.com](http://www.radiofarda.com).

Michael Hedges contributed to this story.

## NEWS WATCH

### Pirate Sentenced To Confinement

**ORLANDO, Fla.** A Florida Court sentenced unlicensed broadcaster Benjamin Leroy Carter to 18 months probation, four months of which will be served as home confinement. Carter also is required to perform 50 hours of community service. The case was prosecuted by the U.S. Attorney's Office, Middle District of Florida, Orlando Division.

The conviction stems from an FCC investigation that began in early 1999. The commission's Tampa office received complaints from residents and broadcasters in the Orlando area of interference to the reception of radio stations.

Carter pleaded guilty in November to seven counts of unlicensed radio operation and agreed to forfeit all equipment used in connection with the unlicensed operation.

### IEC Votes for DRM Standard

**GENEVA** The International Electrotechnical Committee voted in favor of an international standard for the Digital Radio Mondiale on-air system.

The IEC voted in favor of the DRM standard for digital radio below 30 MHz, slated for publication initially in English and French.

DRM is a digital system for short-, medium- and long-wave. The DRM technology differs from Eureka-147, also used abroad. DRM is for bands below 30 MHz and uses existing spectrum.

With DRM's commercial rollout drawing nearer, it will launch broadcasts around the ITU's WRC 2003 event in Geneva this June.

"This IEC standard opens the door to the development of DRM products by any manufacturer interested in providing DRM-capable receivers to the marketplace in the future," said Michel Penneroux, chairman of DRM's Commercial Committee and head of AM systems at DRM member TéléDiffusion de France.

The ITU also has endorsed the DRM system for all three broadcasting bands below 30 MHz: shortwave, medium-wave/AM and long-wave.

### Other Business News

Andrew Corp. signed a \$500 million deal to acquire Allen Telecom Inc. Andrew will have about 7,000 employees and pro forma annual revenues of \$1.3 billion. The company said this establishes it as "the preeminent global wireless infrastructure subsystems supplier." ...

Separately, antenna and tower manufacturer Dielectric Communications acquired Brookstone Telecom of Temecula, Calif., which provides construction and maintenance services to the telecommunications industry. Terms of the deal were not disclosed. ...

And SAS and Ward-Beck Systems are working on a joint product venture. The first product will be an audio console, to be shown at NAB2003, based on the Ward-Beck R2K series.

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o m n i a a u d i o . c o m

# NPR Looks to the West for Growth

*A New Radio Facility Flourishes in a City Where Movie Dreams Were Made*

by Paul J. McLane

The president of National Public Radio calls it "one of the most significant developments in NPR's capacity to provide programming services to stations and listeners in the past two decades."

Coast and Pacific Rim presence.

Managers wanted somewhere to produce live original programming. They wanted to support "flagship" shows with live inserts and co-hosts. They also wanted to make NPR news more inclusive, with voices from a non-Euro, non-East

accessible to guests and staff, preferably in a relatively undeveloped "warehouse-style" space, in a safe neighborhood. The search began during an overheated real-estate market thanks to the dot-com boom and general business conditions.

As the economy slowed, more properties went on the market, prices and interest rates eased and more media facilities became available, including the former home of Digital Planet.com, owned by the Welk Group, on Jefferson Blvd.

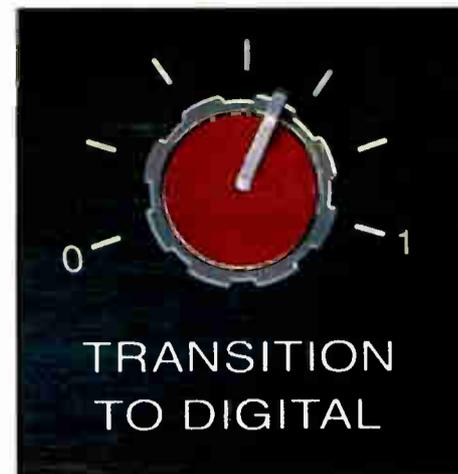
NPR liked the facility because it already was equipped with office furnishings and amenities. It was convenient to freeways, the airport and newsmakers.

## Appointments

"It was attractive because it was built in 2000 as a facility to do video events to the network," said NPR Director of Engineering Technology Bud Aiello. "Very nicely appointed, with two TV studios and space for a third. ... It could be reasonably and effectively repurposed."

The control rooms and studios would be converted to radio use. Existing "chat rooms" could be turned into radio edit and production rooms.

Also in place were equipment and rack



building on the property, now occupied by a tenant, which gives NPR another 15,000 square feet of room to grow.

Not that there wasn't some work to be done to clean the place up. For one thing, 5-1/2 dump truck loads of cable had to be removed. And once the engineers gave their OKs on questions of noise, vibration and RF, the project began in a hurry.

It was "an incredible accomplishment in the timeframe we had," Aiello said. The budget was not nailed down until Feb. 28 of 2002. Only in May did the team learn that the facility had to be functioning in six months, in time for the elections.

Other members of the staff's technical team were Supervising Project Engineer Bill Heineman, Electronics Engineer Dennis Byrnes and, at NPR West, Electronics Engineer Calvin Ogawa and Executive Producer J.J. Sutherland.

## Studios

In the facility core are three studios with associated control rooms. Studio A is next to the lobby and has yet to be renovated. B and C are for on-air and show production. Five smaller Edit/Production Suites are numbered 1 to 5.

Next to Studio A is the Tech Center, which serves as a master control; it handles program/signal routing and oversight of recording levels in the five suites.

The Dalet server room is across the hall, home to the servers for digital audio



He was talking about NPR West, the organization's 25,000-square-foot multimedia production center at 9909 Jefferson Blvd. in Culver City, Calif. It opened in November as the organization's first big production facility outside of Washington.

Now the home of 45 employees, including the Los Angeles news bureau and the staff of

"The Tavis Smiley Show." NPR West has room for 90 people and provides a backup facility for the network. More programs, including one with a working title of "The Midday Show," will be produced here.

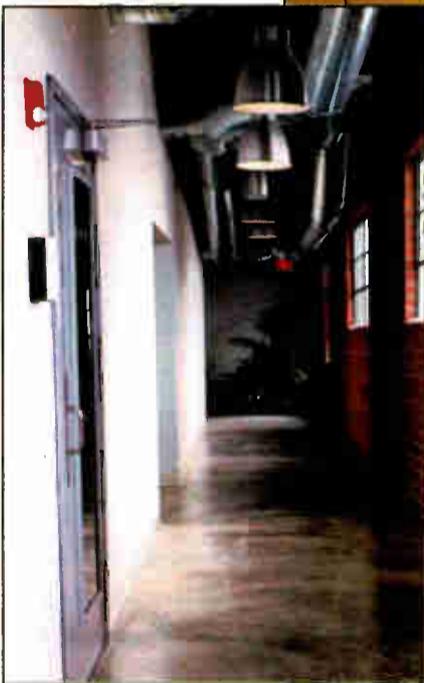
Overall, NPR produces and acquires 120 hours of programming weekly and distributes to 727 stations, including 271 member organizations. It has 10 foreign and domestic bureaus and 27 remote offices. Of its 700 staffers, some 600 work in Washington.

## 'Media-centric culture'

This is not NPR's first presence in the Los Angeles area.

According to a timeline provided by NPR, it inherited California Public Radio's downtown bureau in the mid-1980s. From 1986 to 1997 it used facilities in West Los Angeles' Telaflo Plaza, then used quarters on Wilshire Blvd., also in West Los Angeles.

But under its "West Coast Initiative 2000," NPR decided to enhance its West



Coast environment.

Another factor, according to Senior Engineer Jan Andrews, was that after the Y2K experience,

NPR liked the idea of having a backup facility that was physically removed from Washington. The terror attacks of Sept. 11, 2001, amplified that urgency, he said.

Southern California made sense. Planners considered it the "heartland of an evolving media-centric culture," and liked its proximity to newsmakers.

In looking for a specific building, the facility team needed to accommodate at least 50 people and multiple studios. A new home would need to handle a system of networked workstations to support the news operation and production work. "Intake" facilities would need to support locally originated and co-hosted shows. Edit-suite and desktop production capabilities would mirror systems in place in Washington.

And down the road, the planners thought, the facility should also be able handle video origination to generate content for Webcasting and co-branded programming.

NPR searched the Los Angeles area beginning in 2000, looking for a home



Photos, from upper left: View from Jefferson Blvd.; Studio B Hallway; a small Klotz control surface in Edit/Production 3; and above, the Technical Center, adjacent to Studio A.

rooms, power distribution, overhead cable tray, a 100 KVA uninterruptible power supply system, generator transfer switch, HVAC system, satellite dish mounts and room for expansion. Oh, and two sub-zero refrigerators.

All this saved NPR "tens of thousands of dollars," Andrews said. A bonus is a second

storage and delivery: behind that is the Central Equipment Room, location of the Klotz router, computers that run the consoles in the suites and Tech Center. RF distribution, phone system switch, CAT-5 routing, signal monitoring and backup patch bays.

See NPR WEST, page 12 ▶

# Z-HD IBOC



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from HARRIS

In-Band/On-Channel, the next wave of high quality FM radio, is on its way. But there's no need for fear, because **Z-HD IBOC** transmitters from Harris give you the industry's most cost-effective, secure and reliable migration path.

Drawing from Harris' unmatched experience in digital transmission the **Z-HD** uses proprietary pre-correction circuitry that eliminates the need for costly bandpass filters and increases transmitter efficiency. **Z-HD** transmitters are available in all digital units or a hybrid version for common amplification of FM and IBOC signals.

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# NPR West

► Continued from page 10

Desks and offices for news and program staff form an L shape around the studio core.

Central to the job was systems integrator TGS Inc. It was a challenge, Aiello said, "getting all the equipment to TGS, getting the design out of my head onto paper for TGS."

Established in 1994, that company has experience with other big facilities, having designed and installed Voice of America's 1,300-workstation Dalet system.

The major systems were prebuilt at the TGS factory in Chantilly, Va., west of

The system uses off-the-shelf hardware customized for NPR.

"For all the nuances, Klotz has been able to handle it — (although) they've pulled their hair out a few times."

Each control room appears on NPR's routing switcher in Washington and can be routed to the satellite for distribution to the network. The five production rooms serve multiple functions, so it was not possible to design them for a simple "jock-and-engineer" setup.

For one program, the room might be staffed by a NABET union person; while for the next program, a non-union person performs audio editing of a phone interview while a NABET staffer controls levels down the hall in the Tech Center.

ments such as raised floating floors in two studios and isolation cuts in the slab around the smaller rooms.

Dalet Digital Media Systems provided a network of its v5.1 digital audio work-

The facility is wired with fiber, with multipair cable for backup. Most cabling and patchbays seen in photos of the facility are backups.

The cost of NPR West is \$13 million, not including staff time and labor. Of that, \$8 million went to buy the property from the Welk Group Inc., which holds the family interests of the late entertainer Lawrence Welk. The rest went to equip the facility.

NPR borrowed \$11 million from a California tax-exempt bond issue and a commercial loan. It received \$6 million in foundation pledges, including money for ongoing operations, spokeswoman Jenny Lawhorn said.

Funders include the David and Lucile Packard, James Irvine, William and Flora Hewlett and Ahmanson Foundations; also the Ford, Joseph Drown and Roth Family Foundations.

It was a near thing to have the facility operational in time for the elections.

"The last 2 percent of the work takes 40 percent of the time," Aiello said with a smile. But in the end, the technical team had the facility ready for the big Nov. 2 launch.

"It was close," Aiello said. Andrews agreed: "All good races have a photo finish." 🌐



Clockwise from top left: Broadcast Recording Technician Carlos Ascencio, in window, works in Control Room C, looking into Studio C; racks in the Equipment Room hold gear including Klotz Vadis frames, Musicam USA codecs and backup patching; Broadcast Recording Technician Theo Mondle works in the Technical Center; Studio C Waiting Area

Washington; the control and production rooms, the consoles and interwiring were in operation before being shipped to California. Aiello said the integrator did an "outstanding job" under Vice President of Engineering Willy Halla.

Another key vendor was Klotz Digital America. NPR chose a custom configuration of its Vadis AudioMedia platform-based audio mixing and distribution system, with 24-channel surfaces in Control Rooms B and C plus the Technical Center, and four-channel surfaces in the five editing suites. Sophisticated audio sharing, IFB, EQ and dynamics are part of the package.

Klotz personnel came to Chantilly and worked for three weeks on the project.

"We had done a smaller Klotz install here, and it did what it was supposed to do," Aiello said. For NPR West, he said, "We wrote a rather intensive spec."

Another headache was bi-coastal hosting, which required that countdown timing information be shared by Washington and California. The transport of that information presented a unique challenge, Aiello said.

The team solved it using Musicam USA Prima codecs equipped with time-code transport hardware and fed via the DS3 connection NPR has established between headquarters and Culver City.

## Production

Other uses of the DS3 bandwidth include telcom, corporate IT, audio, audio-as-data and sharing of production audio files. NPR has dialup ISDN in place should the DS3 service fail; a C-band satellite uplink for emergency origination and backhaul is planned.

Meanwhile, the architectural work at the site included acoustical improve-

stations, including 55 user workstations on desktops; 13 technical workstations in the control rooms, Tech Center and edit suites; five IBM E-class servers; and fiber-channel interconnection with dedicated 100Base-T networking. Files can be exchanged with Washington in near-real-time.

Klotz and Dalet have U.S. offices, but both companies are headquartered abroad. Aiello said NPR has no concerns about using international vendors.

"The world has gotten smaller, thanks to e-mail, 800 numbers and U.S. staffing. We've used Dalet (gear) for eight years, Studer for 30."

NPR West's two main audio servers hold about 5 TB of linear audio. "We're very close to making the linear transition here (at NPR in Washington)," Aiello said. "It was a Day-One goal" to go linear, rather than compressed, at NPR West.

## Vendor List

Here are major product vendors chosen for the NPR West facility.

- Associated Press - Electronic News Production System
- Champion Solutions Group Inc. - Servers and Mass Storage Integration
- Dalet Digital Media Systems - (55) Desktop v5.1 Digital Audio Workstations and (13) Studio v5.1 Digital Audio Workstations
- Klotz Digital America - (8) Vadis D.C. II Digital Audio Consoles and Digital Routing Switcher
- Networking Concepts Inc. - Network Integration and Cisco Hardware
- Studio bau:ton - Architects
- Studio Technology Inc. - Studio Furniture
- TGS Inc. - Systems Integrators

Among the specific products used:

- ADC - Patch bays
- Audio Technologies Inc. - (12) DDA112-XLR AES Distribution Amplifiers
- Denecke Inc. - Large timer displays
- Denon Electronics - (12) DN-M991R MiniDisc Recorders, (18) DN-C680 CD Players
- Genelec - (8) 1031A Monitor Speakers
- IBM - Servers and mass storage
- Industrial PC Computing - Studio workstation computers
- Leitch Inc. - Timers and clocks
- Mackie Designs Inc. - (10) HR824 Studio Monitor Speakers
- Masterclock Inc. - Time reference and small timer displays
- Motorola/General Instruments - TV head-end and distribution hardware
- Musicam USA - (18) Prima LT Plus Codecs
- Neumann/USA - (25) U87 Ai Microphones
- Panasonic USA - Large-screen video displays
- Polycom Inc. - Video conferencing
- Raritan Computer - KVM routers and extenders
- Samsung Electronics - PC monitor displays
- Siemens - Telephone system
- Sony - (23) PCM-R500 DAT Recorders; A/V equipment
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*Breakthrough audio quality takes POTS-codes performance to a new level.*



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## ROOTS OF RADIO

# In the Land Before Time Sales

*Broadcast Advertising Has a Fascinating and Influential History Despite Its 80+ Years*

by Skip Pizzi

We all tend to think of advertising as intrinsic to the territory of broadcasting, but in fact, it came as an afterthought, and evolved from a fringe concept into the mainstream through a strange and interesting path.

Early radio services were all non-commercial, and existed largely to provide public service or information. Some broadcasts promoted the interests or public profile of the station owner and operator, or were simply the avocations of well-off hobbyists; but there was no trade in the field. The business of radio had not yet developed, and it was anything but a revenue generating operation in its early years.

## Early efforts

Broadcast historians disagree over exactly when and where this began to change, and where the first radio advertisement was broadcast. In fact, it seems to have occurred nearly simultaneously over a wide range of stations, sometime around 1920.

Lee de Forest's station 2XG in New York City is cited as one of the earliest to undertake a barter arrangement in which a record store or a phonograph vendor would donate records for airplay, for which it would receive an on-air mention. Another example was 8XK near Pittsburgh, where announcer Frank Conrad frequently credited a music store.

Similar references are made to a San Jose, Calif., station (SJM), according to broadcast historian Elizabeth McLeod. Another historian, Donna Halper, reports that a more direct form of advertising took place at KFC in Seattle and WGI in Medford, Mass., in 1922, in which cash was accepted for the broadcast of promotional messages.

But as McLeod points out, this was mere dabbling with the concept, and it wasn't until late in 1922 that this changed.

Historians converge on the belief that AT&T turned the concept of broadcast

advertising into a real business.

Already well-established as a telecommunications provider, the company had been experimenting with radio broadcasting since 1919. In 1922, AT&T launched a station in New York City with the expressed purpose of being exclusively intended for the broadcast of content provided by external parties who would pay for the airtime used. In fact, the company announced this with some fanfare, and with the clear intention of the station

## In July 1922, AT&T began to market its concept of 'toll broadcasting.'

being only the first of many it would launch with such a full-time advertising business model.

In July 1922, AT&T signed on WBAY in New York City and began to market its concept of "toll broadcasting." Propagation difficulties caused the company to move its transmitter across town, and the station was re-launched as WEAF the following month.

The business started slowly, with early ads taking the form of long-form announcements in which the sell was carefully, almost surreptitiously, woven into what sounded like a news story or feature.

Over the next year, WEAF gradually refined its approach, realizing that "all ads, all the time" concept wasn't successful. Many in the radio environment, including AT&T itself, were unsure that the toll broadcasting concept was viable.

Eventually, though, WEAF settled on the idea of selling sponsorships for popular entertainment programs, and thus the phrase "this program is

brought to you by ..." was coined. The long-winded announcer script was replaced by shorter mentions of the advertiser's name throughout the program, but, strangely, there was still a restraint against a hard-sell approach. The sponsor's name was mentioned, but there was never any description of the business or its products, and no call to action on the part of the listener.

Nevertheless, there was a gradual increase in the number of companies availing themselves of the service in New York City, including most of the city's department stores, along with some oil companies, clothing manufacturers and others.

Throughout the 1920s, this trend continued on WEAF and elsewhere, despite AT&T's unsuccessful claims toward exclusivity on the "toll broadcasting" concept. (The company tried for a while to limit the licensing of its Western Electric subsidiary's patents on radio transmission equipment to stations that would not use the transmitters to broadcast advertising content, but soon abandoned this attempt.) Meanwhile, the print media railed against the trend during this period, self-righteously decrying the inappropriate use of the public airwaves, but in fact they worried about new competition for their established advertising business.

In 1926, AT&T sold WEAF and its other broadcast properties to RCA, ultimately resulting in the creation of NBC. The new network extended the business model of advertiser-supported broadcasting to a wider scope, although some restraint was still in effect. A policy of daytime-only hard-sell remained throughout the 1920s

(giving rise to "soap operas," the daytime radio dramas generally sponsored by detergent makers and other products appealing to the homemakers of the day), while evening programs — the prime time of the day — retained a softer, sponsorship style. But by the decade's end, this self-imposed restriction also fell away, and full-time advertising became the norm.

Many other stations across the country were by now also experimenting with the concept of radio advertising, some going fairly obnoxious extremes as the decade came to a close.

## The die is cast

During the late 1920s, public pressure moved the federal government to examine the nascent business of radio advertising, in an attempt to determine whether the public interest was truly being served.

Some broadcasters eschewed the commercial approach and maintained a pure public-service model, but more and more were adding advertising. But in 1928, the Federal Radio Commission, predecessor to the FCC, concluded that radio could not exist as a viable enterprise without such support, thereby perpetuating the commercial business model in American broadcasting.

In his compelling and exhaustive 1993 book, "Telecommunications, Mass Media & Democracy," historian Robert McChesney points to the FRC's General Order 40 of November 1928 as the edict that cast the fate of American broadcasting in that direction.

By this act, the FRC reallocated the AM band, which by that time had become clogged with stations, creating untenable interference in many areas. To solve the interference problem, the commission weeded out the band, deciding which stations would continue and which would shut down. As it turned out, the vast majority of the stations that remained were commercial, and thus the FRC acted as a filter that resulted in American radio being an almost purely commercially supported industry.

Decades later, the FCC attempted to redress this move by allocating a portion of the new FM band strictly for noncommercial uses (88.1 to 91.9 MHz), but by then the tradition of commercial broadcasting — both radio and television — had been established as a robust enterprise. The rest, as they say, is history.

*Skip Pizzi is contributing editor of Radio World.*

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# Workbench

Radio World, March 12, 2003

Past columns are archived at [www.rwonline.com/reference-room](http://www.rwonline.com/reference-room)

## Avoid This Green on St. Patty's

by John Bisset

Here are two Web sites you'll find useful. The first, contributed by Sid Schweiger, MIS manager for Entercom in Boston, is the FCC's current inspection checklist. The site is [www.fcc.gov/eb/bc-chklsts](http://www.fcc.gov/eb/bc-chklsts).

If you are a chief, it's not a bad idea to review this checklist just to make sure everything is in order. Are you a contract engineer? Here's a way to generate additional revenue among your clients. Offer to do a "mock" inspection, using this checklist, to expose any glaring errors or omissions. A \$10,000 fine will get the GM's attention, and it seems such fines are being handed out left and right lately.

★★★



Fig. 1: There's tower paint in there — somewhere.

Harold Hallikainen offers the most recent FCC broadcast self-inspection report, along with hyperlinks to the cited rules.

Go to [www.hallikainen.d2g.com/FCC/FccRules](http://www.hallikainen.d2g.com/FCC/FccRules). Scroll down to Part 73 and follow the appropriate links.

Note that within the report, you should not follow the links in the table of contents; they will lead you to the FCC version, which does not have links to the cited rules.

Harold's efforts are appreciated, because you can tie a rule to each potential violation.

★★★

Do you manage your station's tower sites to bring in additional revenue from your "vertical real estate"? Being a site manager can bring its own difficulties.

Fig. 1 shows what happens when contractors are allowed to run their lines unsupervised. In this case, the lines were run on the outside of the tower, obliterating the red and white tower paint with coax "black."

★★★

Got wandering meter readings? Especially for stations not using Delta's TCA RF ammeters, the old thermocouples need good tight connections. Actually, that's good engineering practice for just about anything. As you can see in Fig. 2, there are a lot of connections to keep tight in an AM coupling unit.

Don't let your connections get "green" with corrosion, whether they are on the meter or on RF connections inside the phasor or coupling unit, even in an AM or FM transmitter, corro-

ed parts introduce resistance, which causes heating and, eventually, failure.

★★★

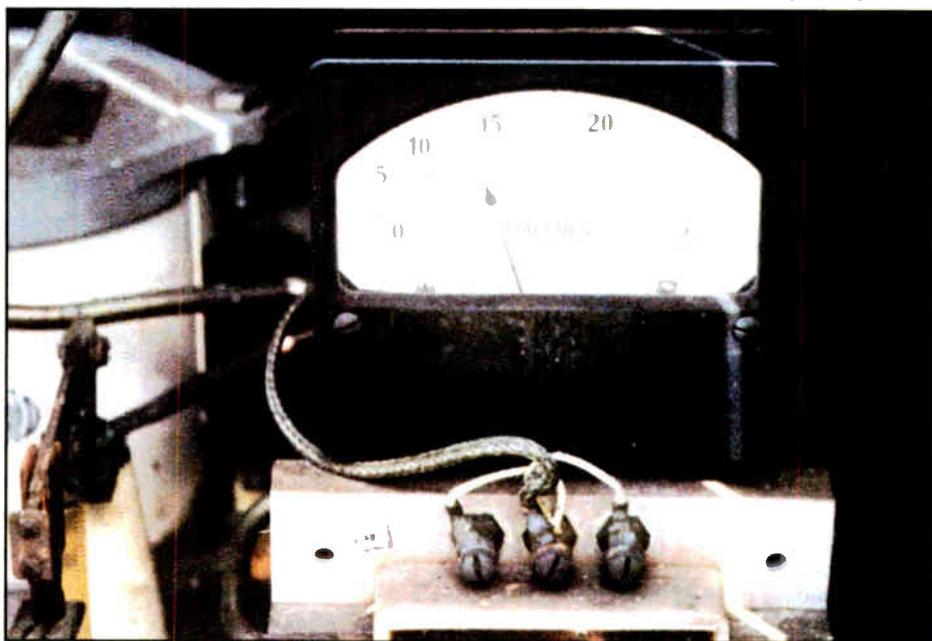


Fig. 2: Don't let connections get 'green' with corrosion, whether on a meter or on RF connections in the phasor or coupling unit.

From our "why didn't I think of that" department comes a really great idea from Norm Laramée.

Norm is the cluster CE for the Cox stations in Tulsa, OK. Over his nearly 30-year career, Norm has designed and built his share of unique problem-solving devices.

One item, created about 10 years ago, is the "Relay Thing." It's a standard Siemon "66" terminal block. Hidden underneath the block and wired to the terminals are 14 DPDT sealed relays. All of the contacts are rated at 5A. Norm builds these in 5, 12 and 24 VDC versions. They can be

powered by a small wall-wart supply or any external DC supply. All relays are diode-protected.

To access any relay is as simple as punching down the wires to the appropriate connection on the block. The positive supply voltage is applied only to any pin at row 50. To activate any relay, each

relay coil connection is taken to the power supply ground.

The neat things about this product are its obvious simplicity and the fact that it is in a package ("66" block) that is in common use at most broadcast facilities. It's easy to re-program; making changes is as simple as removing and punching down new connections.

Applications include audio and control switching, relay logic for security systems, switching multiple devices at once (ganging relay coils), remote control status or control functions, speaker muting, device switching (skimmer or on-air

See WORKBENCH, page 16 ▶

## Digitally Diverse Omega\_FM - \$5880

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

# Wind-up Grundig Is Affordable

by Charles Fitch

In the last year or two, it seems, all sorts of events — floods, surprise tornadoes, fires of biblical proportions, critical cable failures and the like — have disrupted normal communications systems even more than usual. Radio broadcasting and EAS have been called upon more than ever before to ameliorate these disasters by getting out needed information.

Radio comes through once again when power outages, system clogging or point failures take communications systems out of action.

To have access to information and to protect our families and ourselves, each of us should have a basic and sensitive battery-powered portable nearby, ready for use.

In 2002, we reviewed the Rolls Royce of survival radios, the FreePlay Plus or FP+, which could be operated from its own internal windup generator or photocells and from a potpourri of external DC sources.

Surprisingly, a contender for replacing the FP+, a similar but far more cost-effective radio, has been introduced by one of the world's most familiar names in short-wave receivers, Grundig. It is the model FR-200.

## Wind it up

Made in China — as are most of Grundig's and everyone else's small, thoughtful portables — it has a windup power source as well.

The FR-200 is different from the FP+ in that it has a dynamo. Crank the handle in either direction and you make DC to charge the three onboard NiCad batteries. The manufacturer suggests 90 seconds at two rotations per second, for a total of about 180 winds, to produce 45 minutes of operation.

No onboard photocells are included. But unlike the FP+, the FR-200 has room for three AAs if one wants to use standard batteries. An input jack allows any suitable external DC source to be accessed.

The FR-200 is about one-fifth of the weight of the FP+, weighing in at 1 lb. 1 oz. as measured on my postal scale; but everything else is smaller as well. A smaller, front-panel, fixed light using a regular bulb is provided as opposed to the detachable flood lamp with six foot

extension cord and LEDs on the FP+.

The FR-200 light is removable, but this is primarily for bulb maintenance as the "leash" is only about 6 inches.

The speaker on the FR-200 is smaller as well, but it produces intelligible audio in the voice range at room level (albeit a small room like a den).



The Grundig wind-up radio weighs little more than a pound.

Nearby me here in Avon, Conn., is Marlin Broadcasting's WTMI(AM). Even I, aggressive and attentive consulting engineer to Marlin, was surprised with how good that AM station sounded on the FR-200 speaker. A version of the "1812 Overture" with a choir was dramatic and lyrical.

The speaker's audio contouring appears to be downstream from the headphone jack; on headset, the audio is full and robust, with surprisingly low distortion, especially on FM.

## Tuning

Both radios cover essentially the same bands: AM, FM and two shortwave, up to about 22 MHz. The FR-200 has interesting two-knob concentric tuning. The outside knob is coarse, the inside is for fine-tuning.

Tuning on my radio was spongy, and I kept feeling like I was tuning by the station, such that you compensate by tuning to the oncoming edge of the signal and then it would "drop in" and come in clear. Sensitivity for such a cost-effective radio was impressive, but selectivity was bad.

Both the FP+ and the FR-200 have internal ferrite bars for AM and pull-out

antennas for FM and SW. Neither has an external antenna input. Once again, as in the FP+, the FR-200 had a stereo headphone jack but mono audio.

The FR-200 has two important features over the FP+. Grundig has provided a spiffy, outrageous, over-the-top, camouflaged carrying case with shoulder strap,

ostensibly for the outdoor person/survivalist. Two, the FR-200 has a wonderful, feature rich price at \$39.99.

The FR-200 at first was sold through the usual specialty stores, but last year Radio Shack has announced that it would be a catalog/store item at the same price

## Workbench

► Continued from page 15

lights), or automation cue relays for satellite- or automation-originated programs. The list of uses is endless.

The Relay Thing costs \$225. If you've priced relays recently, you'll agree this is a good buy. Inquiries can be e-mailed to [support@diproservices.com](mailto:support@diproservices.com).

★ ★ ★

If you started a radio station in your bedroom like I did as a teen, you may have invested in a Voice of Music reel-to-reel machine. The model I had included a built-in PA amplifier tied to the speaker. It was great for remotes.

I'd almost forgotten about this compa-

## More Info

The radio reviewed here was bought from The Good Guys in Washington State, which shipped for free: [www.goodguys.com](http://www.goodguys.com)

Information on the Grundig FR-200 is located at:  
[www.grundigradio.com](http://www.grundigradio.com)

Information on the FreePlay Plus is located at:  
[www.freeplay.net](http://www.freeplay.net)

Charles Fitch's original FreePlay Plus review is located at [www.rwonline.com/reference-room/product\\_evaluation/afreeplay.shtml](http://www.rwonline.com/reference-room/product_evaluation/afreeplay.shtml)

(part number 20-231).

What a great, fun radio at about a third of the price of the FP+. It is useful for outdoor and casual activities but also serves as that ultimate, never-fail radio in real disasters.

On the zero to four McLane Whip Antenna Review Scale, I give it 2.8 whips. The FP+ earned 3.3.

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

Reach him via e-mail to [fitchpe@attbi.com](mailto:fitchpe@attbi.com).

ny until I came across the old recorder in my garage. Within the same week, Radio World's Dale Tucker passed on a Web site for the company. A regular newsletter is on hiatus, but back copies can be found at [www.thevoiceofmusic.com](http://www.thevoiceofmusic.com). Click on newsletters.

Gary Stork maintains this site, and also keeps a large stock of parts, manuals, and bulletins. If you are looking to keep your VM products running, this is the place.

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](mailto:jbisset@harris.com).

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WIRED FOR SOUND

# Up for a Quick Game of Tlachtli?

by Steve Lampen

Come, children, and sit as Grandpa Lampen continues his story of wire, which we began to tell in September and discussed most recently in the Jan. 15 issue.

There was a breakthrough in 1839 that, many years later, would dramatically affect the wire and cable business. That breakthrough was "vegetable leather."

At least that's what it was named by its inventor, Charles Goodyear. In 1834, he visited a rubber company in Boston. They were in the process of accepting back all the rubber products they had made during the previous years: boots, hats and raincoats. In hot weather, they had all turned to stinky goo, and the company was near bankruptcy.

For five years, Goodyear experimented with combining various powders and other compounds with rubber to make it stable at all temperatures. After hundreds of experiments, he added sulphur and heated the mixture by steam under pressure. This created stable, dry, non-melting rubber, eventually named vulcanized rubber.

All the while, he was in and out of prison for debt. Six of his 12 children died, and he and his family were starving and penniless most of the time. He died in 1860, still in debt, having invented vulcanized rubber. The company was named only in his honor, and was not owned or controlled by the family.

You can read the whole story at [www.goodyear.com/corporate/strange.html](http://www.goodyear.com/corporate/strange.html), which reprints a 1950s Reader's Digest article on this topic.

The next thread of our story begins in

1520, when Hernan Cortez and his happy band of Spanish Conquistadors arrived in the Aztec capital, Tenochtitlan, known today as Mexico City.

The Aztec culture was at its height and must have been astonishing to the Spanish invaders. One of the things that amazed them was a game called *tlachtli*. It was much like basketball. A ball was put through stone hoops, 8 to 10 feet high, located at the ends of a court. You can still visit these courts throughout Mexico and Central America, built by the Aztec, Maya and Olmec cultures.

## There were a few small differences between tlachtli and basketball, including beheadings.

There were a couple of minor differences between *tlachtli* and basketball. First, the players couldn't use their hands. So making even a single "basket" was incredibly difficult and won the game.

Second, the losers were beheaded. I'm sure this last difference made these games especially exciting, as the Conquistadors were into blood in a big way. But in their excitement, they really didn't notice one unusual thing: the ball.

It was about the size of a modern soccer ball and weighed around five pounds; some weighed as much as 15 pounds. But the unusual thing was that it *bounced*. It was made of cured rubber.

In 1496, Columbus brought back a

rubber ball on one of his trips, and whole teams of players later were transported to amuse Charles V, King of Spain. These rubber balls maintained their shape and did not melt into a pile of goo during hot weather, which is pretty much the normal weather in Central America.

### Time problem

Fast-forward to 1996, to a classroom at MIT in Cambridge, Mass. A student named Michael Tarkanian was taking an elective class on living anthropology from Associate Professor Dorothy Hosler. The professor was talking about the Aztec civilization, including the game, *tlachtli*, that used a rubber ball. Tarkanian, a chemical engineering major, interrupted to say that a rubber ball in 1500 was impossible because the "vulcanizing" process wasn't invented until 1839 by Charles Goodyear.

The Mayans, Aztecs or Olmecs didn't know what sulphur was, nor did they have pressurized steam vessels to cure the rubber. Therefore, said Tarkanian, it was impossible for anyone in 1500 to have cured "vulcanized" rubber.

Hosler challenged Tarkanian, and they settled the matter by having him change his major to materials science and engineering and leading a team to Central America to find out if, indeed, the ancient culture that lived there could make cured rubber.

They started by sampling ancient rubber balls recently excavated from a swamp in Veracruz, Mexico. Sure enough, they were cured rubber, latex mixed with sulphur. But how did they do it? And did that knowledge survive to this day? Now how would you go about finding this out? Tarkanian did this in an amazingly simple, but effective way.

He walked into the jungle and asked a native walking by if he knew how to make stable cured rubber. No problem, said the native, and proceeded to show the team how: take uncured rubber from a rubber

tree (latex), add in the juice of the morning glory vine (which contains a lot of sulphur) and do it on a very hot day.

What comes out is indeed vulcanized rubber.

In fact, further excavations have revealed cured rubber objects as old as 1600 BC. It should be pointed out that both the rubber plant and the morning glory vine were considered sacred plants by these cultures, so mixing them together may have been a lucky mistake — in 1600 BC. Perhaps the fact that the morning glory is hallucinogenic was a contributing factor.

Tarkanian became one of the few undergraduates to co-write a paper for Science magazine. You can read the "the story of rubber" at [www.psrc.usm.edu/macrog/exp/rubber/episode/tlachtli.htm](http://www.psrc.usm.edu/macrog/exp/rubber/episode/tlachtli.htm).

Rubber is used to insulate wire. Few plastics are as rugged. Despite the mixing and the curing, a hot and smelly process, rubber-insulated wire and rubber-jacketed cables continue to be made.

There is only one real problem with rubber: it comes from Central America. We cannot grow rubber trees here in the United States. As we will see, this became a major problem and, except for a bit of luck, could have been a major blow to us in World War I.

In the first column of this series I talked about how the "battery" was invented in 200 BC and later lost. Here, yet again, another invention was discovered and lost, if only for 339 years.

What if we had not lost this knowledge? For that matter, what knowledge is slipping through our fingers today? Sometimes inventions come from basic necessity, such as measuring the size of a wire.

How do you measure a wire? Where do you start? Tune in next time for another amazing story in the history of wire and cable.

Previous articles in this series are available under the *Wired for Sound* tab at [www.rwonline.com](http://www.rwonline.com).

Steve Lampen's book, "The Audio-Video Cable Installers Pocket Guide" is published by McGraw-Hill. Reach him at [shlampen@aol.com](mailto:shlampen@aol.com).

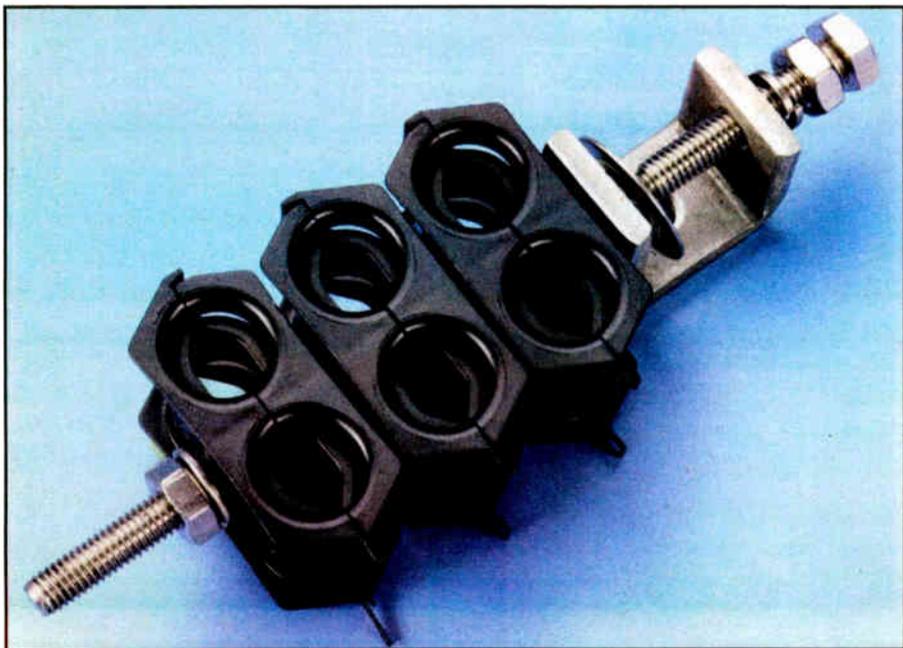
MARKET PLACE

## Andrew Has Mini Hangers

Miniature Click-On hangers from Andrew are useful for the installation of small Heliac coaxial cables and braided cable runs used in microwave and telecom applications. The company says the new hangers eliminate the need for cable ties in such uses.

Cables are held in place by gripping ribs that line the hanger. Each hanger can accommodate two runs of cable, and the hangers are stackable up to three deep for a total of six cable runs per stack.

For information contact the company in Illinois at (800) 255-1479 or visit [www.andrew.com](http://www.andrew.com).



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FIRST PERSON

# Summer Storms Take Their Toll

by Mark Persons

The weather the past two summers has had devastating effects on my clients in Minnesota.

On June 13, 2001, a tornado brushed the south side of Brainerd. It took down a 180-foot tower, one of three towers in the KLIZ(AM) night antenna system. KLIZ, a part of Kommerstadt Broadcasting, runs 5 kW day non-directional and 5,000 watts night directional on 1380 kHz. The falling tower clipped a guy line on a 380-foot tower in the same array.

This line was second from the top. The tower had a bow in it until a tower crew could arrive. It took a brave climber to snag

the end of the broken guy cable so that it could be connected to, reattached and tensioned correctly. Two of the antenna coupling network buildings were tipped over as well.

The station operated under a Special Temporary Authorization with one-quarter of normal power on the night non-directional until a new tower could be put up and the directional array adjusted.

This proved to be more difficult than it sounded originally. There was no documentation on the concrete base pier on which the original 180-foot tower stood. The entire "tower system" had to be engineered from the ground up for that tower.

That meant the original concrete pier had to be dug up and disposed of before new

concrete could be poured for the replacement base pier. New guy line anchors were poured as well even though the original anchors looked just fine. The ground system had to be rebuilt around the base of the tower because of the construction damage.

After all was said and done, the new base pier was smaller than the original. The station would not have been able to insure the tower unless this was all done. Ah, the miracles of the world we live in.

## Costly repairs

In the summer of 2002, there were lightning strikes at two of the facilities I take care of. They were 30 miles apart and a month apart.

In each case, there was major damage to the FM antennas and the transmission lines that feed them. Each of these \$40,000 repairs involved removing the antennas and transmission lines from the tower.

Ken Martin, W9MR, of ERI did an excellent job sending the parts I needed via next-day shipments. Andrew provided new 3 inch Heliacx cable that came by truck. This gave me, and others, time to work on the damaged antenna parts so that a one-day visit by the tower crew would finish the repair.

The time to make repairs took a week or more in both cases. To keep the stations on the air, I returned a single-bay circularly polarized low-power FM antenna and fed it with RG-8A/U cable.

At one station, the antenna was at 200 feet and was fed with 300 watts of power from the transmitter IPA stage. The coverage was about 15 miles in all directions. The other one was at about 300 feet and was driven by 400 watts of power. The coverage there was about 20 miles.

In both cases, the building penetration was not good, but it was better than nothing.

Mark Persons, W0MH, is certified by the Society of Broadcast Engineers as a Professional Broadcast Engineer with more than 30 years' experience. His Web site is [www.mwpersons.com](http://www.mwpersons.com).



RF components show damage from summer storms.

MARKET PLACE

## Tele-Link Expands With Spread-Spectrum

Energy-Onix Broadcast Equipment Co. is expanding the capabilities of its Tele-Link line.

The company, which has approximately 20 terminals in the field, says the product has peaked "definite interest" among clients. President Bernie Wise said the Tele-Link, initially launched as an Internet STL system, now also can be operated on an intranet via a spread-spectrum link where a station has line-of-sight to the destination — useful for remote pickup operations.

When so configured, each terminal contains a transceiver that permits the operator to achieve a T-1 connection between studio and transmitter sites. This approach involves no monthly service charge.

"One advantage is that it is a duplex system," Wise said. "Since the transmitter site is normally at a very high elevation, it is possible to extend the service area for remote pickup by sending the remote signal to the transmitter site and this program is then returned to the studio for production, processing etc.

"It can be fed back with a full 22 kHz response using the spread-spectrum terminals that have been installed at the Tele-Link ends. We are using this system at a distance of 10 to 15 miles, but by investigating the data, we find that it should be possible to go as far as 40 to 50 miles." Spread-spectrum hardware adds about \$1,250 to the cost of a terminal.

Wise said, "There does exist a limitation to using spread spectrum in industrial areas where there is extensive use at 2.4 GHz. There is another portion of the spectrum at 5.8 GHz that is available for spread spectrum, but the equipment for this frequency range is extremely expensive."

However, he said, the cost of 5.8 GHz gear is expected to drop. If so, Energy-Onix will add that option.

Also available is a remote control system that can be used with Tele-Link. The user at the studio can operate eight relays at the transmitter site and receive five analog meter readings back.

"We are also investigating the techniques for utilizing very narrow bandwidth to serve as a monitoring vehicle for satellite retrieval systems that have very narrow uplink capacity but have quite adequate down-link capacity," Wise said.

For information contact the company in New York at (518) 758-1690 or visit [www.energy-onix.com](http://www.energy-onix.com).

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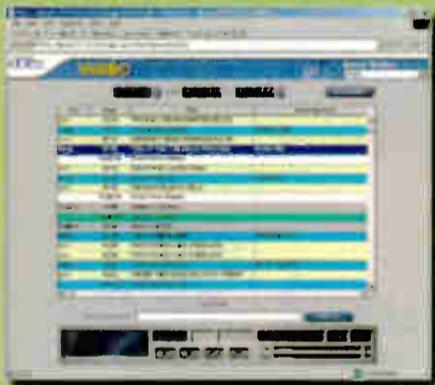
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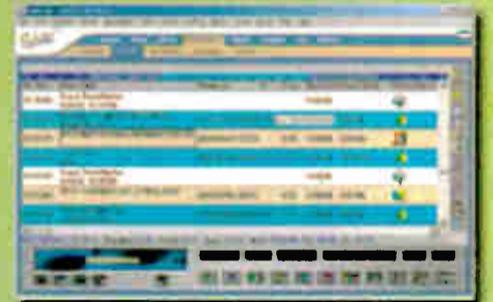
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## Patent Claims Surprise Webcasters

*The Impact on Radio Is Unclear, But One Streamer Says It Could Be Costly to Stations*

by Craig Johnston

The letter to Michael Roe began in a manner reminiscent of the "Greetings From Your President" military draft notices from the 1960s.

"Congratulations on the success of

radio. We appreciate your efforts to legitimately bring music and videos to the online community while respecting the intellectual property rights of artists, composers and publishers."

The letter Roe had received from Acacia Media Technology Corp. in late January

informed him that the company owns certain patents "covering the transmission and receipt of digital audio and video content via various means."

It invites the recipient to enter into a licensing agreement with Acacia. Roe, operator of top-rated Internet station radioio, was incensed.

### 'Legal extortion'

"It is legal extortion," he said. "When someone says to you, 'You need to pay me for this, and yeah, you could fight it, but it would probably just be cheaper to just pay me,' that's legal extortion."

Roe issued a press release and posted the Acacia documents on radioio's Web site. The story was picked up immediately by trade and general press.

Acacia's Vice President of Business Development and General Counsel Robert

Berman said Roe and others are free to go to the press as they like, but that the patents are valid and enforceable.

"Our research has indicated, and has been confirmed by others, that these are in fact the pioneering patents in the industry for the transmission and receipt of digital audio and digital video content."

At least one Internet radio operator, Radio Free Virgin, agrees with Berman. After researching the situation, RFV signed Acacia's standard license agreement that calls for royalty payments of 0.75 percent of gross revenues from music Webcasting operations. (Music-on-demand Webcasters are charged a royalty of 1.5 percent.)

An Internet radio station grossing \$250,000 a year that chose to license Acacia's patent would have an annual bill of \$1,875. A music-on-demand operator would pay twice that amount.

Acacia's is not the first such patent infringement notification RFV has received.

"We get barraged by requests for

See PATENT, page 26 ▶

## Salespeople Foresee Better Months Ahead

By Lyssa Graham

*Laissez les bons temps rouler*, say the Cajun residents of the Big Easy — a sentiment echoed by Radio Advertising Bureau President and CEO Gary Fries during his address at the RAB 2003 convention in New Orleans.

According to Fries, the good times are rolling for radio advertising. During his address, he predicted a 6- to 8-percent increase in radio advertising revenue for this year, going so far as to say that the industry is capable of exceeding those numbers.

Fries said the current environment is the "healthiest" he has ever seen, and emphasized radio's unique ability to address advertisers needs as they arise.

"Radio's time has come," Fries said, "We are right now one of the leading media and this is a great time to be in this business."

Fries' comments were based in part on fourth-quarter revenues, which he said were up by 11 percent compared to the same period a year before.

"Fourth quarter was where it happened," he said. "The most important part

of that is that we're going into '03 with a strong, strong foundation."

Other media also reported revenue increases at the tail end of 2002, with both Gannett Co. and Tribune Co. reporting increased advertising revenue for the quarter.

In February, Gannett Chairman, President and CEO Douglas H. McCorkindale attributed increases in TV advertising revenue to late-year political ads and a "continued favorable advertising environment" for television.

While revenues did increase in other media, radio made a better showing than many, according to figures from RAB. According to convention attendee Tom English, the director of sales for Clear Channel in Mobile/Pensacola, those revenue increases come from a relative lack of competition from other media.

"In all of our other primary media, there are difficulties that we are not seeing in radio with new diversity challenges — and I mean diversity of competition, not diversity in employees.

See RAB 2003, page 22 ▶



The Most Influential Women in Radio presented a panel on professional and personal growth. From left: Joan Gerberding, president, Nassau Media Partners; Mary Bennett, executive vice president, marketing, RAB; Kim Guthrie, vice president/general manager, Cox Radio, Long Island, N.Y.; and Cindy Weiner Schloss, regional vice president/Clear Channel/New Mexico.

### BROADCAST TOOLS® *new*

## "Rack-Ables"

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

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

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

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

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

Look for additional "Rack-Able" products soon.

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# RAB 2003

► Continued from page 21

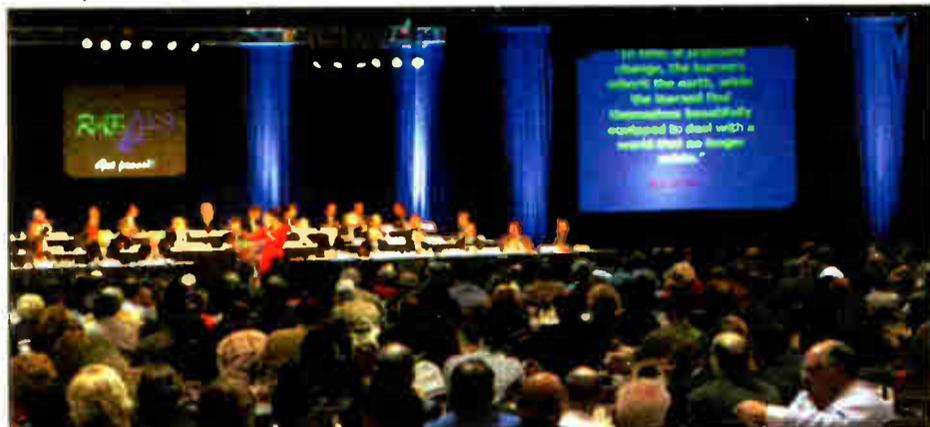
That's really the biggest difference."

While newspapers face competition from the Internet and television continues to see competition from satellite, radio has no really strong competitors in the marketplace, he said.

and management to attend the conference without incurring additional travel costs.

That "convergence" model is one the RAB will continue to follow for future conferences. Hyde said the 2004 conference is planned for the Adams Mark Hotel in Dallas and will coincide with several group management meetings.

"That was the site of the 2001 conference, which had our second-highest attendance," Hyde said.



RAB said attendance was nearly 1,700, its third-largest show.

"When you look at the opportunities to enjoy concentration of force, radio is the place to be," he said.

Thom Hager, director of sales for Apex Broadcasting in Port Charles, La., sees an upswing for radio advertising.

"We're going to see the radio market grow and grow," he said. "In a soft economy, radio is poised for greatness. It's like a coiled spring ready to explode."

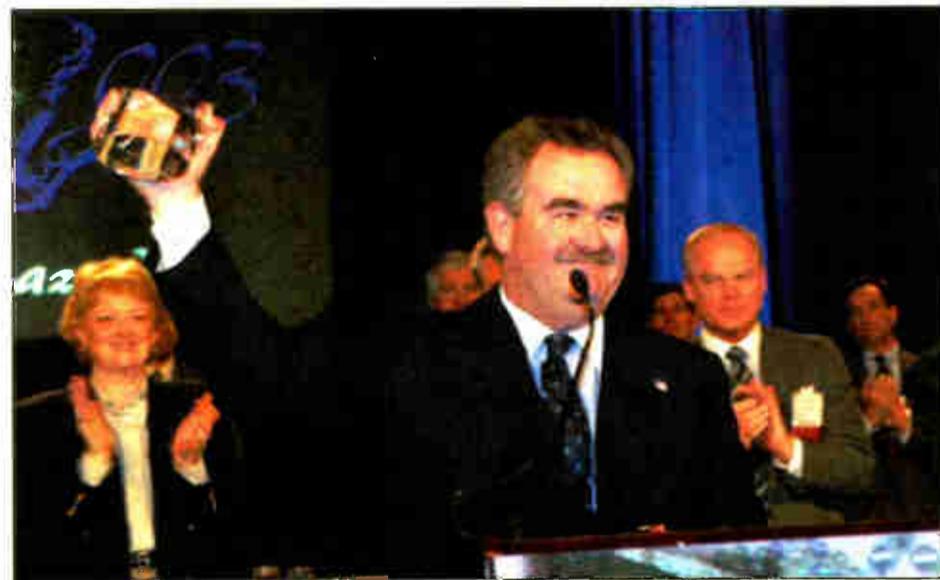
Hager said he feels the challenge is in training salespeople to explain changes in advertising to potential clients and overcome objections raised by those unfamiliar with the industry.

One notable difference at this year's conference, according to Hyde, was the lack of movement between training sessions and panels.

"Not only were people motivated to go to sessions," he said, "but nobody seemed to leave."

Hyde said the RAB promises attendees. "You come, you learn, you make money," and this year's crop of attendees seemed to take that promise literally. "Clearly, they came to learn," he said.

Hyde said that for those who missed the conference, copies of the sessions are available on audiotape, CD or MP3



Bill Stakelin, president of Regent Communications and member of the RAB board of directors, stands with the Kevin B. Sweeney Award, presented in honor of his dedication and leadership.

"The best-trained people become the best-paid employees," he said.

More than 1,600 people attended the New Orleans conference, a jump of at least 15 percent over last year, according to RAB Executive VP/Training George Hyde. He said the 2003 event was the third-largest in the 23-year conference history.

"It was great," he said. "It was exhausting but it was great."

He said the high number of attendees was due in part to the fact that the conference was timed to coincide with group manager meetings held in New Orleans around the same time.

He said Clear Channel, Entercom and Susquehanna held their own group meetings at the same time or just prior to the RAB conference, enabling top performers

through the RAB member services department for a "nominal" fee.

According to Hyde, educational opportunities will continue throughout the year with sessions planned for the NAB spring show in Las Vegas and the Radio Show in the fall in Philadelphia.

"We'll be bringing in some new ideas and exploring some of the topics that seemed to be in demand at the RAB conference," Hyde said.

Despite a sluggish economy and the looming threat of war, Hyde said the overall mood of the RAB show was positive.

"You can't ignore the fact that our industry economy is better now than it has been for awhile," he said. It's "upbeat news."

Lyssa Graham is a free-lance writer based in Galveston, Texas.

## JANUARY WINNERS: RADIOIOELECTIC, MUSICMATCH

Arbitron MeasureCast ratings show that the top Internet radio stations in January were radioioEclectic, MusicMatch ArtistMatch and Virgin Radio.

Arbitron said adult alternative channel radioioEclectic, heard only on the Net, enjoyed 1.3 million hours of total time spent listening. Top network: MusicMatch, with 5.44 million hours of total time spent listening. StreamAudio and Warp Radio ranked second and third.

### Top 10 Internet Radio Networks (January 2003)

Rank	Company	TTSL	CUME
1	MUSICMATCH	5,441,003	1,290,302
2	StreamAudio	4,236,623	418,552
3	Warp Radio	2,727,654	305,978
4	Moontaxi	2,213,001	226,321
5	StreamGuys	2,166,512	391,016
6	SurferNETWORK	1,876,669	98,563
7	Virgin Radio	1,805,619	228,938
8	Internet Radio Inc.	1,504,435	526,409
9	Radio Free Virgin	1,498,671	115,596
10	Clear Channel Worldwide	1,494,550	254,370

### Arbitron's MeasureCast Top 20

Rank	Station	Format	Owner/Network	URL	TTSL (ATH) (in hours)	Cume Persons
1	radioioEclectic (Internet-only)	Adult Alternative	RADIOIO/MediaPartners Inc./LimeLight Networks	www.radioio.com	1,308,720	196,355
2	MUSICMATCH ArtistMatch (Internet-only)	Misc.	MUSICMATCH	www.musicmatch.com	1,290,320	467,283
3	Virgin Radio 1215 AM & 105.8 FM (London, UK)	Hot AC	Virgin Radio New Media	www.virginradio.co.uk	1,210,684	157,001
4	JazzFM 102.2 FM & 100.4 FM (London)	Jazz	Guardian Media Group	www.jazzfm.com	1,026,071	92,177
5	WQXR-FM 96.3 (New York)	Classical	New York Times	www.wqxr.com	994,230	101,489
6	MUSICMATCH Top Hits (Internet-only)	CHR/Top 40	MUSICMATCH	www.musicmatch.com	709,328	341,334
7	KPLU-FM 88.5 (Tacoma)	Jazz	Pacific Lutheran University	www.kplu.org	557,944	65,707
8	Beethoven.com (Internet-only)	Classical	Beethoven.com	www.beethoven.com	524,356	54,028
9	KING-FM 98.1 (Seattle)	Classical	Classic Radio Inc. Real Broadcast Networks	www.king.org	449,366	47,289
10	K-LOVE Radio (Sacramento)	Contemp. Christian Music	Educational Media Foundation	www.klove.com	427,892	59,804
11	MUSICMATCH Artist On Demand (Internet-only)	Misc.	MUSICMATCH	www.musicmatch.com	401,662	144,199
12	KNAC.COM (Internet-only)	Pure Rock	KNAC.COM	www.knac.com	399,794	61,160
13	3WK Undergroundradio (Internet-only)	Alternative Rock	3WK	www.3wk.com	371,945	93,576
14	WXPN(FM) 88.5 (Philadelphia)	Adult Album Alternative	University of Pennsylvania StreamGuys	www.xpn.org	346,806	20,566
15	Virgin Radio Classic Rock (Internet-only)	Classic Rock	Virgin Radio New Media	www.virginradio.co.uk	331,133	45,669
16	BlueGrass Country (Internet-only)	Country	American Univ. Warp Radio	www.bluegrasscountry.org	301,560	47,975
17	MUSICMATCH Soft Hits (Internet-only)	Soft Hits	MUSICMATCH	www.musicmatch.com	279,379	51,302
18	MUSICMATCH Country Hits (Internet-only)	Country	MUSICMATCH	www.musicmatch.com	240,518	57,391
19	The Tom Joyner Morning Show (Dallas)	News/Talk	ABC Radio Networks	www.tjms.com	208,954	22,023
20	Moontaxi Top 40 and New Releases (Internet-only)	CHR/Top 40	Moontaxi	www.moontaxi.com	197,873	49,016

#### Notes:

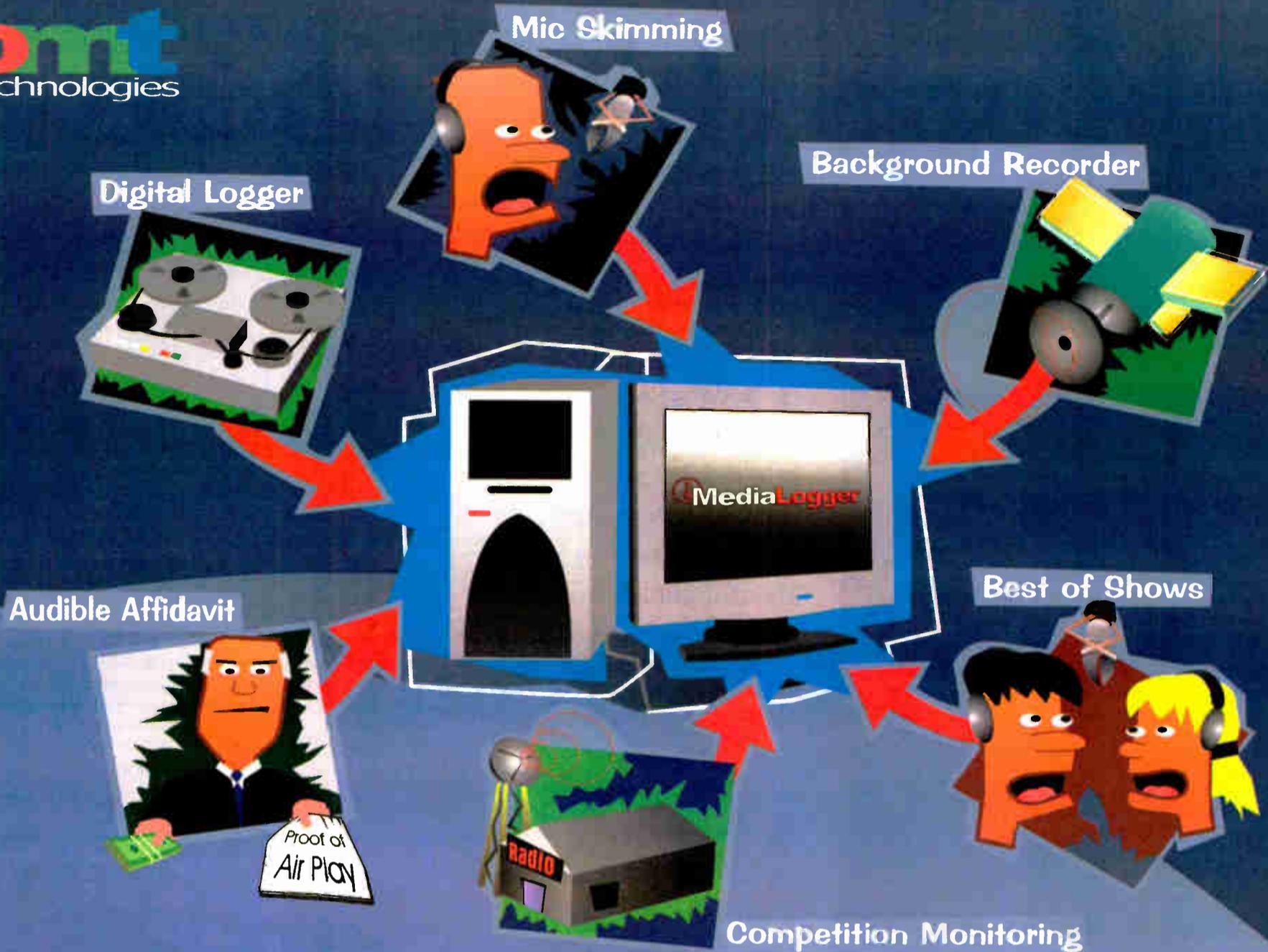
TTSL (*Total Time Spent Listening*), sometimes referred to as Aggregate Tuning Hours (ATH), is the total number of hours tuned to a given station or network in the reported time period. *Cume Persons* is an estimate of the total number of unique listeners who had one or more listening sessions lasting five minutes or longer during the reported time period. This estimate is derived using an algorithm that takes into account unique media player GUIDs, unique IP addresses and other variables during the reported time period.

In November 2002, Arbitron acquired a license to MeasureCast's streaming measurement technology and related assets. Some channels that had been reported by Arbitron before the acquisition may not appear in the current Arbitron's MeasureCast Ratings. Arbitron is working on reporting some of these properties and hopes to include them in the future.

Clear Channel Worldwide may not include complete data due to a change in content delivery network (CDN).

Estimates for Virgin Radio, Radio Free Virgin and Internet Radio Inc. may not include complete data due to server communication issues.





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BLUEBOX List 2,800<sup>00</sup> Call For Price

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Zephyr Xstream MPX is Telos' ISDN transceiver with the utility of a digital four-channel stereo mixer, all in a rugged, portable chassis. Transmit and receive 20 kHz stereo audio to and from a single location over a single ISDN line (or two mono channels to and from separate locations). The full-featured stereo mixer offers 4 mic/line switchable inputs (main mixer stage feeds codec directly); selectable AGC/limiter processing presets and built-in 48-volt phantom power for two mic inputs. **Features:** G.722, G.711 and MPEG Layer-III and Layer-II coding for compatibility; MPEG 4 AAC coding for CD-quality audio; MPEG 4 AAC-LD coding for high audio quality with low delay; 10Base-T Ethernet port allows remote control and streaming of MP3-coded audio over a LAN, WAN or the Internet.

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M-5

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The Danagger Plan B Silence Eliminator protects your station from losses due to unplanned outages and equipment failures by providing an alternate source of continuous backup programming. In other words, it's a great way to combat dead air...analog or digital. The Plan B's built-in CD drive plays all regular CD-R/W discs, and even MP3-encoded CDs in a variety of playback modes, for the flexibility

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## State-of-the-Art ISDN codec

The new Musicam Prima LT Plus ISDN codec includes four oversize VU meters, intelligent headphone monitoring, room for three ISDN or other digital interfaces, SMPTE Time Code and full programmability – all in an easy-to-operate package. With MUSICAM-enhanced MPEG Layer II, MPEG Layer III and G.722, Prima LT Plus gives you ISDN connectivity at bit rates ranging from 56 to 384 kb/s. Independent Mono mode allows you to send two independent mono audio programs to any combination of six locations. Much more. Call for details.

LPT103 List 4,995<sup>00</sup> **Call For Price**



## "Must-Have" Audio Tester

The Behringer CT100 tester accepts XLR, mono and TRS phone (1/4", 1/8", TT), RCA and MIDI. It indicates shorts and opens, as well a continuity check and phantom power presence. A test tone generator (1 kHz and 440 Hz) is also included.

CT100 **39<sup>99</sup>**



## Headphone/Monitor Splitter

Galaxy's new Jack-in-the-Box Splitter is a 4-way splitter. It splits a single monitor feed to as many as four monitors, or splits a single headphone feed to multiple headphones. Balanced 1/4" TRS inputs and outputs provide maximum isolation.

JIBS **35<sup>00</sup>** **GALAXY AUDIO**



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The popular Sony MDR-7506 headphones delivers a surprisingly wide frequency range (5 Hz to 30 kHz) in a comfortable, sealed ear format providing isolation from external sound. It includes a mini-plug connector with 1/4" screw-on adaptor. Order today.

7506 **99<sup>00</sup>** **SONY**

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## Digital Output Turntable

The DPDJ151 is Denon's first direct drive digital turntable. It features high start-up torque; coaxial digital output; phono analog output; key adjust maintains the key as the pitch is changed; anti-skate and height adjustments; 3 platter speeds; pitch range of ±12%; switchable line level or phono output; and 3-way electronic brake effect – normal/medium/slow.

DPDJ151 List 499<sup>00</sup> **299<sup>00</sup>**

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# Patent

► Continued from page 21

payment for things that we generally find to be totally unworthy of even a phone call," said Zack Zalon, RFV general manager. "To date, over three years, we've never once had a situation where we believed that we were infringing on anyone's patent, until now."

Roe believes Zalon made a business decision — that it would be cheaper to pay the license royalties than to fight in court. He said he believes their thinking went: "Hey, we're big and we need to make some sort of agreement about it."

He thinks both radio and RFV were targeted because of their high profiles in the Arbitron Measurecast ratings, and because Acacia didn't think they had the means or will for fight it. What if AOL Time Warner, for instance, were served with the same request?

"What they'd do is drag them into court and fight it. It would drag on for years, or at least a year or more, and Acacia would go away," he said.

## Pay attention

But Roe suggests the big players take notice.

"Clear Channel needs to take notice of what's going on, because if (Acacia is) able to successfully press this claim against us, they certainly will use that, or they will attempt to leverage that to get a claim against Clear Channel or anyone who's using the Internet to transmit digital audio or video."

Brian Parson, Clear Channel Interactive's director of technology, told Radio World that the company had not received a similar notice from Acacia.

Roe also raises the question of whether the technology providers, RealNetworks or Microsoft among them, should be the targets of the patent infringement action.

"If Acacia has a patent on the method of, or the process of transmitting audio or video over the Internet, then that's a claim that they should take up with those entities."

Berman said this is not the way patent

ACACIA  
MEDIA  
TECHNOLOGIES  
CORPORATION

Via Federal Express

January 28, 2003

Mr. Michael Roe  
ioMedia Partners, Inc.  
4905 Belfort Road  
Suite 145  
Jacksonville, FL 32256

Dear Mr. Roe:

Congratulations on the success of radioio. We appreciate your efforts to legitimately bring music and videos to the online community while respecting the intellectual property rights of artists, composers, and publishers.

Acacia is a publicly traded company that develops and acquires patented technologies for licensing. We own a portfolio of five U.S. and seventeen International Patents covering the transmission and receipt of digital audio and video content via various means, including the Internet. We call the technology covered by these patents "DMT" or Digital Music Transmission technology. Our engineers and lawyers have reviewed the streaming services made available at the radioio.com website, and have determined that these activities are covered by our DMT Patents.

We have entered into Licensing Agreements with several companies that stream digital audio and video content over the Internet, including Radio Free Virgin. We have also

Robert A. Berman  
Senior V.P. Business Development  
and General Counsel  
Telephone (949) 480-8333  
Fax (949) 480-8301  
Email: rberman@acaciares.com

law works.

"Just because you get a product from a third party such as Microsoft or Real or Concurrent or anybody else, doesn't necessarily mean that your using that product in certain ways won't infringe on intellectual property rights owned by others," he said. "Under the patent law, the user of the technology is liable."

Internet radio stations that have their streaming done by a service bureau should not think they are absolved of the patent royalty obligation.

"The bottom line is that the Webcaster radio station is benefiting from the use of our technology, and under the law you cannot use somebody's intellectual property without

a license," said Berman.

He said that when an Internet radio station licenses the technology, it automatically covers their third-party suppliers.

Zalon said that in licensing Acacia's patents, RFV gained access to some additional technology.

"We found things in their patent that we currently are not utilizing, but may utilize in the future."

"In addition to our existing patents," said Berman, "we currently have hundreds of other claims pending in front of the patent office that we are confident will be upheld. So our coverage is only going to get better over time."

He said these later patents will be grandfathered into license agreements signed earlier.

When can other Web streamers expect to hear from Acacia?

"We don't have a particular schedule," said Berman "We've already been in touch with and we've sent mailings out to several different Webcasters with marketing materials and copies of our draft license agreement."

Acacia shouldn't expect radio and Michael Roe to go quietly.

"We had three extremely high-profile attorneys and law firms in the realm of patent and intellectual property law vol-

## Patent Details

The U.S. Patent Office issued Patent No. 5,132,992 to Greenwich Information Technologies in 1992 for its Digital Media Transmission technology. Greenwich was acquired by Acacia Media Technologies Corp. in 2001.

Overall, Acacia's DMT patent describes an audio and/or video transmission and receiving system with specific features allowing the user to control the access and playback operations of the selected material.

Filed in 1991, the patent states: "At the present time, only a video cassette recorder (VCR) or a laser disk player (LDP) allow a viewer to enjoy control over selection of particular audio/video material. Using either a VCR or an LDP requires the viewer to obtain a videotape either by rental or by purchase. Remote accessing of the material has not yet been integrated into an efficient system."

The DMT patent covered that "efficient system." According to the patent, different types of audio and/or video media material are given a unique identifier. The media material is then formatted into a predetermined format, compressed, stored and transmitted to a remote location.

Once the compressed media material is received at the remote location, it is stored, decompressed and played back by the user. Playback controls in the reception system allow the user to fast forward, rewind, stop or pause the playback of the media material.

"We are not willing to make a broad statement that every radio station that streams is necessarily covered by our patents," said Robert Berman, Acacia vice president of business development and general counsel.

"Before contacting a Webcaster, we have our engineers look at what it is the company is doing, and we make a determination of whether they're utilizing our technology or not."

In addition to its existing 137 U.S. patents claims, the company has hundreds of additional claims pending in continuation patent applications currently being examined by the U.S. Patent Office.

unter their services," he said, who are willing to take his case for free.

"They see that if we lose, that it affects their big paying clients."

Acacia has also targeted adult entertainment video Web streamers for payment of patent royalties. The company has recently filed patent infringement suits against some who have ignored or rebuffed their claim. 

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## STATION SERVICES

## AccuWeather, Sharp Tout Wireless Service

Calling the wireless market an "ideal distribution channel," AccuWeather.com is out with a graphical weather service for Palm OS and PocketPC users, in conjunction with Sharp Electronics.

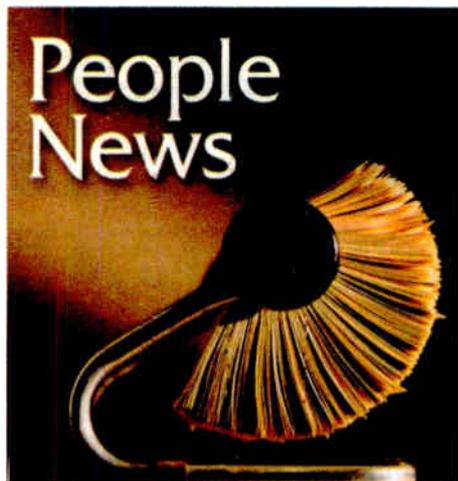
The SharpMotionART service provides graphical weather presentation for handheld users. The new version of the AccuWeather.com Mobile service will be available for 160 cities and can be downloaded from the Web site listed below.

The service gives the user access to parameters like current conditions in a chosen city, four-day forecasts for a city, Weather Almanac data and a travel map showing regional conditions.

AccuWeather calls the service a "vast improvement" over those now available for Palm OS and PocketPC users. "Slow download times are no longer a problem," the company said.

Plans are in the works to expand the partnership to other devices, Sharp and AccuWeather said.

Info: [www.accuweather.com/sharphin/index.asp](http://www.accuweather.com/sharphin/index.asp).



Steve Jones was selected as VP GM of Radio for ABC News. Jones will oversee domestic and international news, sports and information coverage for the five ABC radio networks.

Basil Murrain was promoted to VP of marketing and promotion at American Urban Radio Networks.

Sandy Capell will oversee Clear Channel's seven-station New Orleans radio cluster as director of sales.

Arbitron has promoted Stacie de Armas to director of Hispanic Marketing Services. She was senior

### PRI Fellowship Program Underway

Public Radio International has created the PRI Fellows Program. The initiative is an effort to cultivate minority journalists and increase the diversity of perspectives and voices in public radio. PRI Fellows' responsibilities include the creation of content for local and national broadcast.

Participants are also asked to identify ideas, stories and people from communities of color who are relatively new to public radio.

Jacque Gales Webb began her Fellows experience last summer at WAMU(FM) in Washington, developing arts and culture programming for PRI's Studio 360 and for local station programming.

The PRI Fellows Program is funded in part by the Ford Foundation. The program awards a yearlong fellowship to an African American, an Asian American and a Hispanic.

### RAB Expanding Sales Training Academy

The RAB is expanding its sales and management training at advanced levels. Based in Dallas, the RAB Radio Training Academy provides on-site training and sales marketing skills to give salespeople the means to accelerate their progress and build a foundation for long-term success in radio sales.

In response to demand from the industry, the academy will provide more training directed at diverse levels of sales and management, expanding its courses for seasoned professionals as well as courses aimed at those who are new to the business.

For more information from the Radio Advertising Bureau go to [www.rab.com](http://www.rab.com).

account manager with Arbitron's Advertising/Agency Services.

South Jersey Radio let go GM Dick Taylor, who worked there for two years.

Emmis Publishing appointed Richard Hunt president and publisher of its new Emmis Books Division.

Sandy Johnston is working for the Radio Advertising Bureau as director of the Dallas-based Radio Training Academy, which offers sales and management courses.

Dielectric named Warren Bottorff regional sales manager for the western states. Bottorff has worked at SpectraSite as director of sales and at Harris.

Mackie Designs named Ken Berger as senior VP of marketing. Most recently, Berger was the founder

and CEO of Pro Sound Web, an online community for pro audio, lighting and entertainment technologies.

Peter Kehoe has returned to Euphonix as director of sales eastern region. He had worked at Euphonix before in the regional and sales management area.

Scott Robbins rejoined Crown International to serve as the VP of sales.

Joel Motel is back with BSS Audio as eastern region sales manager.

Francisco Montero has left Shaw Pittman and joined the law firm of Fletcher Heald & Hildreth where he will continue his practice in media and communications law.

The New York State Broadcasters Association initiated an internship program with New York University for

college broadcast and journalism students. The NYSBA/NYN Media Internship Program will provide an internship experience for students to "cover the Capitol" in Albany. Students will be recruited from broadcast and journalism programs on college campuses around New York State.

The program will be based at the New York Network, the State University's television production and transmission facility. The students will earn college credit from daily assignments to research, shoot, write and edit coverage of events at the Capitol.

Tell us about your job change or new hire. Send news and photos via e-mail to [radioworld@imaspub.com](mailto:radioworld@imaspub.com) or mail to Radio World People News, P.O. Box 1214, Falls Church, VA 22041.

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# Buyer's Guide

Tech Updates



Inside

Radio World

Digital Audio Production

March 12, 2003

USER REPORT

## Mediatron Hits the Slopes

by **Hans Zimmer**  
Free-lancing Sports Journalist  
Hamburg, Germany

**ST. MORITZ, Switzerland** I've just arrived in St. Moritz, and I must say — what a wonderful country. In my career as a sports journalist I've been here many times: but it hits me again: the beautiful scenery, the powder snow, the mountains.

Being from the more northern parts of Germany, I don't get to see many mountains, so I appreciate the winter sports season.

My mission? Deliver the flair and impressions to listeners of our radio stations in northern Germany.

But I'm writing this article not because I'm a big time skier or mountaineer, but because I had so much fun doing my job during the world championships.

### From work to fun

About two weeks before I went to St. Moritz, I got a call from **Mediatron**, a company in southern Germany that has been supplying us with digital broadcasting software for on-air studios and production workstations for years.

The company just released its newest product, the NewsEdit XP, a multitrack editing software for every kind of purpose.

They were looking for someone interested in field-testing their latest gimmick. I had the software in the mail two days later.

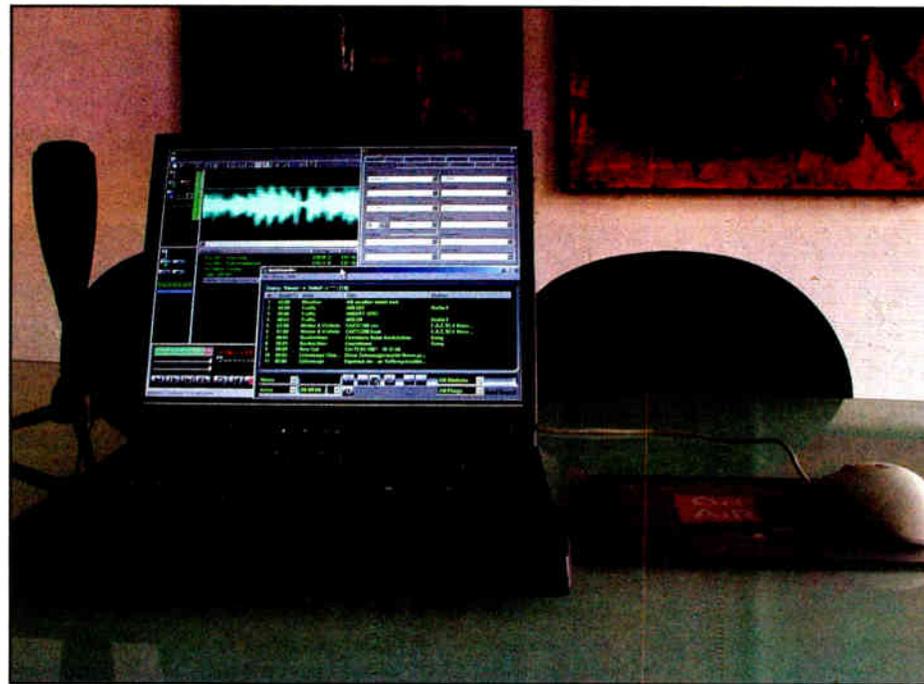
I installed the software on my new laptop, equipped with a PCMCIA sound card from Digigram, the VXpocket v2, which I had just obtained for the skiing world championships. I could alternatively use the onboard Soundblaster sound card, but I wouldn't recommend that from a professional's view.

I had worked with the previous version of Mediatron NewsEdit XP, the NewsEdit NT, so I didn't have to move on new terrain all the way. New to me were the cool multitrack features, which I wouldn't want to do without anymore.

The NewsEdit XP features more than just audio editing; it has its own content management, an archiving and research function and a browser for searching in the database.

The system itself runs flawlessly on every Windows operating system since NT and supports formats such as MPEG-1, -2 and WAV. They are available in mono or stereo with professional bit rate and sampling frequencies as well as the Broadcast Wave Format, BWF, an ISO standard designed by EBU and AES to exchange digital audio files among manufacturers, which comes in handy because we have software tools from other companies.

But let's get back to working with the NewsEdit XP. I mentioned that I knew the



The NewsEdit NT is the previous version of Mediatron's NewsEdit XP.

older version of the software, and with that knowledge I thought I wouldn't have to read the manual. Who has time? So I started the NewsEdit XP and was surprised — no manual needed, really. The software is so easy to work with and intuitive that I

could produce files right away.

The new multitrack features are simple to understand. I only had some trouble handling the different types of markers at the beginning. In a short call with Mediatron, they explained me how those

markers work.

Now, three weeks later, I'm in Switzerland. I got to know the software well. It makes everything so much easier for a journalist away from his studio.

When producing, for example, an audio file containing the newest information from the last run, I try to catch live comments from participants, recording them directly with my laptop, which is a JVC MP-XP7210 and barely bigger than my old MiniDisc recorder, and a standard microphone.

### No hassle

Due to recording directly into the NewsEdit XP, I don't have to hassle with transferring my recordings first. Afterwards I go back to my warm office and record my own comments on the second track. I edit to my liking, add background sound on the third track and export everything.

While exporting, the Mediatron NewsEdit XP leads me through the process of adding additional content to my "ready-to-broadcast" file such as text files, pictures taken with my digital camera from the event, short videos and so on.

Luckily we are provided with a fast Internet connection in our offices so that transferring the finished production including all content to our FTP server is no problem. It also is possible to hook up a mobile phone to the laptop in order to transfer the

See MEDIATRON, page 34 ►

USER REPORT

## Cool Edit Pro Is a Breeze for Users

by **Holly Jensen**  
Audio Designer  
Clear Channel

**AUSTIN, Texas** Six years into my on-air career, a move to a smaller-market station forced me to learn production in "sink-or-swim" fashion. I had zero experience until then and had always found the work to be rather daunting.

With no choice and no one to help me, I reviewed the three digital audio editing programs available in the station's production studio before opting to teach myself **Syntrillium Software's** Cool Edit Pro.

As a production novice, I found Cool Edit Pro surprisingly easy to pick up. The basic functions — my knowledge at the time consisted of Play, Record and Stop — were clear and straightforward, and it wasn't long before I started learning other features that allowed me to turn out quality work from the start.

My first commercials were trial-and-error endeavors, for which I found Cool Edit Pro's Preview function to be a godsend. It allowed me to add effects to my voice and immediately listen to the results without permanently altering the sound file. This was the only program that didn't take an

engineer to understand how to use special effects. It was user-friendly.

Over time I have become a seasoned and dedicated Cool Edit Pro user, eventually ending up here in Austin as audio design engineer for Clear Channel's station cluster. The group consists of two country, plus classic rock, jammin' oldies, CHR and sports stations. With responsibility for commercial produc-

tion at five of the stations as well as imaging for the CHR, not a day goes by that I'm not running a slew of projects on the software.

The one thing I appreciate more than anything else is the sheer speed at which I can complete a project using Cool Edit Pro. Because I don't have to create and

name a new session for every piece of work, I can literally finish five pieces one right after the other.

I put together a sweeper and then clear it off the screen, bring up my next elements, create the piece and then clear it off the screen. I can have five people lined up at the door and clear them out in 10 minutes because of the speed and efficiency the software affords me.

**Cool Edit Pro helps immensely in the amount of control it offers over the smallest details of a project.**

Because I do production for such a diverse group of radio stations, Cool Edit Pro helps immensely in the amount of control it offers over the smallest details of a project. For example, CHR processing is heavy on the bass, so I remove a lot of the low end in their projects so it

See SYNTRILLIUM, page 34 ►

## USER REPORT

# Orban Audicity Outfits KAJM, KNRJ

by Mark Mayfield  
Production Director  
KAJM(FM)/KNRJ(FM)

**PHOENIX** Radio has been my career for more than 25 years and, for most of those years, production director has been my title. So I remember too well the days of tape and razor blades. Over six years ago, when I moved on from 4-track tape, I began using the Orban Audicity Digital Audio Workstation. I still use it today.

Having worked at Phoenix rocker KUPD(FM) for 16 years, then Sandusky sister station KDKB(FM) for eight, and most recently for Sierra Broadcasting's Phoenix combo KAJM(FM) and KNRJ(FM), I realize the importance of fast turnaround time for commercial production. The Audicity is

easy to use, and it assists me in completing commercial production in a timely manner.

When I began using the Audicity, I looked at it like a tape deck without the tape. It was much more forgiving than tape, and you could fix mistakes in a flash. It only took a few weeks to feel comfortable using the Audicity, and most anyone can be up to speed on it within a month.

The Orban Audicity's efficiency, quickness and ease of use are what make me a fan. Its effects, compression, equalization, and echos are great. This is important because our stations have high-energy, upbeat formats. Because the Audicity has a multitude of drives, you can archive a tremendous amount of work. The amount of memory is fantastic.

With the Audicity, you can edit out single words in a sentence that run together and

make the sentence still sound perfect. When I do have a question, Orban has been there to help in answering. Their customer service department responds quickly to inquiries.

The Audicity Version 3.1 makes the Cart Chunk Standard fully compatible with AES standards. This makes the Audicity easier to use in networked environments. I would much rather use the Audicity than any other audio workstation on the market and would recommend it to anyone in the radio industry, or those involved in any type of audio production.

Here at KAJM/KNRJ, we save time, produce quality commercials and radio station imaging with the help of the Audicity. I like this better than anything I've used.

For more information, including pricing, contact the company in California at (510) 351-3500 or visit [www.orban.com](http://www.orban.com).



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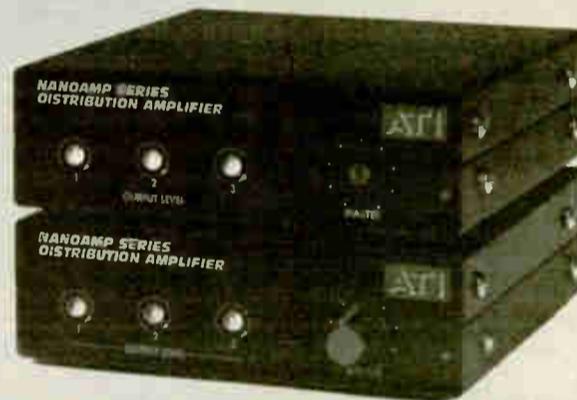
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USER REPORT

# BE VaultXpress Powers Production

by **Bob Henning**  
**Corporate Chief Engineer**  
**Artistic Media Partners**

**INDIANAPOLIS** On-air talent today is required to do some audio production during an air shift, even if it's a voice recording done between sets. The same goes for our on-air talent at Artistic Media Partners' 13 stations serving South Bend, Fort Wayne, Lafayette, Bloomington and Indianapolis, Ind.

We still do multi-track production projects, and we have the state-of-the-art production studios to prove it. But that line between production and on-air isn't nearly as defined as it used to be, and it's my job to make sure that editing tools are accessible to talent, no matter what studio they're in.

Because all our stations either have, or are in the process of upgrading to, **Broadcast Electronics'** digital audio system — whether for live board assist, music scheduling, satellite automation or some combination thereof — we didn't have to look far to find the editing tools needed for our on-air rooms. Bringing digital editing into our on-air studios through a system already in the studio and familiar to our staff was a no-brainer.

Artists Media Partners has been a BE AudioVault customer since 1994. We recently upgraded our South Bend and Lafayette stations to the digital audio system, and we're now in the process of converting our Bloomington stations to the standalone version, the VaultXpress. With the cost of hard-disk drives falling through the floor, we are moving away from the networked environment to localized digital audio storage on individual PCs using the standalone VaultXpress.

It gives us the power of a digital audio system without the additional costs of networking. It has everything we need, including an optional production module that makes it possible to introduce audio editing into the air studio.

**Two-track mind**

By getting the VaultXpress AVProd module, we hoped that our air talent would be able to do two-track recording and editing of news stories, phone interviews, traffic reports and other sources. We wanted air talent to make the best use of their time while in the studio.

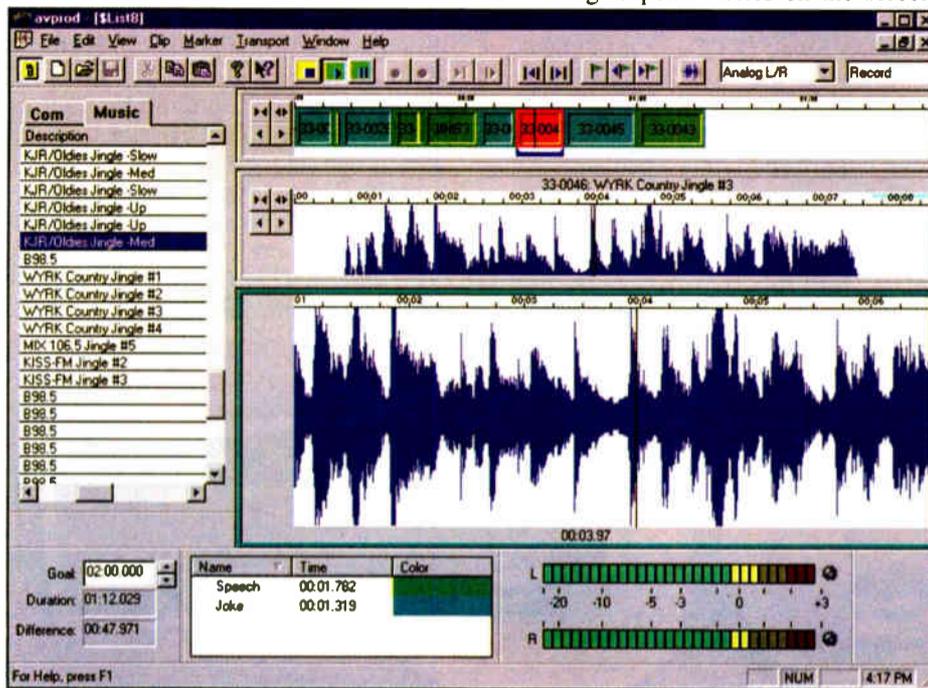
The key, however, was to make the tools accessible and easy to use: our program directors don't want air talent taking their eye off the most important task at hand, that is, paying attention to what's on the air at that particular moment. We have a diversity of programming coming from our stations, from hard rock to talk, and just about every format in between. The system had to hold up in all kinds of settings and for all sorts of use, from the zany productions in a morning zoo environment to recording calls in a news setting.

This module, like all Vault modules, is configurable. I set up the user interface and screen displays according to level and type of use, whether an announcer or on-air personality is a power user or newbie to waveform editing. The module also offered several pre-programmed shortcut commands, which I took advantage of to make it easier for our staff to change inputs and mark editing parameters.

The screen display is laid out in such

a way that air talent can see what they're editing from the macro as well as micro point of view, making it easier for them to jump in and out of editing between sets.

show, spot or news segment. All VaultXpress PCs have an off-the-shelf Digigram sound card for capturing recorded audio. The user simply adjusts level according to peak meters on the screen.



Artistic Media Partners' staff does two-track recording/editing with VaultXpress.

During a typical session, he can record to the system or drag-and-drop sound bytes, news briefs, and other audio WAV files stored on the hard disk to splice into a

The VaultXpress' meter can respond fast enough, whereas the standard VU meters on our consoles can't, in order to spare the waveform from having to be clipped.

When the announcer is ready to get down to the business of editing, all he has to do is select any of the WAV clips in the top pane on the screen and sweep it through the editor. He can view the waveform two-sided or single-sided and he can zoom in or out to change the size of the waveform for fine editing or editing large chunks of audio.

He uses the mouse to place markers where he wants to cut or reference. I set up markers with different colors for speech and other audio types, making it easier for talent to organize editing sessions. They mark the beginning and end of where they want to edit, and remove it or copy it with a click of the mouse.

Advanced users will open multiple projects at once and drag-and-drop audio from one project to the next. The system has a "stopwatch" to let him know if the cut falls short or goes over a predetermined time. If a news segment or spot runs longer than 30 or 60 seconds, he knows exactly how much. On a bottom pane is the "tape view" of the audio file so talent can get an idea how the audio will playback.

The VaultXpress production module has been a wise investment for us, and not only because it introduces editing to the air studio. We've discovered that with editing, music rotation and automation in one system, our air talent can integrate several studio functions at once. It's not unusual to find a DJ playing a song on the air, recording a spot and running another station remotely all at the same time.

For more information, including pricing, contact the company in Illinois at (217) 224-9600 or visit [www.bdcast.com](http://www.bdcast.com).

TECH UPDATE

## MediaTouch Expands iMedia Line

At NAB, **OMT Technologies** will tout iMediaAccess Server, a LAN/WAN add-on module for iMediaTouch, which allows control of audio assets across stations.

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

iMediaAccess Server lets operator create and view on-air schedules, monitor the on-air status of a remote location and view TTA information via HTML.

OMT's flagship iMediaTouch digital audio and broadcast system has added the iMediaTouch V.2. Additional features to the four core iMediaTouch modules include

Oplog On-Air, Log Tools, Production and VoiceTracking.

Oplog On-Air has on-screen recording and voice tracking, front-sell/back-sell info, audio audition inside the audio Library, ShowLog fade-out and repeat and playback while recording long files. Log Tools let users test their log before it airs.

OMT says Production includes a simplified Interface, improved search engine capabilities and editing functions on WAV, MP2 and MP3, automated visualization file feature, automated level adjust (overall playout) and graphic paste-in. VoiceTracking lets users drop in six effects on a VoiceTrack, Drop-in Music Beds to VoiceTracks, and do level control of effects and music beds.

The company also has iMediaLogger, a software-based audio logging, archiving and storage system that does not use tape or reels.

Also, iMediaAdCast, a system for content substitution applications, lets users re-brand their format, provide affiliate satellite commercial automation, liner/ID split feed and Internet commercial substitution. It is designed to work with most broadcast automation systems and satellite receivers. iMediaAdCast replaces liners, spots, stingers, music and long-form content.

iMediaMultiStream, a multi-channel live stream encoder, targets AM/FM combo radio stations, station clusters and private corporate broadcasting. And iMediaExpressEncoder provides library digitization and audio extraction for up to 100 CDs and can retain digital audio data for maximum clarity, quality and output to CD, Windows Media Audio (WMA), Real Media and Web-compressed audio formats.

For more information, including pricing, contact the company in Canada at (204) 786-3994 or visit [www.omt.net](http://www.omt.net).



# Syntrillium

► Continued from page 32

doesn't come across as muddled on air. The country stations are the opposite, with a lot of treble, so I mix country projects using extra bass.

Another feature I use daily is the Background Noise Reducer, incredible for cleaning up phone audio. I just need to find a pause in the recorded conversation, highlight a sample and the software will clean it perfectly every time. This is handy for analog reel noise as well.

The Hard Limiter sees a lot of use, particularly on voiceovers. I mix voice and music at 3 dB, but process the vocals with the Hard Limiter to give them more presence on the air.

A nice complement to the Cool Edit Pro software is Syntrillium's Loopology.com Web Site, a collection of thousands of royalty-free, downloadable musical loops that will satisfy the most obscure needs. This site saves me incredible amounts of time nearly every day.

Let's say I'm looking for a specific sound for a bed — something bouncy and upbeat but with no synthesizers. I could spend (and have spent) days sifting through a wall of CDs. With Loopology, I just go to the site, do my search and download exactly what I need. Since the loops are already timed out, all I do is mix it down and I have a bed.

I once was working on a spot for a Japanese restaurant. The client didn't want traditional Japanese music, but still wanted the piece to sound "Japanese-y" — their word, not mine. I

went to Loopology and downloaded Japanese Bells, which I mixed with African Drums. The client loved it. I was able to give them something with Japanese flair that still sounded exotic. And I created in seconds what would have taken me days with a traditional music library.

From the neophyte voice talent with no production experience to the seasoned studio wizard, Cool Edit Pro offers the features and functions that can get the job done quickly and easily. I sincerely believe that if somebody can use Microsoft Word, they can use Cool Edit Pro. It flat out makes it easy to learn and understand what you're doing.

For more information, including pricing, contact the company in Arizona at (480) 941-4327 or visit [www.syntrillium.com](http://www.syntrillium.com).

# Mediatron

► Continued from page 31

files using techniques such as GPRS.

Finding older productions later is done in the blink of an eye. Just search by keywords you entered in your old productions for videos and pictures. By the use of simple metadata, Mediatron made it possible to search even in Word, Excel, RTF, HTML or PDF documents you added in your content management.

With these features, I didn't have to spend much time recording and producing, which gave me more time to concentrate on getting good material and still being able to deliver the news in time.

As soon as I get back home, all I have to do to synchronize my laptop data with my workstation is use the backup function of the Mediatron NewsEdit XP. This feature allows me to transfer required files and content back to my workstation with one click.

Mediatron has improved its powerful software, which helps me to do my job in a more comfortable and faster way; considering the price and performance ratio compared to others, there is no better software on the market.

For more information, including pricing, contact the company in Germany at (011) 49-8131-8305-0 or visit [www.mediatron.com](http://www.mediatron.com).

## TECH UPDATE

### RCS 'Selector-izes' Audio

Users can "Selector-ize," distribute and manage ripped audio using smart tools from RCS.

Its Selector XV music scheduling adds "smart ripping" plus audio marking and sharing features.

The features of the Selector Smart Ripper let songs be ripped and coded once, then made available to stations in the group. RCS promotes this as an advantage over ripping a song's audio, coding it with title/artist, runtime, intro and additional fields on the song's corresponding Selector song card before it is added into rotation.

The features also are integrated into a version of RCS music-scheduling systems, Selector XV and Selector Enterprise.

The technology can "Selector-ize" a song, which determines the song's tempo, energy, texture, beats per minute, type of ending and musical key of the open and close automatically after the song is ripped.

The song's information is saved onto a new or existing Selector song card. An audio marking tool lets users mark a song's hook, audio file, next-to-play point and up to three intro times for playback in RCS Master. Users can control studio automation or exported via ASCII automation file to most station automation systems.

Regardless of location, commonly owned stations can rip and share songs or entire formats using Selector Enterprise from an Internet browser.

For more information, including pricing, contact the company in New York at (914) 428-4600 or visit [www.resworks.com](http://www.resworks.com).

Join us at the **Radio Luncheon** on Tuesday, April 8 for the induction of **Scott Shannon, Air Personality and Program Director, WPLJ**, into the NAB Broadcasting Hall of Fame.

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TECH UPDATES

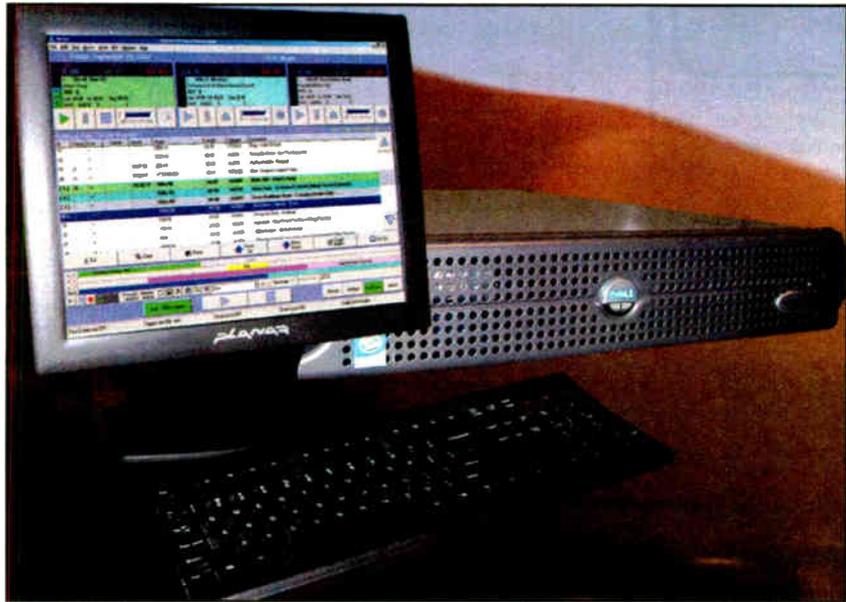
### BSI Combines Tools for Audio Editing

The **Broadcast Software International Series 200 Production Studio** is a digital audio editing and production workstation. Series 200 uses a Dell 2650 PowerEdge server with a 2-GHz Intel Pentium IV processor. The PC comes with 256 MB RAM and a 146-GB hot-swappable hard drive.

The workstation operates on a Windows 2000 platform and includes Syntrillium's Cool Edit Pro 2.0 128-track digital editing software. Cool Edit Pro can analyze audio, create effects and export to several compressed audio file formats. The software is paired with an AudioScience 4344 professional sound card. The 4344 has four playback devices, mixable to four balanced physical outputs, and three record devices that pull from a balanced record input.

The Series 200 comes with several BSI programs: Simian Production Mode, WaveCart digital cart machine, Stinger instant audio and Speedy CD-to-PC dubbing.

For more information, contact the company in Oregon at (888) BSI-USA1 or visit [www.bsiusa.com](http://www.bsiusa.com).



### Quadriga Automates Audio Archival

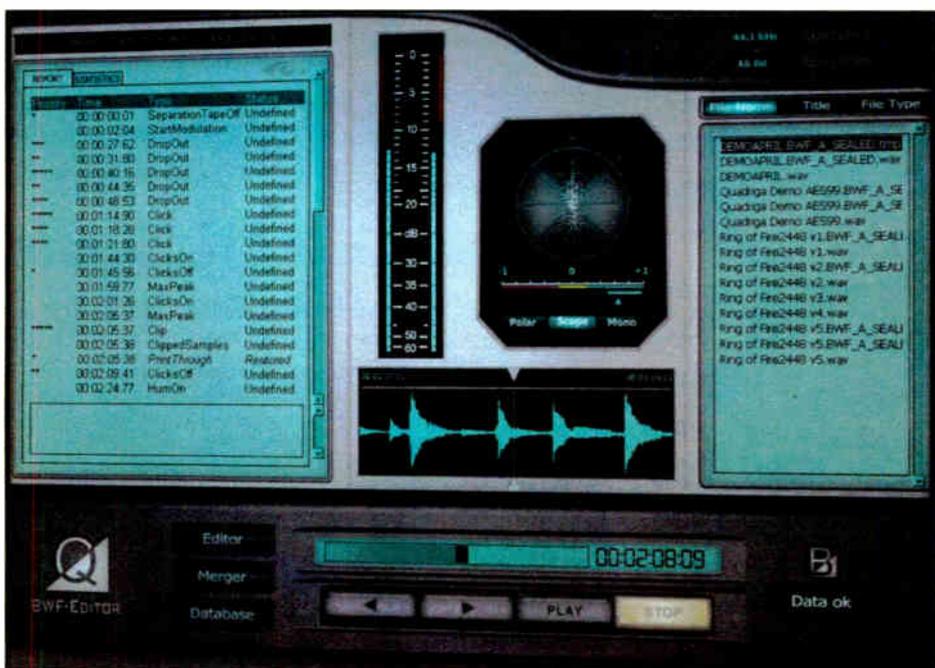
Quadriga is an automated capturing station for the quality-controlled A/D conversion of sound archives to digital interim data storage systems such as DAT or CD-R, or digital mass storage systems. Cubetec says the technology is unique to the AudioCube platform and provides automated monitoring and logging of analog and digital audio streams according to technical parameters of archiving.

These include audio dropouts, clipping, clicks, hum, signal-to-noise ratio, azimuth/phase, analog distortion error and splice identification and analysis. The captured audio data is stored in the standardized EBU Broadcast Wavefile Format (BWF) together with related metadata and error reports. Cubetec says this saves system operators from time-consuming procedures, provides levels of quality control and reduces archive transfer costs.

Real-time or faster-than-real-time Import modules are available for tape machine, turntable, compact cassette, CD, U-Matic, DAT and 9-pin-controllable machines. Quadriga was developed in cooperation with the Institute for Broadcast Technology (IRT) in Germany, so the system integrates into the workflow of most broadcast facilities.

European broadcasters that use Quadriga include Austrian Broadcast (ORF), North German Broadcast (NDR), Radio Bremen, Radio Swiss Romande (RSR), Southwest Broadcast (SWR), Swedish Broadcasting Corp. (SR), Swiss Radio (DRS), Swiss Radio International (SRI) and YLE - Finnish Broadcast.

For more information, including pricing, contact Sascom Marketing in Ontario, Canada, at (905)469-8080 or visit [www.sascom.com](http://www.sascom.com).



### Yamaha Debuts 01V96 Mixer

The Professional Audio division of **Yamaha Corp. of America** has introduced the 96 kHz-capable 01V96 digital mixer. Built on its predecessor, the 01V, the rack-mountable unit has 40 simultaneous mixing channels with 24-bit/96 kHz audio, stereo effects with 32-bit internal processing and automation, and new computer and ADAT interfaces.

The control surface, display screen and user interface allow analog-style hands-on operation. Eight user-defined keys are available for assignable functions.

Inputs 1-32 have independent gating/compression, parametric EQ, delay and two insert points. Four effect processors (two at 96 kHz) may be used simultaneously and 99 scene memories store snapshots of settings for instant recall. An external sequencer can be used for mix automation.

The 17 motorized channel faders can be layer-switched to control input or outputs. Inputs, outputs, effects and channel inserts can be assigned to channels or outputs via a digital patching system; a direct out function allows signal from any input channel to be routed to any digital or analog output.

In addition to ADAT I/O, the 01V96 provides support for computer-based recording software and digital audio workstations. Bundled Yamaha Studio Manager software is compatible with Mac and Windows platforms.

A single I/O slot will accept digital and analog I/O cards from Yamaha and third-party manufacturers, providing 16 inputs and outputs at 48 kHz (eight at 96 kHz).

The 01V96 will be available in April for \$2,499.

For more information, contact the company in California at (714) 552-9011 or visit [www.yamaha.com/proaudio](http://www.yamaha.com/proaudio).



### DARTech Builds on Dart Pro 98

DARTech's Dart XP Pro software provides recording, audio restoration, noise reduction and removal and CD burning.

The program supports digital and analog formats. DARTech says the XP Pro improves on its Dart Pro 98 by redesigning certain tools including DeClick Plus, DeHiss Plus FFT/AR, DeNoise Plus FFT/AR and DeVocalize. It also adds digital effects processing such as reverb, shift pitch and speed up/slow down.

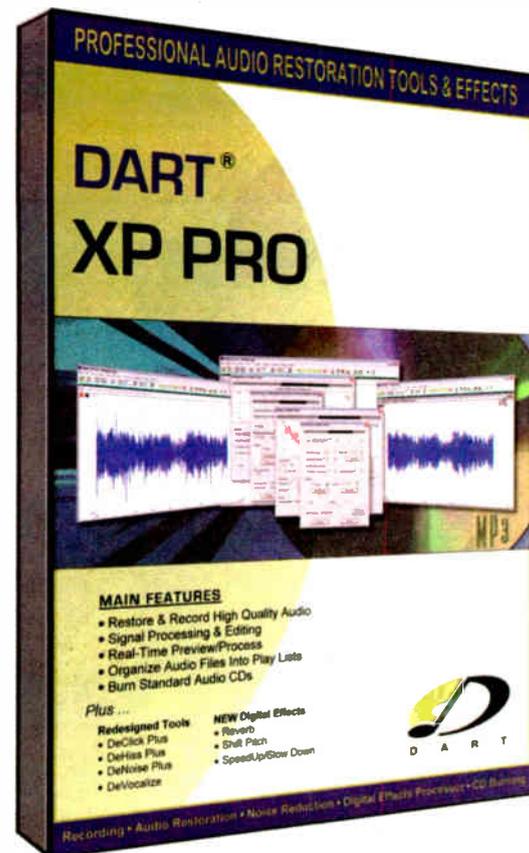
The FFT/AR option offers wideband noise reduction and gives the user two methods of spectrum estimation: the nonparametric (Fast Fourier Transform) approach and the parametric (Autoregressive) approach. Both methods of spectral analysis can be used simultaneously.

Dart XP Pro supports real-time tools and users can listen to the results while adjusting the restoration controls.

It also lets users define, test and execute restoration tasks such as multi-stage filtering, or declipping in reverse time, declipping combined with dehisssing or denoising and comb filtering.

Suggested retail price is \$199.95. Current users can upgrade to Dart XP Pro for \$99.99.

For more information, contact the company in Minnesota at (800) 799-1692 or visit [www.dartech.com](http://www.dartech.com).



# SH SHOWCASE SE

## Products & Services

### Control Solutions by CircuitWerkes



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The SEN-6 is a single channel Subaudible tone encoder with integral audio filtering that can produce 25Hz, 35Hz and combination tones from external closures.



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#### The SUB-03 Subaudible Tone decoder

The SUB-03 is a single channel subaudible tone decoder that can detect 25Hz, 35Hz and combination tones on audio channels. Each tone gives a distinct relay closure. Integrated filters strip each tone from the SUB-03's audio output so no one hears it.



#### The DR-10

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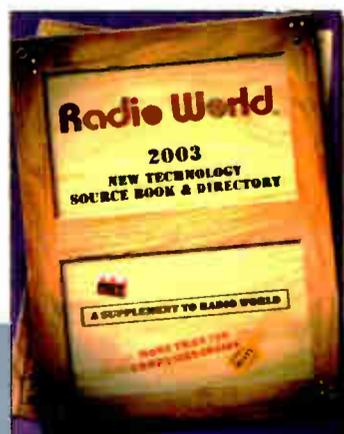
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TECH UPDATES

## Orban Introduces Optimod-PC 1100

Orban's Optimod-PC 1100 is designed to run on Windows 2000 and Windows NT. Version 1.0 of the Optimod-PC control software and driver can control Optimod-PC cards on a local computer or anywhere on a network.

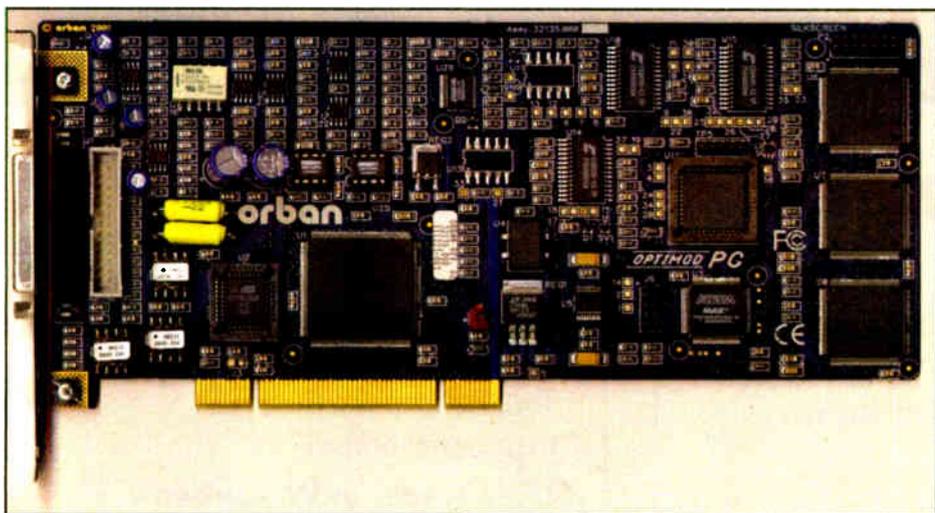
Orban says the Optimod-PC brings its Optimod 6200 processing inside the computer at lower cost than its stand-alone 6200 or 6200S processors. This processing is optimized for digital transmission channels that use lossy compression, like Internet streaming and digital radio.

With a PCI expansion chassis, a computer typically can support up to 12 cards, each processing stereo audio. Without an expansion chassis, the limit is four (determined by available free PCI slots). By adding host computers to the network, one Optimod-PC application can control an unlimited number of cards.

While Orban targets the Optimod-PC for streaming because of its ability to connect to applications like Windows Media Encoder or Helix Producer through Windows' WAV mechanism, the company says it is also a professional-quality sound card with analog and AES/EBU inputs and outputs that allow it to emulate a hardware processor in digital radio and production studio applications. On-board Motorola 56362 DSP chips perform the audio processing, freeing the host computer's CPU for other tasks.

The suggested U.S. retail price is \$1,490.

For more information, contact the company in California at (510) 351-3500 or visit [www.orban.com](http://www.orban.com).



## SX-1 Is Standalone Tascam Production Tool

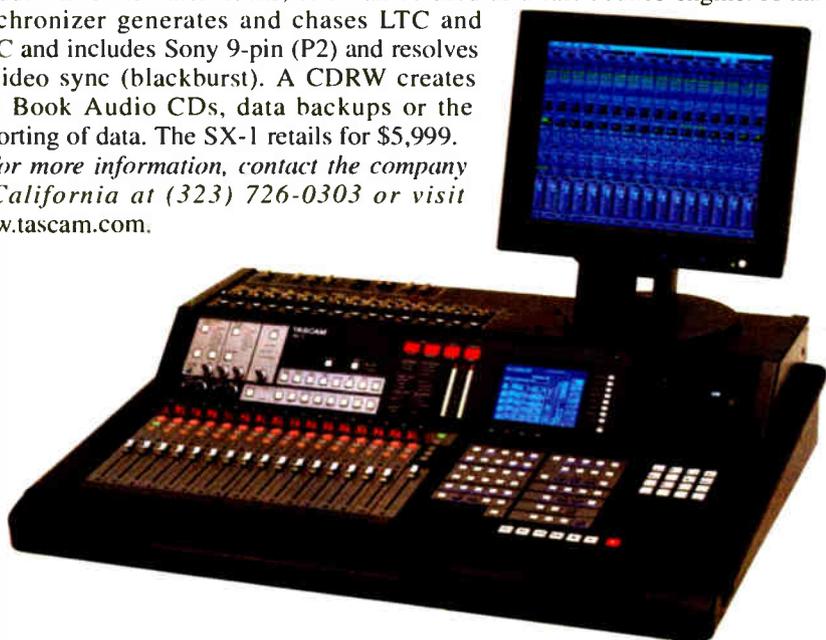
Tascam's SX-1 is a standalone production tool that integrates a 40 x 8 digital mixing console, a 128-track MIDI sequencer, a 16-track hard-disk recorder, a separate six-track stem recorder, a professional hardware synchronizer and a CD-RW drive.

Its size and feature set make it a suitable production piece for broadcast production, professional songwriters, commercial recording facilities and sound-for-picture post-production. The digital mixing console has 100mm touch-sensitive faders with automation, DSP plug-in effects and flexible routing.

The 128-track MIDI sequencer offers Step Record, non-destructive Transpose and Quantize, individual track offset and Piano Roll and Event List editing. The 16-track Hard Disk Recorder natively reads and writes time-stamped Sound Designer II and Broadcast WAV files and can mount FAT32, HFS and HFS+ drive formats. Tascam asserts that it has the best punch performance of any DAW or standalone.

A separate six-track stem recorder can be used to print a discreet 5.1 mix to a disk, in addition to the other tracks, or it can be used as a fast bounce engine. A hardware synchronizer generates and chases LTC and MTC and includes Sony 9-pin (P2) and resolves to video sync (blackburst). A CDRW creates Red Book Audio CDs, data backups or the importing of data. The SX-1 retails for \$5,999.

For more information, contact the company in California at (323) 726-0303 or visit [www.tascam.com](http://www.tascam.com).



## Antex LX-44 Allows Multiple Configurations

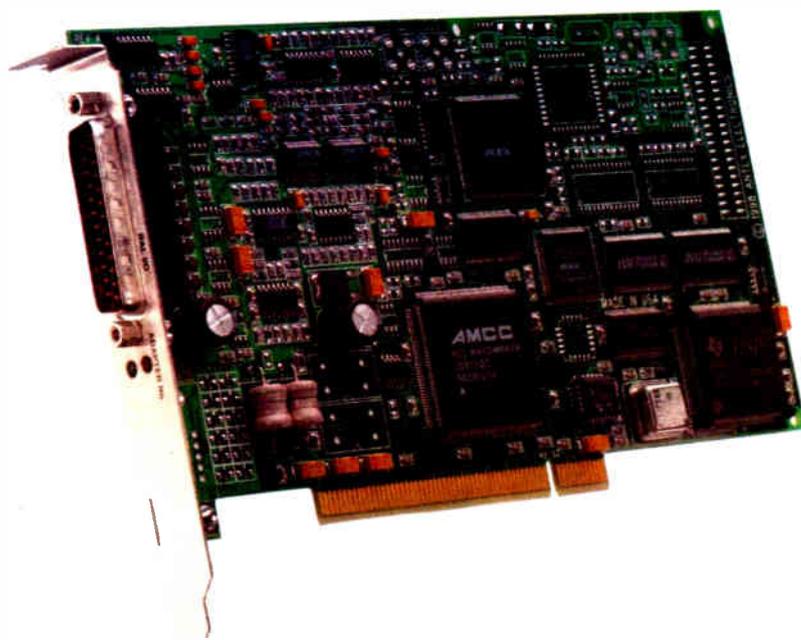
The Antex LX-44 PC-compatible digital audio card offers simultaneous multitrack record and play functionality. The company says it is suitable for system integrators, developers and end-users of DAWs, for broadcast automation, audio recording and archiving and other uses.

Four balanced analog input channels can simultaneously mix the eight virtual stereo devices to any of the four balanced analog outputs. Input and output connections are via 25-pin D-sub connector.

The LX-44 can record or play from disk eight- or 16-bit linear PCM digital audio files at sample rates, variable under software control, from 6.25 to 50 kHz; it uses 20-bit A/D and D/A converters. XLR connectors are available optionally as a 12-inch cable set or via a passive, rack-mounted break-out box.

Multiple cards can be configured in the same system to achieve eight-, 12- or 16-track simultaneous recording or playback. Software drivers for Window 95/98/NT and Win2000/XP are provided and a documented software developers kit (SDK) is available free via the Antex Web site. The LX-44 is available for \$720.

For more information contact the company in California at (310) 532-3092 or visit [www.antex.com](http://www.antex.com).



## BIAS Spans Digital Audio Range

BIAS is promoting a range of digital audio products: the Peak 3.2, Deck 3.5, Vbox 1.2 and the SuperFreq.

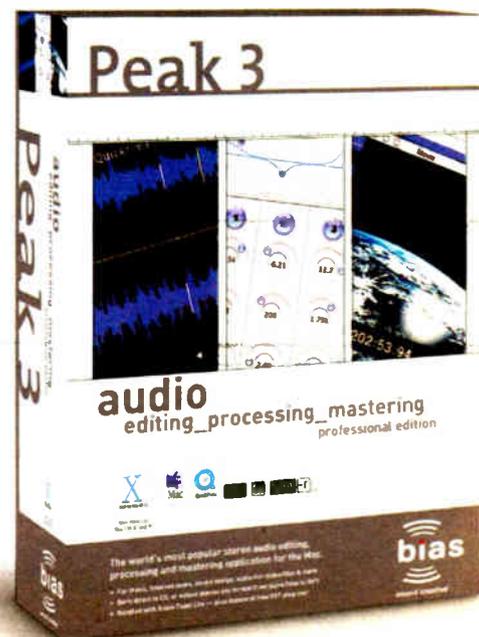
The Peak 3.2 is an audio editing, processing and mastering system for Macs from OS 8.6 through 9.2 and X native. It supports the user's Mac's audio as well as third-party hardware via Sound Manager or Apple's CoreAudio standard for multi-channel and multi-client hardware. It is priced at \$499.

The Vbox 1.2 is a multi-effects control environment for VST plug-ins, operating under Mac OS 9 and now OS X or Windows. BIAS says that the Vbox has updated plug-ins to give users creative command over signal-processing options. It works either freestanding or integrated into a VST host program — including BIAS Peak, BIAS Deck, Steinberg Cubase, and others — where users can process and save an audio file or record, process and save a live feed. The Vbox lets users combine, route and mix up to hundreds of plug-ins per channel and is priced at \$99.

The SuperFreq is a real-time 10-band parametric EQ. It is a Carbon Event-driven OS X plug-in and has several EQ features. Optionally, it can be launched as a four-, six-, or eight-band parametric EQ, as well as the standard 10-band. BIAS says SuperFreq is one of the first Mac OS X-native plug-ins, and works within any Carbonized VST host application — such as BIAS Peak, Deck or Vbox—and under Mac OS 8.6 through 9.2.x. It is available as a download for \$79.

The Deck 3.5, a multitrack digital audio workstation, has been upgraded to support OS X and OMF. Customers can use spot effects, edit dialog, process soundtracks, record ADR-style voiceovers and craft mixes to stereo or 5.1 surround. It has up to four real-time effects plug-ins per track and has audio tools, including surround mixing, which BIAS says suits it to multimedia development. It costs \$399.

For more information contact the company in California at (707) 782-1866 or visit [www.bias-inc.com](http://www.bias-inc.com).



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TECH UPDATES

## Fast Edit 4.0 Increases Resolution

Fast Edit 4.0 from **Minnetonka Audio Software** now supports 16-, 24- and 32-bit resolution at sample rates of up to 96 kHz. It also supports Direct-X processing in both real-time and offline processing modes as well as multi-tasking, which allows editing during playback.

The Fast Edit user interface remains unchanged in FE 4.0, and Minnetonka says beginners can learn quickly to produce professional results for radio stations and production facilities.

Included with Fast Edit are two bonus programs from Minnetonka Audio Software: the Sound Catalog and the Playlist Editor. Sound Catalog lets users create custom-label buttons to be used for playing sound files located in the catalog. These buttons can be used to trigger sound effects, for example, while playing the on-screen stereo track.

The Playlist Editor allows sequential or one-time play of sound segments from the list of sound files in the computer. List price for Fast Edit 4.0 is \$199; an upgrade from older versions is \$99.

For more information, contact the company in Minnesota at (952) 449-6481 or visit [www.minnetonkaaudio.com](http://www.minnetonkaaudio.com).



## Digidesign Focuses on Digital Audio

Digidesign has several recent digital audio production products on the market: Mbox, Digi 001 and Digi 002.

Mbox is a USB-powered "studio in a box" that works with a PC or Mac to provide a portable audio production system. It consists of a small, upright I/O unit and 32-track Pro Tools LE software, with 128 MIDI tracks and real-time plug-in support. (The Mac version supports 24 tracks.)

The Mbox includes stereo analog I/O (combo jack ins, 1/4-inch outs) with two Focusrite mic preamps, stereo S/PDIF I/O (RCA) and 48V phantom power.

Digigram says the Mbox has near-zero latency monitoring, a pair of 1/4-inch inserts and headphone monitoring as well as a 24-bit signal path, 48 kHz sample rate support, a headphone output with dedicated volume control and separate source selection (Mic/Line/Inst) and gain control per channel.

Separately, the Digi 001 comprises a 1U rack-mountable I/O unit, a PCI card installed in a PC or Mac and the Pro Tools LE software. Complementing its 18 simultaneous channels of analog and digital I/O, MIDI I/O and two mic preamps, Digi 001's Pro Tools LE software provides 32 tracks of record and playback, 128 MIDI tracks, real-time plug-in support and other features.

Working with a PC or Mac through a FireWire connection, Digi 002 pairs 32-track Pro Tools LE software with 18 channels of simultaneous I/O (analog and digital), a 1-in/2-out MIDI interface and an integrated control surface with motorized, touch-sensitive faders, multi-purpose rotary encoders, scribble strips, transport controls, mute, solo and select buttons and comprehensive monitoring.

Features include a 24-bit signal path, up to 96 kHz sample rate support, four mic pre-sets, 48V phantom power, control surface plug-in manipulation, an additional FireWire port for external drives or other peripherals, connections for RCA-based/-10 dBV outboard gear and dedicated headphone monitoring. Also, in Standalone mode, Digi 002 serves as an 8x2 digital mixer with EQ, dynamics, effects and snapshots (Pro Tools is disabled in this mode).

For more information, including pricing, contact the company in California at (800) 333-2137 or visit [www.digidesign.com](http://www.digidesign.com).



The Digi 002

## Mackie Pushes Desktop Production

Mackie has introduced several new digital products with a focus on hybrid desktop production.

The company says its D8B digital mixing console with Version 5 software, D8B v5, has a new HUI Layer for Pro Tools compatibility, improved FAT Channel functions, an updated graphic user interface, independently configurable effects inputs and outputs for effects routing, Event Editor integration into the Mix Editor and 5.1 surround monitoring.

The Soundscape 32 embedded digital audio workstation has received two upgrades. The Soundscape Version 3.7 software features track arming on the fly, a "gapless" punch-out preference, punch-in recording, copy and paste functionality and additional video file player support. With Console Manager 1.5, Mackie says Soundscape users can have optical touch-sensitive faders and editing control without a mouse/keyboard combination. The Mackie Control and Baby HUI control surfaces can connect to the Soundscape via a standard MIDI interface.

The Mackie UAD-1 DSP Powered Plug-Ins card, with version 3.0 software, has a multichannel capability. Version 3 also supports the Cambridge EQ plug-in and gives DirectX for Cakewalk's SONAR. Mackie will soon introduce a DSP card in the UAD family, the UAD-8 I/O, which comes with the same plug-ins as the UAD-1, but with eight channels of digital I/O.

The Mackie HDR24/96 hard disk recorder/editor now is compatible with Digidesign Pro Tools via HDR Pro software and FireWire drive bay package. The HDR Pro software converts HDR24/96 audio files from WAV to Sound Designer II (.sd2) files and creates a Pro Tools Session file that can be opened directly in Pro Tools.

HDR Pro also will import a supported Pro Tools Session file (Mac versions 3- 5.x) and corresponding .sd2 files directly into an HDR Project. All this is transferred through the FireWire bay fitted with a Mackie Media M90 removable drive.

For more information, including pricing, contact the company in Washington State at (800) 258-6883 or visit [www.mackie.com](http://www.mackie.com).



## Lynx Sound Cards Link Studio Gear

Lynx Studio Technology's L22 PCI audio interface card and companion LS-AES and LS-ADAT expansion cards promise reference-quality analog I/O and options for multi-channel AES/EBU and ADAT digital I/O.

Combining them provides an approach for integrating digital consoles and studio equipment with Windows or Mac workstations.

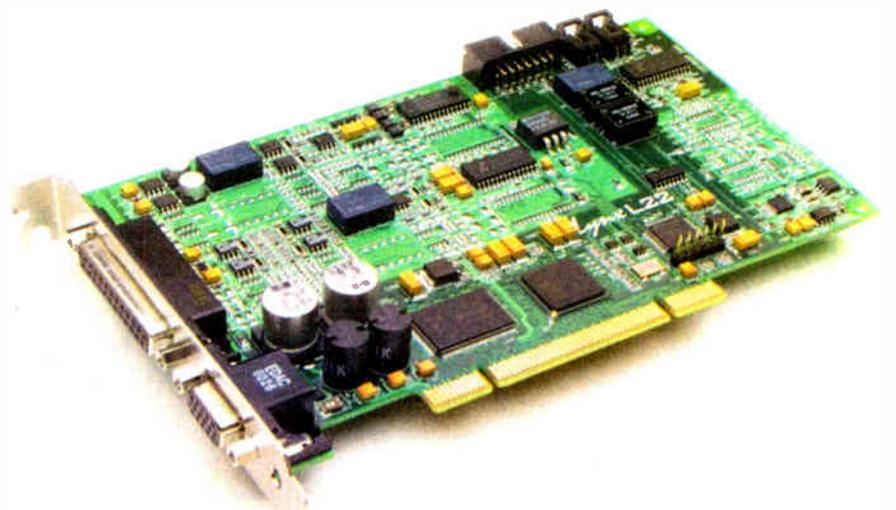
The L22 offers two balanced analog inputs and outputs supporting 24-bit/192 kHz and 117 dB dynamic range; the company says it uses proprietary circuit topologies with low-jitter clocking. Features include AES/EBU or S/PDIF digital I/O with SRC, external clock synchronization and a 32-channel mixing processor. The L22's LStream expansion ports connect to the LS-AES and LS-ADAT expansion cards.

The LS-AES provides eight channels of AES/EBU digital I/O at sample rates up to 96 kHz and four channels at 192 kHz. Connections are transformer-coupled with pro-quality sample rate conversion available on inputs. The LS-AES is compatible with Dolby Digital and DTS-encoded formats.

The LS-ADAT is an ADAT interface that provides two ADAT lightpipe inputs and outputs and an ADAT Sync In Port. Operating at a sample rate of 48 kHz, the LS-ADAT I/O channel capacity is 16. Higher sample rates are supported using S/MUX technology: eight channels at 96 kHz and four channels at 192kHz. The Sync In Port provides sample-accurate synchronization.

For Lynx products, MME and ASIO drivers are provided for Windows operating systems and for Mac ASIO applications.

For more information, including pricing, contact the company in California at (949) 515-8265 or visit [www.lynxstudio.com](http://www.lynxstudio.com).



## TECH UPDATES

## ENCO Enhances Production Tools

ENCO Systems is touting two production tools aimed at different aspects of radio broadcasting: Qed and CoolDAD.

Qed is a PC-based two-track editor for on-air use in recording phone calls or similar fast-paced recording work. It is a standalone application that works with standard WAV files and works with CartChunk for transfer to most automation systems.

Supporting a SoundBlaster-type sound card, Qed is non-destructive and has a single screen interface. Left and right channels can be edited independently, and Qed allows insertion of bleeps, silence and reversing selected audio. Ten hot keys across the top of the screen allow fast access to sound bites.

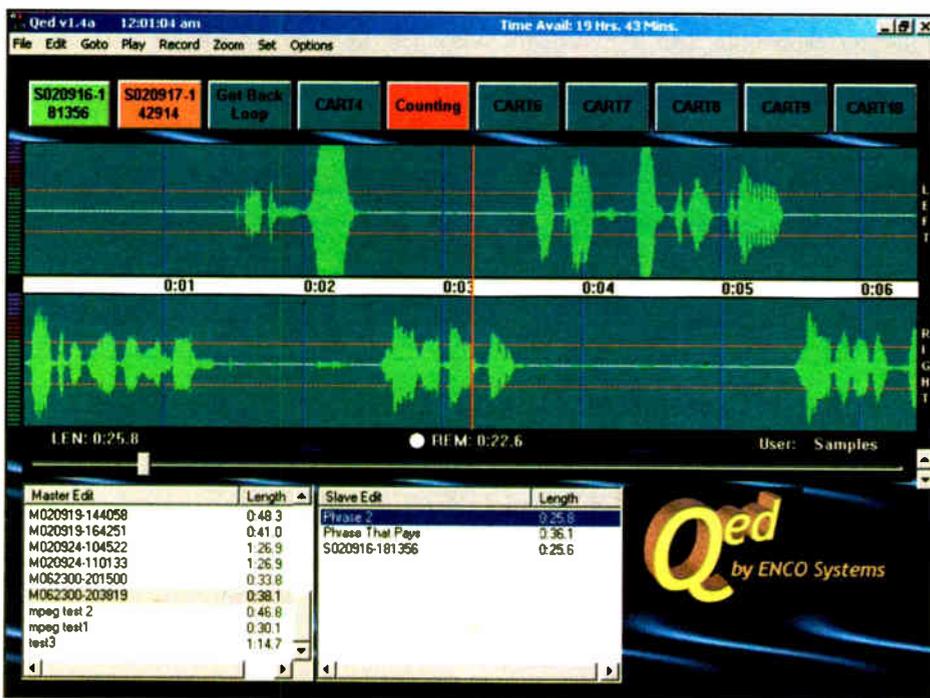
Qed supports the USB ShuttlePro Jog/Shuttle controller and requires a Windows 2000 PC with 256 MB of RAM and a SoundBlaster or clone sound card. The Qed costs \$495 with the optional jog/shuttle controller at \$150.

Another production tool is compatible with the DADpro32 Digital Audio Delivery System. The product is an interface that allows DAD users to implement and, ENCO says, nearly integrates Syntrium Software's Cool Edit Pro and Cool Edit 2000 as a primary editor for DADpro32.

With CoolDAD, users can access Cool Edit directly from DAD, save and manipulate pointers within audio files, load, edit and save files as MPEG Layer II files and add CartChunk data to audio files.

The CoolDAD interface requires DADpro32, Cool Edit Pro or Cool Edit 2000 and costs \$495.

For more information, including pricing, contact the company in Michigan at (248) 827-4440 or visit [www.enco.com](http://www.enco.com).



ENCO Systems' Qed

### Quick Edit Pro Speeds Radio Editing

Jutel's Quick Edit Pro is a multi-track audio editor for radio journalists, newscasters and others working on deadlines. Quick Edit Pro is a member of the Jutel RadioMan product family and comes with playback, recording and basic and multi-track editing functions.

Radio production tools are listed on screen. Jutel says users learn quickly and that the compact solution allows them to create from their desktop or laptop.

The Quick Edit Pro incorporates a graphic interface and Windows standards so that users do not have to learn shortcuts and commands. It helps journalists minimize editing time by remembering users' personal preferences.

Users can specify keyboard or toolbar shortcuts to editing commands to save more time.

The Quick Edit Pro supports Digigram PCX boards, Windows-compatible sound cards and multiple audio boards as well as Windows NT, Windows 2000 or Windows XP.

Supported audio file formats are raw MPEG, Broadcast Wave Format (BWF), MPEG Layer 1-3, PCM 8/16 bits, RealAudio, mono/stereo. It samples frequencies of 16, 22.050, 24, 32, 44.1 and 48 kHz.

The product integrates with the RadioMan and Associated Press ENPS (Electronic NewsProduction System) joint operational package. Jutel says the package provides the speed and efficiency of the Jutel RadioMan data connection without the need to purchase the entire package.

The product also works as a standalone application and can be connected to RadioMan home-sites through an FTP connection on the Internet.

For more information, including pricing, contact the company in Finland at (358) 8 551 4856 or visit [www.jutel.fi](http://www.jutel.fi).

### Audion's VoxPro Edits On-Air Audio

VoxPro PC software, from Audion Laboratories, provides digital editing of voice and phone recordings with host and caller on separate channels. Commands may be executed on a computer keyboard or on the optional VoxPro control panel measuring 8 x 10 inches.

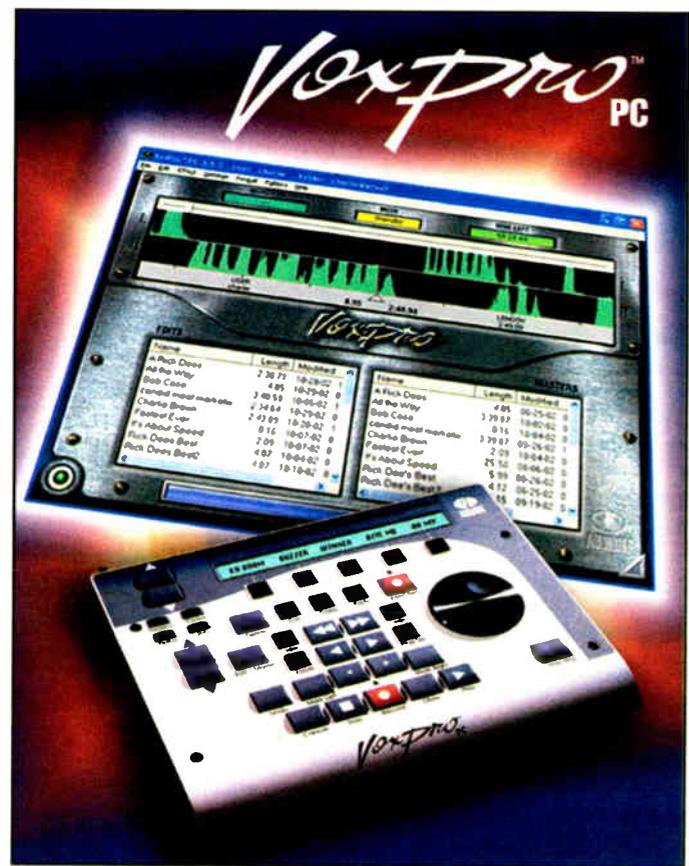
VoxPro features include importation of popular file types, multiple file export in most formats, VoiceSlip, which automatically separates host/caller talk over, one-button insert record, jog wheel or button audio scrub and undos and redos for the life of the recording.

Remote starts include record, play, play from beginning and stop. It has Opto-Iso tallies for On-Air light and playing HotKeys through the console, one screen for all functions and one-button record in any mode.

VoxPro PC Network, an optional plug-in, allows users to access accounts and files from any networked VoxPro PC on their station's existing NT, Novell or peer-to-peer network. Audion says the VoxPro Network also lets teams of air talent and producers, or news staff and producers, create recordings that automatically appear on each other's screens ready to play or edit.

VoxPro Network requires two or more computers connected with Cat-5 network cable using a 100Base-T switch. VoxPro PC system requirements include Pentium III or higher, Win 2K or XP, USB or serial port, 128 MB RAM (256 for XP), 20 GB hard drive and SVGA monitor 800 x 600 with 16-bit color.

For more information, including pricing, contact the company in Washington state at (206) 842-5202 or visit [www.audionlabs.com](http://www.audionlabs.com).



## What's Ahead in: Buyer's Guide

Issue Date	Topic
April 7	Mics, Speakers & Amps
May 7	Transmitters
June 4	Audio Processing
July 2	Consoles, Mixers & Routers
Aug. 1	Codecs & Telco
Sept. 1	Studio Design & Furnishings
Sept. 24	Audio Sources
Oct. 22	Automation & Digital Storage
Nov. 19	Signal Monitoring, Remote Control & Test
Dec. 17	Antennas, STL & Transmission Support

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API 0361 3.5" VU meters, A & B scales available, \$35 each; Assorted VTC audio transformers, A-20, LS-33, LS-30, some N.I.B. Delinta, 972-641-0271.

Burk EAS unit, taken out of service 6 months ago, appears to be configured for an external printer, powers on, plays EAS message correctly. \$1200/BO +free shipping. Robert Sims, KCAS, POB 8106, Mission TX 78572. 956-424-9098.

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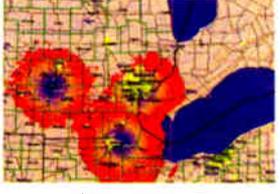
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**Want to Buy**

Two card extenders for Continental 816RA2 transmitter. Bob Rivkin, KPLM/KJZ, 441 S. Calle Encilia #8, Palm Springs CA 92262. 760-320-4550.

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21	Broadcast Tools	www.broadcasttools.com
30	Broadcast Warehouse	www.broadcastwarehouse.com
24, 25	BSW	www.bswusa.com
32	Burk Technologies	www.burk.com
4	Burk Technology	www.burk.com
36	Circuit Werkes	www.circuitwerkes.com
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# Bush: 'Challenge Your Listeners'

The following are excerpts from President Bush's address to the NRB convention in Nashville in February.

For more than 80 years, America's religious broadcasters have been sharing the gospel on the airways. You bring words of truth, and comfort, and encouragement into millions of homes.

Broadcasting is more than a job for you. It is a great commission. You serve with all your heart and soul and America is grateful. Each one of you knows that the power of faith can transform a life. People of faith and goodness and idealism also have the power to transform our neighborhoods and our nation. I've set a great goal for America. We must apply the great compassion of our people to the deepest problems of this country.

This country is blessed with virtually millions of good-hearted volunteers who work daily miracles in the lives of their fellow citizens. And today I ask our religious broadcasters, those who reach into every corner of America, to rally the armies of compassion so that we can change America one heart, one soul at a time.

## Human dignity

The American people have deep and diverse religious beliefs, truly one of the great strengths of our country. And the faith of our citizens is seeing us through some demanding times. We're being challenged. We're meeting those challenges because of our faith. ...

In times of tragedy, faith assures us that death and suffering are not the final word; that love and hope are eternal. Religious faith not only comforts, it challenges. Faith teaches that every person is equal in God's sight, and must be treated with equal dignity here on earth.

This idea of human dignity forces us to constantly examine our own country and our own hearts. And this ideal has inspired some of the great reforms in American history. People of faith led the struggle against slavery. People of faith fought against child labor. People of faith worked for women's equality. And people of faith worked for civil rights.

And in America today, people of faith are doing the work of compassion. So many good people are serving their neighbors because they love their God. The spirit of service is vital because the need in America is great. There are pockets of despair and loneliness and hopelessness in America.

We do not accept as a fact of life that some Americans must endure permanent poverty or bigotry or childhood without love and guidance. Our work as Americans is not complete until we build a single nation of justice and a nation of opportunity.

Government, of course, must be involved and will be involved. We just reformed our welfare in America and we've helped a lot of people. Yet, even as we work to improve the welfare laws, we know that welfare policy will not solve the deepest problems of the spirit. ...

This economy of ours is growing okay; it can be better. As a matter of fact, we've got plans in place to encourage job growth, ways to stimulate the entrepreneurial spirit of the country, encourage small business

expansion so that people can find work. Yet, there are some needs that prosperity can never meet.

## God's love

We've arrested and we convict criminals; yet building more prisons will not substitute for responsibility and order in our souls. The role of government is limited, because government cannot put hope in people's hearts, or a sense of purpose in people's lives. That happens when someone puts an arm around a neighbor and says, God loves you, I love you, and you can count on us both.

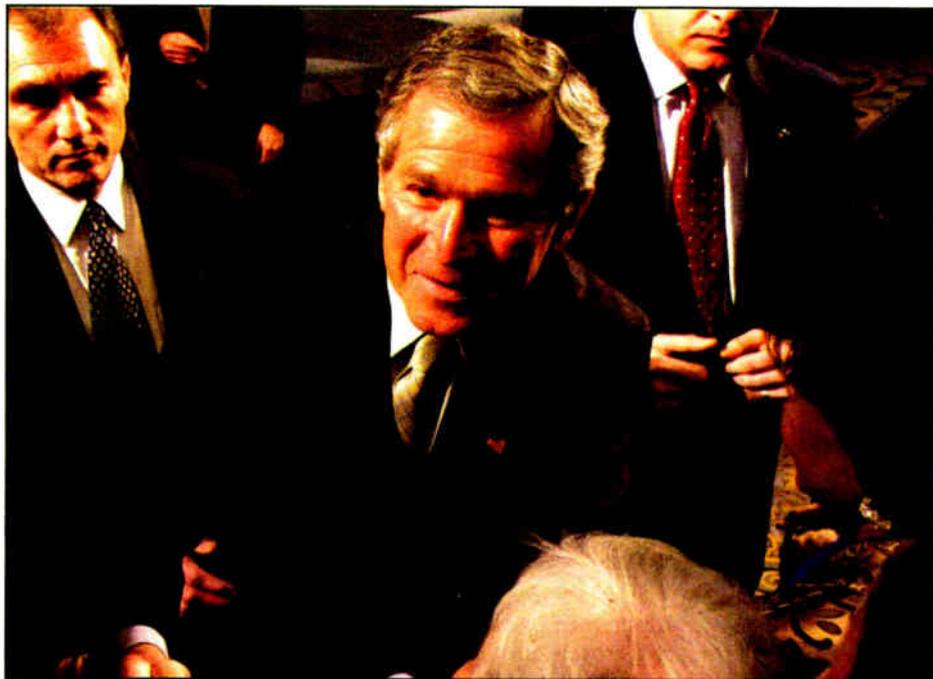


Photo: Jim Whitmer for NRB

And it is that spirit which defines some of the most effective social programs in America. It is that spirit of love and compassion which makes healing lives work.

Yet, for too long, some in government thought there was no room for faith-based groups to provide social services. I have a different point of view. I believe government should welcome faith-based groups as allies in the great work of renewing America.

I welcome faith. I welcome faith to help solve the nation's deepest problems. I understand that government must not and will not endorse a religious creed, or directly fund religious worship. That's obviously not a role of government, and that's not what we're talking about here.

But governments can and should support effective social services provided by religious people, so long as they work and as long as those services go to anyone in need, regardless of their faith. And when government gives that support, it is equally important that faith-based institutions should not be forced to change the character or compromise their prophetic role.

I think the charities helping the needy, it should not matter if there is a rabbi on the board, or a cross on the wall, or crescent on the wall, or religious commitment in the charter. And he'd ask, does it work? If an earthquake or hurricane damages a Christian, or Jewish, or Muslim school, that school should not be denied federal disaster assistance because of its religious character.

What I'm saying is, the days of discriminating against religious groups just because they're religious are coming to an end. I have issued an executive order ban-

ning discrimination against faith-based charities and social service grants by federal agencies. I continue to work with members of Congress of both political parties to enact faith-based legislation to encourage more charitable giving, so we're more likely able to rally the armies of compassion. We created faith-based offices in key Cabinet departments to ensure that faith-based groups get equal treatment and fair access to government funds.

I recognize some people around our country asking, what does this faith-based initiative mean? And is it a threat to my very program? And so we're holding

those who hurt.

America's religious broadcasters can really play an important role in this work, and I want to discuss what I think that role can be, and make a few suggestions today.

Christian media outlets like yours reach 141 million people every year. That's a huge audience, and it's a responsibility that I know you take seriously. This nation has got a lot of wealthy and caring congregations, and we've got a lot of churches in low-income areas that need help, too. Your voices reach them all; you can communicate with them, rich and poor, alike; suburban church and urban church, alike. And you can help bring them together to serve those who hurt, so we can achieve a more just and generous society.

It's been said that 11 a.m. on Sunday is the most segregated hour in America. We all have a responsibility to break down the barriers that divide us. In Scripture, God commands us to reach out to those who are different, to reconcile with each other, to lay down our lives in service to others. And He promises that the fruits of faith and fellowship, service and reconciliation will far surpass the struggles we go through to achieve them.

Suburban churches are often just a short drive away from brothers and sisters who are facing great need, and doing God's work. There's an opportunity here to end artificial divisions and join together in fellowship and service. There's also an obligation. The poor and suffering are the responsibility of the whole church, even when they're not members of any church.

## Great things

When a suburban church and an urban church become full partners, great things can happen. Both churches benefit. The Chicago Christ Church of Oak Brook, and Lawndale Community Church are working together to serve the sick in Lawndale's health care clinic for the poor. In Boston, Wellesley Congregational Church and the historic Charles Street AME Church are creating a new center to boost the reading and computer skills of Roxbury residents.

Right here on the outskirts of Nashville, Tennessee, in Franklin, Tennessee, a conversation between an associate pastor of Christ Community Church and the pastor of First Missionary Baptist Church began a fellowship that now includes nearly 60 pastors and church members of all different races and denominations. ...

In all these partnerships lives are lifted up. We see unity and racial reconciliation. We see faith renewed by its works.

So today I ask you to challenge your listeners to love somebody just like they'd like to be loved themselves; to remind them that one person can make a difference in somebody's life; to encourage them, to mentor; to encourage them to start a ministry, which will find the children of those who are incarcerated and love them. I ask you to challenge your listeners to encourage your congregations to work together for the good of this nation, to work hard to break down the barriers that have divided the children of God for too long.

There is no question that we can rid this nation of hopelessness and despair, because the greatest of America is the character of the American people. We are a compassionate country, and we are generous toward our fellow citizens. And we are a courageous country, ready when necessary to defend the peace. ...

◆ READER'S FORUM ◆

Tower bird kills

If the bottom ever falls out of the engineering market, Fred Baumgartner can keep me rolling on the floor with tales like this one ("The Myth of the Tower-Kill Bird Massacre," Reader's Forum, Feb. 1).



I've worked around a tower of more than 800 feet for over 10 years. And much to my dismay, I've found an occasional dead bird near the base of the tower.

But unlike accusations of the "get rid of towers/save the songbirds" folks, these birds did not make the trip to "bird heaven" by flying blindly into the tower, but were brought to their demise by some moronic neighbor who enjoys shooting them off the tower.

With absolutely no scientific fact to back up my observation, I have noted birds use the tower for a great perch from which to clean their dinner. I don't know how often I've seen a red-tail hawk, perched near the lower obstruction lamps (135 feet), swoop gracefully down to ground level and snatch a quick lunch of blue racer, garter snake or, perhaps, even a tasty field mouse.

In fact, once we had a red tail "buzz" a tower climber, just to keep him honest (and, I presume, away from the hawk's lunch).

Just as birds occasionally fly into my patio doors in my walkout basement (6 feet below ground), I'm sure they occasionally do fly into towers. But 30,000 at one time? Sure! And we had a flock of monkeys and flying pigs hit our tower during an eclipse of the moon.

Mike Seaver
Chief Engineer
KHQA(TV)
Quincy, Ill.

Fred's article is a unique, logical way to look at this, which may debunk the whole issue. Something smells with "Tower Kill," whether it's USFWS or fowl is yet to be seen.

Let's keep questioning these claims. Will the "Professor Mike Bellesiles" fiasco at Emory University be repeated here at Cornell?

Rick Nudd
Walworth, N.Y.

Fred Baumgartner's opinion piece is as unfounded an opinion piece as I've ever read. The Eau Claire tower bird deaths that he writes about did not occur in 1974, and did not involve geese.

The Eau Claire tower kills cited by the U.S. Fish and Wildlife Service happened on Sept. 20, 1957, a foggy night during fall migration when 20,000 birds were killed, and on a two-night foggy period Sept. 19-20, 1963, when 35,000 birds were killed.

Dr. Charles Kemper was the man who discovered, collected and tallied these birds. They encompassed at least 46 species, including warblers, vireos, tanagers and thrushes, but not a single goose that I've read of in any account. These species weigh between one-fifth of an ounce and two-thirds of an ounce.

Dr. Kemper (a medical doctor) and the graduate students he enlisted to help him document the kills were actual eyewitnesses and produced many photographs, which were included in articles in "The Passenger Pigeon" (the journal of the Wisconsin Society for Ornithology) and other jour-

Don't Shoot the Messengers

We wrote in an earlier editorial that "consolidation and an over-reliance on market research have indeed helped make radio less exciting and more homogenous in most markets."

However, we must in fairness also state that not all people in radio blame their audience research gurus if stations pull weak numbers in the Arbitron ratings; nor do they condemn the audience research profession for "sanitizing" station programming.

Consolidation certainly has affected how research is used. Debt service is so huge that many station owners rely on what is known and safe. This attitude goes for programming and research, too.

Radio World has stated often that the industry should not blame the tools if they are misused. Research, like anything else, is what the user makes of it.

Research includes quantitative and qualitative methods. The proper method depends on the research question involved. Research gurus might design a quantitative survey, qualitative focus groups or experimental program testing, depending on the question.

Radio research can indeed be creative. Lee Abrams, criticized in some quarters and praised for his innovations in others, was one of the first FM programmers to use research creatively. Creative new formats of the past decade or so, such as The Wave in Los Angeles (which became Smooth Jazz) or the Triple-A format, were driven by research.

But many owners rely on the tried-and-true research designs. They also don't want to spend more money than they have to, understandably. These trends can indeed produce more consistency from market to market. And that delivers ratings.

According to one audience researcher, radio does lack intelligent research design. Any former PD can open a company and call himself or herself a researcher. Caveat emptor.

Market research is just one tool in our toolkit. It cannot overcome the impact of the economy or of consolidation.

— RW

Source Book Addition

This listing was omitted from the Radio World 2003 New Technology Source Book & Directory:

Energy-Onix Broadcast Equipment Co. Inc.
1306 River Street
Valatie, NY 12184
518-758-1690; 888-324-6649;
Fax: 518-758-1476
E-mail: energy-onix@energy-onix.com
Web: energy-onix.com
Products: AM and FM broadcast transmitters; Internet STL - "Tele-Link"; remote pick-up equipment (UHF & UHF); microwave STL.

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Table listing advertising sales representatives for various regions including US East, US West, Europe, Japan, and Latin America.

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America and the tropics of Central and South America) declined by 50 percent between the 1960s and the 1980s.

Towers were certainly not the only culprit; pesticides, picture windows, cats, automobiles and other serious problems are also to blame. But towers took an enormous toll, and songbirds simply cannot afford these kinds of losses anymore.

I strongly urge those of us who care about both birds and radio to support research to find the safest lighting colors and on-off patterns to minimize bird kills. Don't waste time and energy denying documented facts; rather, research ways to eliminate the problem.

Laura Erickson
Producer
"for the Birds"
Duluth, Minn.

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—ADMINISTRATION & PRODUCTION—

Table listing administration and production staff including Stevan B. Dana, Carmel King, Marlene Lane, Chuck Inderrieden, Eric Trabb, John Casey, Lisa McIntosh, Annette Linn, Melissa SE Robertson, Kathy Jackson, Sheryl Unangst, and Robert Green.

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